Exxon Valdez Oil Spill
Restoration Project Final Report

Update of the Status of Subsistence Uses in *Exxon Valdez* Oil Spill Area Communities

Restoration Project 040471
Final Report

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August 2006

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Washington, D.C. 2024

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Study History: The study was undertaken to update data on subsistence harvests and uses in *Exxon Valdez* oil spill area communities last collected in 1998 under Restoration Project 99471. Project goals, objectives, and methods were developed in response to Trustee Council recovery objectives for subsistence uses, an injured natural resource service, which were updated in 2002.

Abstract: The project updated information about subsistence harvests in 15 communities in order to evaluate the status of this injured natural resource service. In total, 544 households were interviewed. Subsistence harvests in 2003 averaged about 350 pounds per person and included a diverse range of species. Most households used, harvested, and shared wild foods. While overall community harvests approximated pre-spill estimates, about half the households reported lower total subsistence uses than before the spill and 39 percent blamed spill effects for continuing lower uses of at least one resource. Many respondents reported increased effort to harvest resources due to scarcities and competition. Confidence in eating clams is very low or eroding in eight study communities due to concerns about paralytic shellfish poisoning and spill effects. There were ambiguous findings regarding the role of elders and whether youth are learning subsistence skills. Respondents were often uncertain about the link between changes in their communities and the oil spill. Overall, 72 percent of respondents said that the traditional way of life has not recovered from the spill. The spill is an example of a technological disaster that is prolonged, difficult to interpret, and changes both the natural and social environments.

Key Words: Alaska, Alaska Peninsula, Cook Inlet, demography, *Exxon Valdez* oil spill, food safety, Kodiak Island, Prince William Sound, subsistence harvests, technological disasters

Project Data: *Description of data* – data were collected during systematic, face-to-face interviews with residents of the study communities. Data include demographic information, subsistence harvest estimates, and evaluations of natural resource and social conditions. *Format* – all data were entered into a database within an MS SQL Server. *Custodian* -- contact Brian Davis, Division of Subsistence, Alaska Department of Fish and Game, 333 Raspberry Road, Anchorage, Alaska 99518.

Citation:

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EXECUTIVE SUMMARY

Subsistence uses are a vital natural resource service that was injured by the *Exxon Valdez* Oil Spill (EVOS). In 1989, subsistence harvests declined, the diversity of uses shrank, participation in subsistence activities dropped, and transmission of skills and values to young people was disrupted. There was less use of wild foods because of concerns about oil-contamination and declines in resource populations. In later years, harvests rebounded, but this varied by household and community. In some cases people resumed subsistence uses despite misgivings about food safety, for cultural and economic reasons. Others reported increased costs for subsistence activities due to resource scarcity. In 1998, two-thirds of respondents stated that the traditional way of life of their communities had not recovered from the effects of the spill.

The restoration plan adopted by the EVOS Trustee Council lists subsistence as an injured natural resource service that has not yet recovered, with the following restoration objective:

> Subsistence will have recovered when injured resources used for subsistence are healthy and productive and exist at pre-spill levels. In addition, there is recognition that people must be confident that the resources are safe to eat and that the cultural values provided by gathering, preparing, and sharing food need to be reintegrated into community life.

The goal of this project was to update data on subsistence uses in 15 communities in the area affected by the *Exxon Valdez* oil spill, including Prince William Sound (Chenega Bay, Cordova, Tatitlek), lower Cook Inlet (Nanwalek, Port Graham), the Kodiak Island Borough (Akhiok, Karluk, Larsen Bay, Old Harbor, Ouzinkie, Port Lions), and a portion of the Alaska Peninsula (Chignik, Chignik Lagoon, Chignik Lake, Perryville). Project partners were the Division of Subsistence of the Alaska Department of Fish and Game, the Chugach Regional Resources Commission, Bristol Bay Native Association, and Kodiak Area Native Association.

The goals of the research were: to collect, analyze, and report information about current subsistence uses that is comparable with previous research (Restoration Project No. 99471) and that can be used to evaluate subsistence uses in light of the recovery objective; and to conduct the research as a collaborative effort. The goals were addressed through six objectives:

<u>Objective One: Collaboratively Develop the Survey Instrument</u>. During a planning workshop that involved representatives of the study communities plus project partner staff, previous findings were reviewed along with the survey form used in the last round of research. The instrument was revised based on input during the workshop.

<u>Objective Two: Hire and Train Local Research Assistants</u>. Through subcontracts with the project partners, local residents were hired and trained to conduct interviews.

<u>Objective Three: Collect Information on Subsistence Activities and Assessments of the Status of Subsistence Uses and Resources through Systematic Household Surveys</u>. The following information was collected during the household surveys for calendar year 2003:

1. Subsistence Harvest and Use Information
   a. Percentage of households using, attempting to harvest, harvesting, receiving, and giving away each wild resource
   b. Harvest quantities in numbers of animals, buckets, gallons, or other appropriate units
   c. Households' assessments of uses and harvests in 2003 compared to pre-spill years
   d. Relative harvest effort

e. Individual involvement in subsistence activities

f. Evaluations of food safety and resource availability

2. Demographic information for each household member, including age, sex, ethnicity, birthplace, and length of residency in the community

3. Information about qualitative aspects of subsistence uses that illustrate how well subsistence is being integrated back into community life. Approaches to these topics were discussed at the project planning workshop and built upon work done in 1998 and earlier.

4. Households' comments and concerns: open ended responses

Objective Four: Data Entry and Analysis. Collaboratively enter data and analyze survey results. This involved training local residents in data entry methods.

Objective Five: Data Review Workshop. Collaboratively review the study results and develop study findings and conclusions during a post--fieldwork workshop.

Objective Six: Prepare Final Report and Make Findings Available.

A project planning workshop attended by 30 people took place in early February 2004. A total of 544 household interviews were conducted, mostly in February and March 2004, an achievement of 77.2 percent of sampling goals. Of all contacted households, 13.2 percent declined to be interviewed, a low refusal rate consistent with previous rounds of surveys. A data review workshop, attended by 23 people, occurred in October 2004.

The report includes 15 chapters with study findings for each community. They include descriptions of harvests and uses in 2003 compared to other years, and discussions of factors shaping patterns of subsistence use, including resource conditions, food safety, the role of elders, the teaching of youth, and the status of the traditional way of life. A set of appendix tables provides detailed study findings by community for each survey question.

The final chapter summarizes study findings in light of the Trustee Council's recovery objectives. Assessing the recovery of subsistence uses requires the difficult task of separating the lingering effects of the oil spill from other factors that are concurrently occurring. These factors include environmental, economic, social, and cultural changes resulting from other processes active in the communities. Further, the EVOS was a chronic technological disaster: one that persists, is difficult to interpret, and which results in a changed natural and social environment.

The population of the 14 villages of the EVOS area dropped 12.2 percent from 1990 to 2003, while the state's population grew by 18.0 percent. Many villages have aging populations that are heavily skewed towards males. These demographic trends need to be factored in to any assessment of subsistence uses and the values and practices they support, and affect local residents' perceptions of the future of their communities and the status of oil spill recovery.

Evidence that subsistence uses are recovering that is related to the recovery objective that natural resource populations are healthy and exist at pre-spill levels includes the following:

- Subsistence harvests in 2003 were close to or exceeded available pre-spill estimates. Harvests ranged from 176 pounds per person in Cordova to 518 pounds per person in Perryville. For the 14 villages, the average was 346.3 pounds per person, compared to a pre-spill estimate of 352.0 pounds per person. These are substantial harvests and approximate average subsistence harvests in rural Alaska overall.
- The diversity of species used for subsistence purposes in 2003 matched or exceeded levels documented in pre-spill studies. In the 14 villages, the average household used 18.6 kinds of wild resources in 2003, compared to an average of 16.9 kinds before the spill. In Cordova, the average was 12.6 kinds in 2003, and 12.4 kinds before the spill.

- Most residents of the 15 study communities used wild foods and most participated in harvest activities.

However, evidence that subsistence uses are not fully recovered that is related to this recovery objective for subsistence includes the following:

- The Trustee Council lists only 7 injured resources as "recovered." Eight are "recovering," six "have not recovered," and the recovery status of five resources is unknown. Key subsistence resources that have not recovered include herring, harbor seals, clams, and intertidal communities.
- Harvests of key and culturally significant resources such as clams and harbor seals were lower in 2003 in most Prince William Sound, Cook Inlet, and Kodiak Island study communities compared to pre-spill levels.
- Almost half the interviewed households (46.5 percent) and a majority in 8 communities said that their overall subsistence uses were lower in 2003 than before the spill.
- Almost all the interviewed households (83.1 percent) said that their use of at least one kind of subsistence resource was lower in 2003 than before the spill, and 39.0 percent cited oil spill-related reasons for this decline.
- Many harvesters reported investing more harvest effort in 2003 than in earlier years, due to reduced resource populations but also due to competition with other users.
- Most survey respondents (78 percent) reported that in their view, injured subsistence resources have not recovered to pre-spill levels.

Evidence that subsistence uses are recovering that is related to the recovery objective that people view resources as safe to eat includes the following:

- Most respondents who offered an opinion (as opposed to saying "don't know" or "not certain") said that chitons, herring, and harbor seals are safe to eat.

However, evidence that subsistence uses are not fully recovered that is related to the recovery objective that people view resources as safe to eat includes the following:

- Confidence in the safety of eating clams is low in some communities (such as Karluk, Ouzinkie, Port Lions, Larsen Bay, Port Graham, and Nanwalek) and eroding in these and some other communities (Cordova, Tatitlek). Reports of residual oil and its effects undermine confidence in eating marine invertebrates from the spill area.
- While paralytic shellfish poisoning (PSP) is a primary concern for people who do not believe clams are safe to eat, many link what they perceive to be increasing PSP incidents to conditions created by the EVOS.

Evidence that subsistence uses are recovering that is related to the recovery objective that the cultural values connected to subsistence uses be reintegrated into community life includes the following:

- Sharing of subsistence foods is frequent and involves most households.. Most survey respondents report that sharing is the same or higher than in previous years.
- In some study communities (for example Ouzinkie, Larsen Bay, Chenega Bay, Old Harbor, Port Lions, Chignik Bay, and Cordova), a majority of respondents reported that young people are learning adequate subsistence skills.

However, evidence that subsistence uses are not fully recovered that is related to the recovery objective that the cultural values connected to subsistence uses be reintegrated into community life includes the following:

- Many survey respondents (47.2 percent) reported that youth are not learning enough about subsistence skills, primarily because of disinterest.

- Many respondents (34 percent) said that elders' influence is declining.
- Most survey respondents are not aware of the Gulf Ecosystems Monitoring (GEM) program (36.2 percent) or feel inadequately informed about it (42.2 percent).
- Most survey respondents (72 percent) said that the traditional way of life has not recovered from the effects of the spill.

In sum, the study findings for 2003 are ambiguous regarding the status and trends in subsistence uses and the values and traditions they support. These study results support continuing the Trustee Council's assessment that, as a natural resource service, subsistence uses are "recovering but not recovered."

Technological disasters are different from natural disasters in that, for their human victims, technological disasters appear to have no end. For biologists, recovery from the spill can be measured in terms of natural resource population characteristics. For local residents, a "return" to pre-spill conditions is impossible, and if this is the criterion by which "recovery" for subsistence uses is gauged, there will be no complete recovery. From the local perspective, biological considerations are not the only factor in recovery. A key finding of this research is that the oil spill is not viewed by local residents as an isolated event, but is seen as part of a complex set of factors that in combination have changed the way they live. For example, respondents report more competition for resources and in part point to post-spill publicity about recreational hunting and fishing or sightseeing opportunities as a cause. Commercial fishing has declined, due to injured herring and salmon populations and declining prices, resulting in lost livelihoods, sale of boats and equipment, and a loss of access to subsistence harvest areas. During the first years after the spill, families stopped or limited their subsistence activities, disrupting transmission of skills and values to their children. Now, many survey respondents say, children are not interested in subsistence hunting or fishing, due at least in part to the curtailment of these activities due to food safety concerns or scarcities. In 1989, for the first time in their lives, people in the study communities began to question the wholesomeness of subsistence resources. Since then, they have learned from multiple sources about other sources of contamination. Before the spill, wild foods provided a sense of security and optimism, because they were viewed as safe to eat and available to harvest. The oil spill ended that general confidence. In 1998, it appeared that concerns about oil contamination were diminishing, but the uncertainty had increased by 2003 due to the unexpected volume of residual oil and reports from restoration studies that natural resource populations continue to be affected by it.

The report concludes that conditions in the natural, economic, and social environments have changed significantly for the communities of the area affected by the EVOS since 1989. Some of these changes are direct consequences of the spill, while the link for others is less certain. Despite these changes, subsistence uses of natural resources remain key to the health and well-being of these communities. Since the first years after the spill, subsistence uses and the values they support have made progress towards recovery, but this recovery is incomplete and the future direction of change is uncertain. As this and previous research has shown, residents of the EVOS area see the future of their communities as tied directly to the strength of subsistence uses and their attendant skills and values. This human dimension of the injuries caused by the technological disaster that was the *Exxon Valdez* oil spill had economic, social, cultural, and spiritual components that changed these communities forever. Nothing will erase the memory of the EVOS, nor should this be the ultimate sign of recovery. Recovery will have occurred when the people of these communities believe their communities have a strong and viable future that builds upon their past, a future that they themselves must help to shape.

CHAPTER I: INTRODUCTION

by

James A. Fall, Bridget Easley, and David Koster

BACKGROUND

Subsistence Uses and the *Exxon Valdez* Oil Spill

Subsistence uses are a vital natural resource service that was injured by the *Exxon Valdez* Oil Spill (EVOS) of March 1989 (Fall 1999a, Fall 1999b, Fall 1999c, EVOSTC 2002b:27, EVOSTC 2004). In the year following the spill, subsistence harvests declined markedly, the diversity of uses of wild foods shrank, participation in subsistence activities dropped, and transmission of essential skills and values to young people was disrupted. Subsistence users reported that they harvested and used less wild foods because of concerns about eating oil-contaminated resources and because of post-spill declines in resource populations. In subsequent years, subsistence harvests and involvement in subsistence activities rebounded, although the extent of recovery varied by household, community, and subregion (Fall and Utermohle 1999:34). In some cases, local community residents resumed their subsistence uses, despite misgivings about food safety, for cultural and economic reasons. Others reported increased costs for subsistence activities due to resource scarcity (Fall and Field 1996; Fall and Utermohle 1995, Fall and Utermohle 1999, Fall et al. 2001). In 1998 (when the last previous update occurred), two-thirds of survey respondents stated that the traditional way of life of their communities had not recovered from the effects of the spill (Fall and Utermohle 1999:93-95).

Recovery Objective for Subsistence Uses

The restoration plan adopted by the EVOS Trustee Council (EVOSTC) and updated in August 2002 (EVOSTC 2002b:27) lists subsistence as an injured natural resource service that has not yet recovered. The plan defines the following restoration objective for subsistence:

> Subsistence will have recovered when injured resources used for subsistence are healthy and productive and exist at pre-spill levels. In addition, there is recognition that people must be confident that the resources are safe to eat and that the cultural values provided by gathering, preparing, and sharing food need to be reintegrated into community life.

The Present Study

The goal of the present project was to document subsistence activities in most of the area affected by the *Exxon Valdez* oil spill, including Prince William Sound, Lower Cook Inlet, the Kodiak Island Borough, and a portion of the Alaska Peninsula (Fig. I-1). Table I-1 provides a list of study communities, their population sizes in 2000, and sampling goals for each. For descriptions of the study communities and their patterns of subsistence uses including in most cases maps of subsistence harvest areas, see Stratton 1989 and Stratton 1992 for Cordova;

Stratton 1990 and Fall et al. 1996 for Tatitlek; Stratton and Chisum 1986 and Fall et al. 1996 for Chenega Bay; Stanek 1985 for Nanwalek and Port Graham; KANA 1983 and Mishler 2001 for the Kodiak Island Borough; and Morris 1987 and Fall et al. 1995 for the Alaska Peninsula communities. For previous descriptions and analysis of post-EVOS subsistence activities specifically, see Fall and Utermohle 1995, Fall and Utermohle 1999, and Fall et al. 2001.

Approval of this project by the EVOSTC was delayed one month and occurred on November 10, 2003. Following notification of approval, Alaska Department of Fish and Game (ADF&G) project staff organized a teleconference with project partners Chugach Regional Resources Commission (CRRC), Bristol Bay Native Association (BBNA), and Kodiak Area Native Association (KANA). We agreed that due to the delay in project startup and the upcoming holiday season (including the Russian Orthodox holidays in January), the project planning workshop originally scheduled for mid-December had to be postponed until early February. It was subsequently scheduled for February 3 and 4, 2004 in Anchorage, and a workshop agenda was developed and approved. It was also agreed that it was necessary to begin fieldwork as soon as possible following the workshop, and a tentative startup date of February 9, 2004 was selected, before which the revised questionnaire and survey training manual would be completed. Additionally, ADF&G drafted cooperative agreements for review and approval by the three project partners. These agreements were in place by mid-January 2004. Meanwhile, the project partners contacted the 15 study communities and obtained letters of support for the project, the names of attendees for the planning workshop and potential local research assistants.

The study was conducted in a manner similar to that of the last round of comprehensive household interviews in EVOS communities, which was conducted by the ADF&G Division of Subsistence and CRRC in 1998 as EVOS Restoration Project No. 99471 (Fall and Utermohle 1999). That study followed procedures established in previous rounds of household interviews and used by the Division throughout the state (Fall 1990; Scott et al. 2001).

PURPOSE AND OBJECTIVES

The goal of the research was two-fold:

1. Collect, analyze, and report information about current subsistence uses in a subset of oil spill area communities that is comparable with previous research results and that can be used to evaluate the status of subsistence uses in light of the EVOSTC recovery objective, and

2. Conduct the research as a collaborative effort in which the study communities are partners with the Division of Subsistence in each phase of the study.

The goals were addressed through six objectives, as follows:

Objective One: Collaboratively Develop the Survey Instrument

During a study planning workshop that involved representatives of each study community as well as ADF&G, CRRC, KANA, BBNA, and EVOSTC staff, previous research findings were reviewed along with the survey instrument used in the last round of research. The instrument was revised based on input during the workshop (see below).

Objective Two: Hire and Train Local Research Assistants

Through subcontracts with the Chugach Regional Resources Commission (CRRC), the Kodiak Area Native Association (KANA), and the Bristol Bay Native Association (BBNA), local residents were hired and trained to conduct interviews using the survey instrument.

Objective Three: Collect Information on Current Subsistence Activities and Assessments of the Status of Subsistence Uses and Resources through Systematic Household Surveys

The following is a list of the kinds of information that were collected during the household surveys. This list matches the information collected during the previous round of household surveys in 1998. It was reviewed during the project planning workshop (see Objective One, and below). At that time, additional topics for the research were identified, and topics that were no longer relevant or useful were eliminated. The plan was to collect the following information for a 12-month study year (calendar year 2003) for each interviewed household in each study community.

1. Subsistence Harvest and Use Information
   a. Percentage of households using, attempting to harvest, harvesting, receiving, and giving away each wild resource
   b. Harvest quantities in numbers of animals, buckets, gallons, or other appropriate units
   c. Households' assessments of uses and harvests in 2003 compared to pre-spill years
   d. Relative harvest effort
   e. Individual involvement in subsistence activities, including the involvement of children
   f. Evaluations of food safety and resource availability
   g. Other objectives as developed in the research planning workshop (see below)

2. Demographic information for each household member, including age, sex, ethnicity, birthplace, and length of residency in the community

3. Information about qualitative aspects of subsistence uses that illustrate how well subsistence is being integrated back into community life. (Approaches to these topics were discussed at the project planning workshop and built upon work done in 1998.)

4. Household's comments and concerns: open-ended responses

Objective Four: Data Entry and Analysis

Collaboratively enter data and analyze survey results. (This involved training local surveyors in aspects of data management and entry.)

Objective Five: Data Review Workshop

Collaboratively review the study results and develop study findings and conclusions during a post-fieldwork workshop.

Objective Six: Prepare Final Report and Make Findings Available

RESEARCH METHODS

Ethical Principles

Four basic ethical principles guided the research. These were: 1) review and approval of the research plans by community governments prior to fieldwork; 2) informed consent by household members selected for interviewing (participation in the research was voluntary); 3) individual and household-level responses were held confidential; and 4) study results were reviewed by and shared with the study communities. These principles are consistent with the protocols adopted by the Trustee Council for the collection of Traditional Ecological Knowledge (TEK) and with research guidelines adopted by the Alaska Federation of Natives (EVOSTC 1996; Miraglia 1998: Appendix B). BBNA has adopted a similar set of guidelines that were followed in this study (BBNA n.d.).

Study Planning Workshop

A project planning workshop took place in Anchorage on February 3 and 4, 2004. Thirty people participated. A list of participants appears in Table I-2. Appendix B is the workshop agenda. In attendance were representatives of 13 of the 15 study communities (poor weather prevented designated representatives of Port Graham and Perryville from traveling to Anchorage), staff from BBNA, CRRC, KANA, and ADF&G. EVOS Trustee Council executive director, Gail Phillips, addressed the group at the start of the first day. As planned, workshop participants reviewed past study findings and current issues, and then identified questions and topics for the survey instrument. The survey instrument and training manual were completed over the next several days. At the same time, the project partners, working with tribal councils, identified residents of the study communities to be trained as local researchers, assisting ADF&G staff in conducting household interviews. The three partner organizations also focused on obtaining the remaining community approvals.

In all but Cordova, the largest community, the goal was to interview a knowledgeable representative of every resident household. The sampling design in Cordova was a stratified random sample with a goal of 150 households (Table I-1). One hundred households were to be surveyed from the general population (excluding the Eyak Tribal Council's list) and 50 households were to be surveyed at random from the list of Alaska Native households maintained by the Eyak Tribal Council, for a total goal of 150 completed interviews.

Survey Instrument

The survey instrument was modeled after those administered by the Division of Subsistence during previous rounds of research in the study communities. A sample survey instrument appears in Appendix C. Key sections on demography, resource harvests and uses, and evaluation of current subsistence uses and resource status were not modified significantly in order to maintain comparability with previous research. Based on the recommendations of participants in the project planning workshop, almost all of the evaluative questions from the 1998 survey instrument were retained. Two questions were added to gauge knowledge about the Gulf Ecosystem Monitoring Program (GEM). Tribal participants at the study planning workshop emphasized the need for questions that allowed for open-ended responses.

The survey instrument was not designed for self-administration. Rather, a researcher – either a Division of Subsistence staff person (Subsistence Resource Specialist [SRS]) or a local researcher– administered the survey during face-to-face interviews in the study communities.

Fieldwork and Sample Achievement

Fieldwork commenced soon after the planning workshop and was essentially complete by the end of May. Table I-3 provides a list of the local research assistants who conducted surveys in their communities after receiving training from ADF&G staff. A detailed training manual, developed during previous rounds of surveys in these communities, guided the training.

In every community except Cordova, the researchers developed a list of all community households. The SRS then conducted several interviews with the local researcher present to demonstrate the survey procedures. Next, the local researchers conducted a few interviews on their own. These completed forms were thoroughly reviewed by the SRS, who then discussed any corrections with the local researcher. Then, the remaining interviews were completed, primarily by the local researchers.

In Cordova, a Division of Subsistence SRS traveled to consult with city officials prior to the fieldwork to update maps of the community. A random sample was drawn from lists of dwellings keyed to these maps. Additionally, a sample of households from the rolls of the Eyak Tribe was drawn. Because of the large number of interviews to be conducted in Cordova, two SRSs, two seasonal ADF&G employees who live in Cordova, and three local researchers hired by CRRC, worked as a team until the interview goal was reached.

In Cordova, the sampling goal included 50 interviews with randomly selected Eyak Tribe households and 100 randomly selected “other” households. Although sampling goals were initially met for the Eyak Tribe (56 households), a total of 84 “other” households were interviewed, 16 short of the goal. The Eyak Tribe volunteered to interview up to 16 “other” households in Cordova to meet the original goal of 100 for this stratum. This work took place in late June and early July, and was conducted at no additional expense to the project. Eight more households were surveyed, for a total of 92 for the “other” household stratum and 148 for Cordova in total.

Table I-4 provides an overview of sample achievement for each study community. In total, 544 household interviews were completed in the 15 study communities. This is an achievement of 77.2% of the sampling goal. Of all contacted households, 13.2% declined to participate in the survey. This is a modest refusal rate and consistent with other rounds of interviews in these communities. The rest of the households could not be contacted.

Length of Survey Administration

As shown in Table I-5, on average, the surveys took 1.15 hours (69 minutes) to administer. For the similar survey administered in 1998, the average length of the interviews was 1.12 hours (67 minutes) (Fall and Utermohle 1999:16-17). This is longer than most surveys administered by the Division of Subsistence due to the inclusion of evaluation questions and questions with open-ended responses, as strongly recommended by study community representatives. The length of the survey may have discouraged some respondents and some local research assistants from fully responding to some of the evaluative questions.

Data Coding, Data Entry, Data Analysis, and Statistical Methods

All data were coded for data entry by Division of Subsistence staff in Anchorage and Dillingham. Responses were coded following standardized codebook conventions used by the Division of Subsistence to facilitate data entry. A data collection supervisor reviewed coded forms prior to data entry. Staff within the Information Management Section set up database structures within an MS SQL Server at ADF&G in Anchorage to hold the survey data. The database structures included rules, constraints, and referential integrity to insure that data were entered completely and accurately. Data entry screens were available on a secure internet site. Daily incremental backups of the database occurred, and transaction logs were backed up hourly. Full backups of the database occurred twice weekly. This ensured that no more than one hour of data entry would be lost in the unlikely event of a catastrophic failure.

In addition to conducting surveys, local research assistants were hired by the project partners to perform data entry. The first training session for local research assistants in data entry methods took place at ADF&G in Anchorage on May 13. In total, six people attended this session. A second training occurred in Anchorage on June 15, attended by two people. Also, four individuals were trained by other trainees. All together, trainees (including partner staff) included three from BBNA, seven from CRRC, and two from KANA (for a total of twelve). Table I-6 provides a list of the eight individuals from study communities and project partners who conducted data entry. (Four others were trained but did not enter any surveys.) ADF&G data-entry personnel included Erin Gagnon, Isa San Miguel, and Sveta Serebryakova.

All survey form data were entered once by ADF&G staff. A second data entry was to be completed by local research assistants via remote access to the ADF&G database server. Local research assistants had mixed success in this effort due to slow Internet connections and the associated tediousness of the work. As a result, the remote data entry was determined to be inefficient, and data cleaning was conducted using referential logic checks and descriptive analysis within the ADF&G dataset. The original forms and partial local researcher sets were checked when an entry error was identified. By the end of June, the ADF&G data entry was completed, and the referential checks were completed by the end of August.

Once data were entered and confirmed, information was processed with the use of the Statistical Package for the Social Sciences (SPSS) Version 11.5. Initial processing included the performance of standardized logic checks of the data. Logic checks are often needed in complex data sets where rules, constraints, and referential integrity do not capture all of the possible inconsistencies that may appear. Harvest data collected in numbers or animals, gallons, or buckets were converted to pounds usable weight using standard factors (see Appendix D).

SPSS was also used for analyzing the survey information. Analysis included review of raw-data frequencies, cross tabulations, table generation, estimation of population parameters, and calculation of confidence intervals for the estimates. Missing information was dealt with on a case-by-case basis. The Division of Subsistence has standardized practices for dealing with missing information, such as minimal value substitution or use of an average response for similarly characterized households. Typically, missing data are an uncommon, randomly occurring phenomenon in household surveys conducted by the division. In unusual cases where a substantial amount of survey information is missing, the household survey is treated as a "non-response" and not included in community estimates. All adjustments were documented.

Harvest data collected from all seven households interviewed in Karluk were very incomplete. No harvest estimates could be developed from the completed interviews. For analysis of regional trends, data from the last household survey conducted in Karluk were used (1991). Responses for the evaluative questions for Karluk were more complete and are included in this report.

Harvest estimates, and responses to all questions, were calculated based upon the application of weighted means (Cochran 1977). These calculations are standard methods for extrapolating sampled data. As an example, the formula for harvest expansion is:

$$H_i = \bar{h}_i S_i$$

where $\bar{h}_i = \dfrac{h_i}{n_i}$ (mean harvest per returned survey)

H_i = the total harvest (numbers of resource or pounds) for the community i,
h_i = the total harvest reported in returned surveys,
n_i = the number of returned surveys, and
S_i = the number of households in a community.

As an interim step, the standard deviation (SD) or variance (V), which is the SD squared was also calculated with the raw, unexpanded data. The standard error (SE), or SD of the mean was also calculated for each community. This was used to estimate the *relative precision of the mean*, or the likelihood an unknown value falls within a certain distance from the mean. In this study, the relative precision of the mean is shown in the tables as a confidence limit (CL), expressed as a percent. Once the standard error was calculated, the CL was determined by multiplying the SE by a constant that reflected the level of significance desired, based on a normal distribution. The constant for 95% confidence limits is 1.96. Though there are numerous ways to express the formula below, it contains the components of a SD, V, and SE.

Relative Precision of the Mean (CL%):

$$C.I.\%(\pm) = \frac{t_{\alpha/2} \times \frac{s}{\sqrt{n}} \times \sqrt{\frac{N-n}{N-1}}}{\bar{x}}$$

$s =$ sample standard deviation,
$n =$ sample size,
$N =$ population size,
$t_{\alpha/2} =$ *Student's t* statistic for alpha level (α=.95) with n - 1 degrees of freedom.

Small CL percentages indicate that an estimate is likely to be very close to the actual mean of the sample. Larger percentages mean that estimates could be further away from the sampled mean.

Data Review Workshop

Working with the project partners (BBNA, CRRC, and KANA) the data review workshop took place on October 12 and 13, 2004 at the Homewood Suites Hotel in Anchorage. The workshop agenda appears in Appendix E. The goal of the workshop was to review preliminary findings of the household survey and other aspects of the project, and also to discuss preparation of the final report. The workshop was well attended: 23 people participated, including representatives of 11 of the 15 study communities. Poor weather prevented anyone from Perryville, Chignik Lagoon, Nanwalek, or Old Harbor from traveling to Anchorage. Table I-7 provides a list of workshop participants. Overall, there was endorsement of most of the study findings. In a few cases, a need to follow-up in some communities to interpret some of the results was identified. Following the workshop, the Division of Subsistence staff continued data review and began writing chapters of the draft final report.[1]

Marine Sciences Symposium Presentation

Principal investigator, James Fall, presented a preliminary overview of some of the study findings on January 25, 2005, during the EVOSTC-sponsored Marine Sciences Symposium in Anchorage.

Organization of the Final Report

The next 15 chapters (Chapters II through XVI) summarize the study findings for each study community. The sequence for discussion is first geographical by subregion (Prince William Sound, Lower Cook Inlet, Kodiak Island Borough, Alaska Peninsula) and then alphabetical with each subregion. In each community chapter, the study findings are generally discussed in the following order: demography, resource harvests and uses in 2003, natural resource assessments, social conditions assessments, and other assessments. Each community

[1] A draft of this report was completed in June 2005 and submitted to the EVOSTC for review. The Division of Subsistence received reviewers' comments in March 2006.

chapter ends with a synopsis of key study findings or themes. Chapter XVII presents a discussion of study findings for the entire area.

In addition to this final report, a short-project findings overview was prepared and distributed in the study communities. This summary appears in this report as Appendix F. The tables that make up Appendix A are found on a CD in a pocket in the back of this report.

Several multi-community tables are referenced in each chapter. These appear in Chapter I for ease of reference, and include study findings about demographic characteristics of households (Table I-8), individual participation in subsistence activities (Table I-9), and characteristics of resource harvests and uses (Table I-10). Most of the rest of the study findings are summarized in the tables found in Appendix A. However, some community-specific tables appear in the individual community chapters. Detailed information about fish harvests by gear type was collected during the interviews. Unless discussed in particular community chapters, these data are not summarized in this report, but will be available in the division’s Community Profile Database.

Table I-1. Population of Study Communities and Target Samples

Community	2000 Population		AK Native Population		Sample Goals		
	People	Occupied HHs	Number	Percent of Total	Type of Sample	Target HHs	Percent
Prince William Sound	2,647	1,018	526	19.9%		210	20.6%
Chenega Bay	86	22	67	77.9%	Census	22	100.0%
Cordova	2,454	958	368	15.0%	Stratified Random	150	15.7%
Tatitlek	107	38	91	85.0%	Census	38	100.0%
Lower Cook Inlet	348	115	316	90.8%		115	100.0%
Nanwalek	177	45	165	93.2%	Census	45	100.0%
Port Graham	171	70	151	88.3%	Census	70	100.0%
Kodiak Island	940	302	755	80.3%		302	100.0%
Akhiok	80	25	75	93.8%	Census	25	100.0%
Karluk	27	9	26	96.3%	Census	9	100.0%
Larsen Bay	115	26	91	79.1%	Census	26	100.0%
Old Harbor	237	79	203	85.7%	Census	79	100.0%
Ouzinkie	225	74	197	87.6%	Census	74	100.0%
Port Lions	256	89	163	63.7%	Census	89	100.0%
Alaska Peninsula	434	135	365	84.1%		135	100.0%
Chignik	79	29	48	60.8%	Census	29	100.0%
Chignik Lagoon	103	33	85	82.5%	Census	33	100.0%
Chignik Lake	145	40	127	87.6%	Census	40	100.0%
Perryville	107	33	105	98.1%	Census	33	100.0%
Totals	4,369	1,570	1,962	44.9%		762	48.5%

Table I-2. Attendees, Project Planning Workshop, Project 040471/Update of the Status of Subsistence Uses in *Exxon Valdez* Oil Spill Area Communities[1]

Name	Representing
Ambrosia, Alex	Ouzinkie
Andersen, Ralph	BBNA
Brown-Schwalenberg, Patty	CRRC
Davis, Brian	ADF&G
Eluska, David Sr.	Akhiok
Evanoff, Larry	Chenega Bay
Evans, Vince	Nanwalek
Fall, James A.	ADF&G
Gregorio, Angela	Chignik Lagoon
Holen, Davin	ADF&G
Huber, Brett	ADF&G
King, Mark	Eyak (Cordova)
Kompkoff, Gary	Tatitlek
Kompkoff, Pete A. III	Chenega Bay
Krieg, Ted	ADF&G
Lind, Johnny	Chignik Lake
Lukin, Ivan	Port Lions
Nelson, Maranda	Qutekcak Tribe (Seward)
Nicholson, Hans	BBNA
Panamaroff, Alex III	KANA
Panamaroff, Alex Jr.	Larsen Bay
Peterson, Conrad	Old Harbor
Phillips, Gail	EVOSTC
Reft, Alicia	Karluk
Scarbrough, Lisa	ADF&G
Simeone, Bill	ADF&G
Squartsoff, Herman	Ouzinkie
Stanek, Ronald	ADF&G
Walker, Robert	ADF&G
Williams, Liz	ADF&G

[1] The workshop took place in Anchorage on February 3 & 4, 2004.

Table I-3. Local Research Assistants, EVOS Survey, 2004

Location	Name
Akhiok	Rastopsoff, Roy
Chenega Bay	Kompkoff, Pete
Chignik Bay	Aleck, Polly
Chignik Lagoon	Stepanoff, Laura
Chignik Lake	Lind-Stepanoff, Nailene
Cordova	Becker, Karl
Cordova	Del Pesco, Nancy
Cordova	Johnson, Kim
Cordova	Nichols, Marie
Cordova	Pearson, Clark
Cordova	Swartzgart, Karen
Karluk	Reft, Alicia
Larsen Bay	Jones, Roy
Nanwalek	Tanape, Nick Sr.
Nanwalek	Kvasnikoff, James
Nanwalek	Kvasnikoff, Cornelius
Nanwalek	Tanape, Nick S.
Old Harbor	Peterson, Vicki
Old Harbor	Christiansen, C.J., Jr.
Old Harbor	Nicolai, Yakov
Ouzinkie	Squartsoff, Herman
Perryville	Shangin, Andy
Port Graham	Robart, Gerald
Port Graham	Moonin, Paul
Port Lions	Bartleson, Wendy
Port Lions	Nelson, Candace
Tatitlek	Totemoff, Peggy

Table I-4. Sample Achievement, EVOS Update Project, 2004

Community	Estimated Number of Households	Interview Goal	Households Interviewed	Failed to Contact	Refused	Refusal Rate	Percentage Interviewed	Percentage of Goal Interviewed
Akhiok	15	15	11	4	0	0.0%	73.3%	73.3%
Chenega Bay	20	20	16	2	2	11.1%	80.0%	80.0%
Chignik	29	29	22	4	3	12.0%	75.9%	75.9%
Chignik Lagoon	22	22	16	5	1	5.9%	72.7%	72.7%
Chignik Lake	31	31	21	4	6	22.2%	67.7%	67.7%
Cordova	910	150	148	35	27	15.4%	16.3%	98.7%
Eyak Sample	175	50	56	8	6	9.7%	32.0%	112.0%
Other Households	735	100	92	27	21	18.6%	12.5%	92.0%
Karluk	15	15	7	8	0	0.0%	46.7%	46.7%
Larsen Bay	31	31	25	4	2	7.4%	80.6%	80.6%
Nanwalek	51	51	22	14	15	40.5%	43.1%	43.1%
Old Harbor	76	76	52	14	10	16.1%	68.4%	68.4%
Ouzinkie	69	69	51	17	1	1.9%	73.9%	73.9%
Perryville	33	33	27	2	4	12.9%	81.8%	81.8%
Port Graham	65	65	47	15	3	6.0%	72.3%	72.3%
Port Lions	71	71	54	9	8	12.9%	76.1%	76.1%
Tatitlek	27	27	25	1	1	3.8%	92.6%	92.6%
Totals	1465	705	544	138	83	13.2%	37.1%	77.2%

Table I-5. Average Length of Interviews, Household Surveys, 2004

Community	Number of Surveys	Length of Interviews (Hours)		
		Mean	Maximum	Minimum
Alaska Peninsula				
Chignik Bay	22	1.07	3.08	0.33
Chignik Lagoon	16	1.86	3.00	1.00
Chignik Lake	21	1.04	2.83	0.42
Perryville	27	1.81	4.17	0.42
Lower Cook Inlet				
Nanwalek	22	1.44	4.00	0.70
Port Graham	47	1.09	2.83	0.17
Kodiak				
Akhiok	11	1.14	1.50	0.58
Karluk	7	1.71	2.00	1.33
Larsen Bay	25	1.02	1.75	0.50
Old Harbor	52	0.92	6.00	0.17
Ouzinkie	51	0.59	2.00	0.17
Port Lions	54	0.71	3.50	0.17
Prince William Sound				
Chenega Bay	16	1.08	3.00	0.67
Cordova	148	0.94	3.47	0.17
Tatitlek	25	0.85	1.58	0.42
All Communities	544	1.15	6.00	0.17

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table I-6. Partner Organization Personnel Performing Data Entry, EVOS Surveys, 2004

Name	Organization[1]/Community
Aleck, Polly	BBNA/Chignik Bay
Jones, Roy	KANA/Larsen Bay
Kitsick, Theresa	CRRC
Kompkoff, Kelly	CRRC/Tatitlek
Kvansnikoff, Carol	CRRC/Nanwalek
O'Domin, Inez	BBNA/Chignik Lake
Rhodes, Diana	CRRC
Stellwag, L.	CRRC

[1] BBNA = Bristol Bay Native Association
KANA = Kodiak Area Native Association
CRRC = Chugach Regional Resources Commission

Table I-7. Attendees, Data Review Workshop, Project 040471
of Subsistence Uses in Exxon Valdez Oil Spill Area Communiti

Name	Representing
Aleck, Polly	Chignik
Ambrosia, Alex	Ouzinkie
Andersen, Ralph	BBNA
Brown-Schwalenberg, Patty	CRRC
Davis, Brian	ADF&G
Easley, Bridget	ADF&G
Eluska, David Sr.	Akhiok
Fall, James A.	ADF&G
Holen, Davin	ADF&G
King, Mark	Eyak (Cordova)
Kompkoff, Gary	Tatitlek
Kompkoff, Pete A. III	Chenega Bay
Krieg, Ted	ADF&G
O'Domin, Inez	Chignik Lake
Nelson, Candace	Port Lions
Norman, Fran	Port Graham
Panamaroff, Alex Jr.	Larsen Bay
Panamaroff, Alex III	KANA
Reft, Alicia	Karluk
Scarbrough, Lisa	ADF&G
Simeone, Bill	ADF&G
Stanek, Ronald	ADF&G
Williams, Liz	ADF&G
Wilson, Kenny	BBNA

[1] The workshop took place in Anchorage on February 12 and 13, 2004.

Table I-8. Demographic Characteristics of Households, Study Communities, 2003 Study Year

Characteristics	Chignik Bay	Chignik Lagoon	Chignik Lake	Perryville	Nanwalek	Port Graham	Akhiok	Karluk	Larsen Bay	Old Harbor	Ouzinkie	Port Lions	Chenega Bay	Cordova	Tatitlek
Sampled Households	22	16	21	27	22	47	11	7	25	52	51	54	16	148	25
Number of Households in the Community	29	22	31	33	51	65	15	15	31	76	69	71	20	910	27
Percentage of Households Sampled	75.9%	72.7%	67.7%	81.8%	43.1%	72.3%	73.3%	46.7%	80.6%	68.4%	73.9%	76.1%	80.0%	16.3%	92.6%
Household Size															
Mean	2.68	3.19	3.57	3.67	4.50	2.36	4.73	2.57	1.96	2.50	2.96	2.69	2.81	2.63	2.72
Minimum	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Maximum	7.00	6.00	7.00	14.00	10.00	8.00	8.00	4.00	6.00	6.00	10.00	7.00	7.00	8.00	7.00
Sample Population	59.00	51.00	75.00	99.00	99.00	111.00	52.00	18.00	49.00	130.00	151.00	145.00	45.00	378.00	68.00
Estimated Community Population	77.77	70.13	110.71	121.00	229.50	153.51	70.91	38.57	60.76	190.00	204.29	190.65	56.25	2,397.28	73.44
Age															
Mean	36.6	34.3	30.9	27.1	23.8	38.4	24.4	29.4	39.6	34.9	34.3	37.1	30.5	33.9	38.3
Minimum	1	4	1	1	2	2	1	8	1	1	1	1	1	1	1
Maximum	81	85	83	88	70	83	66	59	92	81	96	90	80	85	81
Median	38.0	30.0	22.0	22.0	19.0	41.0	21.5	29.4	39.6	34.5	33.0	40.0	32.0	38.0	38.6
Length of Residency - Population															
Mean	18.7	23.6	26.5	21.5	20.6	27.2	17.2	26.6	22.1	27.6	26.2	20.6	11.8	19.2	32.8
Minimum	1	2	1	1	2	1	1	3	1	1	1	1	1	1	1
Maximum	81	85	70	88	65	83	57	59	80	81	96	55	22	79	81
Length of Residency - Household Heads															
Mean	26.11	31.24	39.76	34.51	33.12	34.78	29.10	34.73	26.16	35.51	37.25	24.82	14.14	23.61	43.02
Minimum	2	2	1	1	4	2	1	3	1	2	1	2	1	1	4
Maximum	81	85	65	88	65	83	57	59	80	78	85	55	22	79	81
Sex															
Male															
Number	42	39	52	71	121	87	40	21	33	108	100	100	33	1,246	35
Percentage	54.2%	54.9%	46.7%	58.6%	52.5%	56.8%	55.8%	55.6%	55.1%	56.9%	49.0%	52.4%	57.8%	52.0%	47.1%
Female															
Number	36	32	59	50	109	66	31	17	27	82	104	91	24	1,151	39
Percentage	45.8%	45.1%	53.3%	41.4%	47.5%	43.2%	44.2%	44.4%	44.9%	43.1%	51.0%	47.6%	42.2%	48.0%	52.9%
Alaska Native															
Households (Either Head)															
Number	24	19	31	33	49	61	15	15	25	75	64	58	18	231	27
Percentage	81.8%	87.5%	100.0%	100.0%	95.5%	93.6%	100.0%	100.0%	80.0%	98.1%	92.2%	81.5%	87.5%	25.4%	100.0%
Estimated Population															
Number	51	56	111	121	220	130	65	36	41	167	180	138	48	402	71
Percentage	66.1%	80.4%	100.0%	100.0%	96.0%	84.7%	92.3%	94.4%	67.3%	87.7%	88.1%	72.4%	84.4%	16.8%	97.1%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table I-9. Participation in the Harvest and Processing of Wild Resources, Study Communities, 2003

			Chignik Bay	Chignik Lagoon	Chignik Lake	Perryville	Nanwalek	Port Graham	Akhiok	Karluk	Larsen Bay	Old Harbor	Ouzinkie	Port Lions	Chenega Bay	Cordova	Tatitlek
Total Number of People			77.8	70.1	110.7	121.0	229.5	155.9	70.9	38.6	60.8	190.0	204.3	190.6	56.3	2,397.3	73.4
GAME	Hunt	Number	21.1	30.3	32.5	39.1	71.9	40.7	28.6	6.4	17.4	68.7	66.3	73.6	25.0	717.6	19.4
		Percentage	27.1%	43.1%	29.3%	32.3%	31.3%	26.1%	40.4%	16.7%	28.6%	36.2%	32.5%	38.6%	44.4%	29.9%	26.5%
		Missing	0.0	0.0	0.0	0.0	9.3	0.0	0.0	0.0	1.2	4.4	8.1	13.1	1.3	17.4	0.0
		Missing %	0.0%	0.0%	0.0%	0.0%	4.0%	0.0%	0.0%	0.0%	2.0%	2.3%	4.0%	6.9%	2.2%	0.7%	0.0%
	Process	Number	35.6	38.5	78.2	69.7	90.4	95.5	32.7	8.6	14.9	108.2	97.4	93.4	32.5	997.9	68.0
		Percentage	45.8%	54.9%	70.7%	57.6%	39.4%	61.3%	46.2%	22.2%	24.5%	56.9%	47.7%	49.0%	57.8%	41.6%	92.6%
		Missing	0.0	0.0	0.0	0.0	9.3	0.0	0.0	0.0	1.2	4.4	6.8	23.7	1.3	17.4	0.0
		Missing %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.3%	1.3%	12.4%	0.0%	0.3%	0.0%
FISH	Fish	Number	48.8	60.5	69.4	90.4	187.8	130.6	50.5	19.3	33.5	150.5	136.6	124.9	27.5	1,477.6	34.6
		Percentage	62.7%	86.3%	62.7%	74.7%	81.8%	83.8%	71.2%	50.0%	55.1%	79.2%	66.9%	65.5%	48.9%	61.6%	47.1%
		Missing	0.0	0.0	0.0	0.0	2.3	0.0	0.0	0.0	1.2	1.5	16.2	14.5	1.3	9.4	0.0
		Missing %	0.0%	0.0%	0.0%	0.0%	1.0%	0.0%	0.0%	0.0%	2.0%	0.8%	7.9%	7.6%	2.2%	0.4%	0.0%
	Process	Number	60.6	59.1	79.7	85.6	187.8	139.0	47.7	17.1	24.8	135.9	136.6	130.2	35.0	1,572.0	69.1
		Percentage	78.0%	84.3%	72.0%	70.7%	81.8%	89.2%	67.3%	44.4%	40.8%	71.5%	66.9%	68.3%	62.2%	65.6%	94.1%
		Missing	0.0	0.0	0.0	0.0	2.3	0.0	0.0	0.0	1.2	1.5	14.9	18.4	1.3	6.3	0.0
		Missing %	0.0%	0.0%	0.0%	0.0%	1.0%	0.0%	0.0%	0.0%	2.0%	0.8%	7.3%	9.7%	2.2%	0.3%	0.0%
FURBEARERS	Hunt or Trap	Number	2.6	1.4	3.0	4.9	9.3	18.3	0.0	2.1	3.7	27.8	18.9	14.5	5.0	281.3	2.2
		Percentage	3.4%	2.0%	2.7%	4.0%	4.0%	11.7%	0.0%	5.6%	6.1%	14.6%	9.3%	7.6%	8.9%	11.7%	2.9%
		Missing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	5.8	16.2	22.4	1.3	6.3	0.0
		Missing %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.0%	3.1%	7.9%	11.7%	2.2%	0.3%	0.0%
	Process	Number	1.3	0.0	3.0	7.3	13.9	22.5	0.0	12.9	7.4	27.8	18.9	17.1	6.3	277.5	3.2
		Percentage	1.7%	0.0%	2.7%	6.1%	6.1%	14.4%	0.0%	33.3%	12.2%	14.6%	9.3%	9.0%	11.1%	11.6%	4.4%
		Missing	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	1.2	13.2	16.2	50.0	1.3	6.3	33.5
		Missing %	0.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.0%	6.9%	7.9%	26.2%	2.2%	0.3%	45.6%
PLANTS	Gather	Number	43.5	55.0	76.8	86.8	190.1	119.4	60.0	19.3	34.7	144.7	181.3	160.4	35.0	1,542.9	44.3
		Percentage	55.9%	78.4%	69.3%	71.7%	82.8%	76.6%	84.6%	50.0%	57.1%	76.2%	88.7%	84.1%	62.2%	64.4%	60.3%
		Missing	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	1.2	1.5	5.4	6.6	1.3	6.3	0.0
		Missing %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.9%	0.0%	2.0%	0.8%	2.6%	3.4%	2.2%	0.3%	0.0%
	Process	Number	42.2	52.3	72.3	77.0	192.4	109.5	54.5	12.9	28.5	138.8	177.2	155.1	28.8	1,419.2	51.8
		Percentage	54.2%	74.5%	65.3%	63.6%	83.8%	70.3%	76.9%	33.3%	46.9%	73.1%	86.8%	81.4%	51.1%	59.2%	70.6%
		Missing	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	1.2	1.5	8.1	6.6	1.3	9.4	1.1
		Missing %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.9%	0.0%	2.0%	0.8%	4.0%	3.4%	2.2%	0.4%	1.5%
ANY RESOURCE	Attempt	Number	63.3	63.3	96.0	97.8	215.6	140.4	64.1	27.9	43.4	168.1	188.1	164.4	43.8	1,899.2	59.4
		Percentage	81.4%	90.2%	86.7%	80.8%	93.9%	90.1%	90.4%	72.2%	71.4%	88.5%	92.1%	86.2%	77.8%	79.2%	80.9%
	Process	Number	65.9	63.3	98.9	91.7	215.6	144.6	64.1	19.3	39.7	160.8	192.1	164.4	38.8	1,823.2	69.1
		Percentage	84.7%	90.2%	89.3%	75.8%	93.9%	92.8%	90.4%	50.0%	65.3%	84.6%	94.0%	86.2%	68.9%	76.1%	94.1%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Survey, 2004

Table I-10. Resource Harvest and Use Characteristics of the Study Communities, 2003 Study Year

	Resource Harvest And Use Characteristics of Study Communities														
Study Community	Chignik Bay	Chignik Lagoon	Chignik Lake	Perryville	Port Graham	Nanwalek	Karluk[1]	Larsen Bay	Old Harbor	Ouzinkie	Port Lions	Akhiok	Chenega Bay	Tatitlek	Cordova
Mean Number of Resources Used per Household	14.6	12.8	18.6	24.4	18.0	24.8		7.9	18.5	24.9	13.8	14.6	23.9	20.8	12.4
Minimum	2	6	3	6	0	8		3	4	4	2	7	4	10	0
Maximum	27	25	37	53	47	49		19	46	60	45	22	70	33	48
95% Confidence Limit(+/-)	11%	11%	12%	8%	7%	14%		11%	8%	8%	8%	12%	16%	4%	11%
Median	15.5	11.5	20	22	18	26		8	16	24	12.5	15	26	21	10
Mean Number of Resources Attempted to Harvest per Household	9.6	11.4	9.4	18.8	11.4	18.0		4.8	12.0	14.1	8.7	14.1	15.8	9.7	8.1
Minimum	0	0	0	3	0	8		0	0	0	0	4	1	0	0
Maximum	26	21	24	46	34	47		18	42	48	39	22	66	25	46
95% Confidence Limit(+/-)	18%	13%	20%	9%	10%	17%		17%	14%	12%	11%	14%	25%	9%	16%
Median	7	10.5	9	17	11	17		3	9.5	12	7.5	14	11	9	5
Mean Number of Resources Harvested per Household	9.2	10.3	9.0	17.8	10.9	17.3		4.7	11.7	13.5	8.4	12.9	13.3	5.9	7.4
Minimum	0	0	0	3	0	7		0	0	0	0	4	1	0	0
Maximum	23	20	24	46	33	43		18	41	48	39	22	55	25	43
95% Confidence Limit(+/-)	18%	14%	21%	9%	11%	16%		17%	14%	12%	11%	15%	25%	15%	16%
Median	7	10.5	9	15	10	16.5		3	9	11	7	14	9	2	5
Mean Number of Resources Received per Household	8.3	4.7	13.5	13.5	11.2	15.9		4.4	10.6	16.0	7.5	4.1	19.6	16.3	6.6
Minimum	1	0	3	3	0	1		0	1	0	0	0	0	1	0
Maximum	18	13	27	31	39	34		13	23	60	31	12	47	30	28
95% Confidence Limit(+/-)	14%	22%	13%	10%	10%	19%		13%	8%	12%	10%	28%	16%	6%	15%
Median	7.5	3.5	13	14	11	14.5		4	10.5	13	6	4	23	16	5
Mean Number of Resources Given Away per Household	4.9	4.9	9.2	13.5	9.3	14.0		3.7	7.6	11.1	5.5	6.3	13.4	12.4	5.3
Minimum	0	0	0	1	0	3		0	0	0	0	0	0	0	0
Maximum	18	15	20	37	40	30		14	40	45	18	20	41	31	43
95% Confidence Limit(+/-)	23%	28%	18%	13%	14%	19%		21%	18%	15%	11%	36%	21%	7%	20%
Median	3	3	9	12	7	12		2	4	6	4	4	9.5	12	3
Mean Household Harvest, Pounds	934.1	1263.3	961.3	1937.6	1121.2	1787.3		665.8	947.8	971.7	598.7	873.1	1323.8	788.1	468.9
Minimum	15.8	68.8	17.7	110.0	5.5	277.4		0.0	17.5	10.8	5.3	169.7	5.0	0.0	0.0
Maximum	4871.3	5009.4	9143.3	11713.7	7952.8	21725.4		6128.8	6646.7	9207.4	4923.6	2559.5	7155.2	3592.9	23768.5
Total Pounds Harvested	27088.6	27792.6	29800.8	63939.5	72878.9	91154.6		20639.2	72035.9	67046.3	42505.9	13096.7	26475.9	21278.4	426664.6
Community per Capita Harvest, Pounds	321.1	388.7	255.5	518.0	466.3	393.2		326.4	357.2	315.6	221.4	184.7	470.7	289.7	176.4
Percent Using Any Resource	100.0%	100.0%	100.0%	100.0%	97.9%	100.0%		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	95.9%
Percent Attempting to Harvest Any Resource	95.5%	93.8%	95.2%	100.0%	95.7%	100.0%		96.0%	98.1%	96.1%	98.1%	100.0%	100.0%	92.0%	88.5%
Percent Harvesting Any Resource	95.5%	93.8%	95.2%	100.0%	95.7%	100.0%		92.0%	98.1%	96.1%	98.1%	100.0%	100.0%	92.0%	85.8%
Percent Receiving Any Resource	100.0%	93.8%	100.0%	100.0%	97.9%	100.0%		92.0%	100.0%	98.0%	98.1%	90.9%	93.8%	100.0%	83.1%
Percent Giving Away Any Resource	86.4%	87.5%	90.5%	100.0%	93.6%	100.0%		72.0%	78.8%	86.3%	90.7%	81.8%	87.5%	96.0%	74.3%

[1] Survey responses for Karluk were too incomplete to develop harvest estimates.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

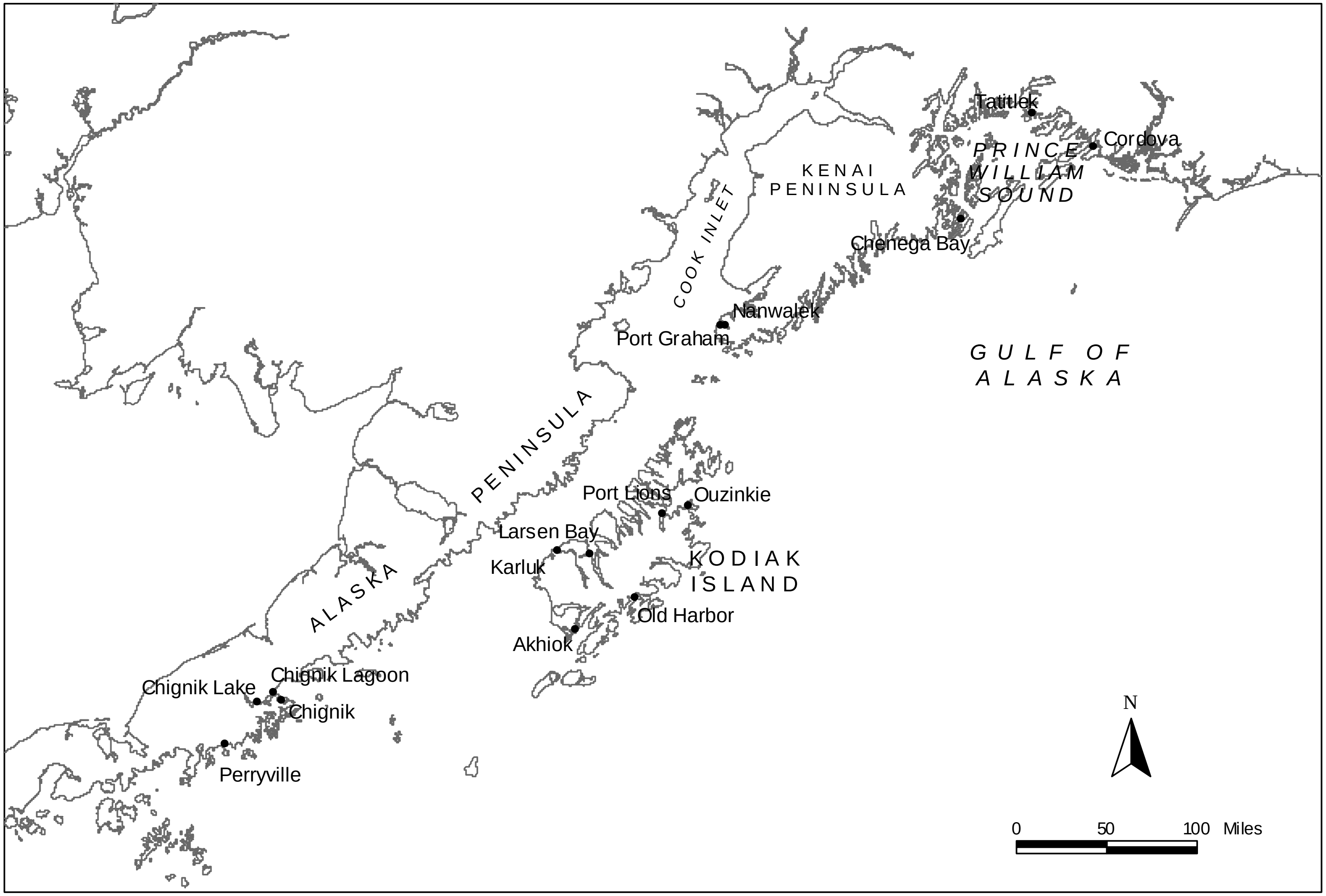

Figure I-1. The Study Area and the Study Communities

CHAPTER II: CHENEGA BAY

by

William E. Simeone

COMMUNITY BACKGROUND

Community History

Because of prevailing winds, tides, and currents, Chenega Bay lay directly in the path of the *Exxon Valdez* oil spill. Many of the beaches and waters used by the Chenega people were oiled and then subjected to clean up. Although much has changed in the intervening 15 years, Chenega residents are still concerned about the effects of residual oil. As one resident commented, “You still see oil when you overturn rocks on all the surrounding islands.”

The traditional territory of the Chenega people, or *Tyanirmiut*, encompassed the area from Port Wells in the north to Montague Strait in the south. Oral accounts indicate that an early village was located on the tip of Knight Island but sometime in the late 19th century the people moved to Chenega Island (Kompkoff n.d.). In the 1930s the village on Chenega Island was said to be the only ancient Alutiiq settlement still inhabited in Prince William Sound (de Laguna 1956:30). On March 27, 1964, a tsunami destroyed most of the village and 23 people lost their lives. The survivors relocated and it was 20 years before the new community of Chenega Bay was established. Plans to reestablish the village were launched in the 1970s. Provisions in the Alaska Native Claims Settlement Act (ANCSA) allowed former residents to acquire land and those enrolled in the corporation chose a site at Crab Bay on Evans Island, which is on high ground and well protected from tsunamis.

Demography

In 1880, the U.S. Census recorded a population of 80 people living in Chenega (Rollins 1978) (Figure II-1). No federal census was taken in 1890 but Russian Orthodox sources record a population of 71. In 1900 the government census listed 141 people, 22 of those were non-Natives. At the time of the 1964 earthquake, Chenega had a population of between 68 and 76 people. In 1984 the village was reestablished as Chenega Bay and the 1990 federal census enumerated a population of 94 people. Household surveys conducted by the Alaska Department of Fish and Game (ADF&G), Division of Subsistence in 1989–90 listed 74 permanent residents living in 21 households (Fall et al. 1996:43).

Since the oil spill, the population has varied from a high of 94 in 1990, to a low of 35 in 1998 (Alaska Department of Labor 1999). In 1998, several houses in the village stood empty. Some residents moved to Anchorage to seek health care, and a number of elders died, including four older men who were active hunters. The survey, undertaken by the Division of Subsistence in 2003, indicated a population of 57 people living in 20 households (Table I-8). The community was 84.4% Alaska Native and the average age was 30.5 years. Table II-1 shows that there were more men than women living in Chenega Bay in 2003, and that the population was relatively young.

Economic Overview

During the 1960s commercial fishing was the dominant form of wage employment in Chenega and before the 1964 earthquake all 14 households were involved in either the salmon seine or gillnet fishery (Stratton and Chisum 1986:15). In 1984, the year the village was reestablished, 64% of those employed worked in the commercial fishing industry. In 1985–86 that number had dropped to 30% and by 1993–94 to 16% (Seitz and Miraglia 1995:IV-5). With the decline in commercial fishing, public sector jobs in local government and the school became the most stable source of income. In 2000, for example, of the 23 adults in Chenega Bay who said they were employed, 20 worked in some capacity for the government (Alaska Department of Commerce, Community Online Database). As in many rural communities, most jobs in Chenega Bay are seasonal and per capita incomes are low compared to the Alaska average. In 1993–94 the average per capita income in Chenega Bay was $11,514 (Seitz and Miraglia 1995:IV-5), and in 2000 it was $13,381 (Alaska Department of Commerce, Community Online Database).

SUBSISTENCE RESOURCE HARVEST AND USES

Participation in Hunting, Fishing, and Gathering Activities

In 2003 Chenega Bay households harvested an average of about 13.3 different kinds of wild resources and used 23.9 different resources (Table II-2). Chenega Bay households received more wild resources (19.6 kinds) than they gave away (13.4 kinds), indicating that there was a great deal of sharing among households. Wild foods used during the study year by Chenega Bay households are listed in Table II-3. Although specific to Chenega Bay, this list is indicative of subsistence resources used by most people living in Prince William Sound, including the communities of Cordova (see Chapter III) and Tatitlek (see Chapter IV).

A large number of Chenega Bay residents were involved in subsistence activities in 2003. Table II-2 shows that every household in Chenega Bay used, attempted to harvest, and harvested subsistence resources. More people were involved in the harvest and processing of plants and fish than in the harvest and processing of game or furbearers, and more people (81.3%) said they harvested plants than any other resource. The most widely used resource was fish (100% of households reported using fish), followed by marine mammals and vegetation (87.5% each), marine invertebrates and land mammals (81.3% each), then birds and eggs (62.5%). Less than 7% of households said they used small land mammals (Table II-4).

As is the case in many small rural communities in Alaska, more Chenega Bay households reported using a resource than harvesting one because most households shared with friends, relatives, and neighbors. For example, 93.8% of households said they used coho salmon but only 56.3% reported a harvest. No household said they harvested Dungeness or King crab, yet 18.8% of households said they used Dungeness crab and 25.0% used King crab, meaning that both species of crab were probably brought by harvesters living outside of the community.

Harvest success rates among Chenega Bay households were high. One hundred percent of households who attempted to harvest any resource were successful. More specifically, all Chenega Bay households that tried to harvest fish, birds and eggs, or vegetation, were successful, and over 80% that attempted to harvest marine mammals and marine invertebrates were successful (Table II-4). A somewhat lower percentage of households (56.3%) had success in harvesting large land mammals. These success rates are about the same as those in 1997-98 (Fall et al. 1999).

Resource Harvest Quantities and Harvest Composition

Table II-4 is organized first by general category and then specific species. Any use of domesticated animals and plants has been excluded. All resources have been recorded in pounds (see Appendix D for conversion factors). The "harvest" category includes resources actually taken by a member of the surveyed household during 2003, the year covered in the survey. The "use" category includes all resources taken and given away by a household, and resources acquired after a harvest, either as gifts, by trade, or through hunting partnerships and meat given to hunting guides by their clients. The "use" category was not confined to resources for human consumption but incorporated all non-commercial uses of resources, including trap bait and dog food. Purchased seafood was not recorded. Differences between harvest and use percentages reflect sharing between households, which resulted in a wider distribution of wild foods.

Chenega Bay's total community harvest of wild resources in 2003 was 26,475.9 pounds usable weight, a decline of 21% from 1997–98 (Fall et al. 1999). The mean household harvest in 2003 was 1,323.8 pounds or 470.7 pounds per person (Table II-4). In 2003, Chenega Bay residents harvested 19,322.9 pounds of fish, 2,946.9 pounds of land mammals, 2,590.0 pounds of marine mammals, 140.1 pounds of birds and eggs, 966.1 pounds of marine invertebrates, and 510.0 pounds of vegetation. The total harvest was composed primarily of fish (72. 9%), with much smaller quantities of land mammals (11.1%), marine mammals (9.8%), marine invertebrates (3.6%), vegetation (1.9%), and birds and eggs (less than 1%).

Halibut and sockeye salmon made up the two largest components of the community's resource harvest as measured by usable weight (4,293.8 and 4,188.7 pounds, respectively). Next in order were coho salmon (3,734.7 pounds), deer (2,160.0 pounds), harbor seal (2,590.0 pounds), clams (738.8 pounds), and berries (480.0 pounds). Every household in Chenega Bay said they used salmon and over 90% said they used sockeye and coho salmon. Likewise over 90% of households said they used halibut, and over 80% said they used harbor seal, deer, clams and berries (Table II-4).

Chenega Bay residents harvested a total of 12,747.1 pounds of salmon in 2003, compared to 13,221.7 pounds in 1997–98. Sockeye salmon made up 32.8% of the total salmon harvest during the study year, followed by coho (29.2%), Chinook(17.2%), chum (12.2%), and finally pink salmon (6.9%). Chenega Bay residents harvested 6,575.7 pounds of non-salmon fish, which was approximately half of what they harvested in 1997–98. Even so, non-salmon fish species made up 24.8% of the total Chenega Bay subsistence harvest and were used by over 93% of households. As shown in Table II-4, 75.0% of households attempted to harvest non-salmon fish and 75.0% actually caught some. At the same time 81.3% of households said they gave away and 87.5% said they received non-salmon species. The composition of the 2003 non-salmon fish harvest was primarily halibut (4,293.8 pounds), rockfish (745.2 pounds), greenling (277.5 pounds), and cod (263.0 pounds).

Just over 81% of all Chenega Bay households said they used deer, while 43.8% used moose, 37.5% used caribou, 25% used goat, and 12.5% used black bear, Dall sheep, and elk. The elk, Dall sheep, and caribou came from outside Prince William Sound and were not harvested by residents of the community, as no household reported a harvest of these animals. However, some households did report attempting to harvest Dall sheep and caribou. Less than

7% of Chenega Bay households said they harvested and ate any small game species. The total harvest of game in 2003 was 2,946.9 pounds, or 44% lower than what it was 1997–98 (5,289.5 pounds). Deer harvests were 35% lower than 1997–98 although 60% of Chenega Bay households thought that the availability of deer was the same as it was five years ago. By contrast, marine mammal harvests were 66% higher in 2003 than in 1997–98. In 2003, Chenega Bay households reported a total harvest of 2,590 pounds of marine mammals, all of which were harbor seals. Although this harvest was higher in 2003, over 60% of Chenega Bay households thought there were fewer harbor seals than five years ago. At the same time, some residents reported an increase in the marine mammal populations, thinking they were related to the presence of large schools of herring in Sawmill Bay.

The harvest of birds and eggs by Chenega Bay residents in 2003 was less than half of what it was in 1997–98. Just over 60% of households reported using birds and eggs while 43.8% reported a harvest. The total harvest of birds and eggs was 140.1 pounds, 62% less than 1997–98. The 2003 harvest was divided almost equally between migratory birds (primarily ducks) and upland birds (mostly grouse). Over 40% of households reported a harvest of birds and eggs and 62.5% reported using them.

Marine invertebrates are some of the most valued resources harvested by Chenega Bay residents. In 2003 the total harvest of marine invertebrates was 966.1 pounds, slightly higher than the 780.9 pounds harvested in 1997–98. The 2003 harvest was composed almost entirely of clams (738.8 pounds), some of which were harvested outside of Prince William Sound, in addition to 65.0 pounds of octopus and 65.0 pounds of shrimp. No household reported a harvest of crab, although 31.3% of households reported using crab. The increase in harvest of marine invertebrates in Chenega Bay is in sharp contrast to the steep decline in harvest of marine invertebrates in Tatitlek. Residents of both communities agreed that there were fewer octopuses available in 2003 compared to five years ago but they sharply differed as to the availability of clams. Every Tatitlek household thought there were fewer clams than five years ago while only 33.3% of Chenega Bay households thought there were fewer clams. At the same time a number of Chenega Bay residents said that marine invertebrates were the one subsistence food they had to purchase because they could not harvest enough. Several Chenega Bay residents expressed concern over the possible contamination of marine invertebrates, and the possibility of Paralytic Shellfish Poisoning (PSP) affecting the clams, something not mentioned in Tatitlek.

Vegetation is the last category to be considered. In 2003 Chenega Bay residents harvested a total of 510.0 pounds of vegetation, 40% less than in 1997–98. The harvest was composed of various species of berries as well as plants, greens, and mushrooms. Almost 90% of households said they used berries, and just over 80% said they harvested them.

Harvest Effort

Chenega Bay residents were asked to assess the amount of effort it took to harvest wild resources as compared to five years ago. This question was asked about salmon, non-salmon fish, marine invertebrates, large and small land mammals, marine mammals, birds and eggs, and wild plants. In most cases a majority of households said it took about the same amount of effort as five years ago (see Tables A-58 to A-81). However, in the case of birds and eggs, a majority said it took more effort, while in the case of marine invertebrates, households were equally split between saying it took more or the same effort. For those households that said it took them more effort to find resources, most said that it was because of competition from other users. It should also be noted that some people said they had reduced their harvest efforts because of competition. In other words people either had to work harder to compete or they gave up in the face of competition. Chenega Bay residents compete with nonlocal users for salmon, non-salmon fish (particularly halibut), deer, berries, and birds. Several Chenega Bay residents interviewed for this project pointed to the opening of the Whittier Tunnel as a part of the problem. In their view, the opening of the tunnel has increased access to western Prince William Sound, which has brought increased competition and stopped local residents from going to some of their traditional fishing or hunting areas. Another issue is the increased traffic of charter boats that leave Whittier, Seward, and Valdez, bringing people to fish for salmon and halibut, and hunt for deer and black bear. By law, non-Natives may not hunt for marine mammals, but their increased presence scares marine mammals so they are hard to hunt. The presence of nonlocals also inhibits hunters from shooting marine mammals because they do not want to shoot them in front of tourists.

During interviews for this project the residents of both Chenega Bay and Tatitlek complained about increasing competition from sport fishers and hunters. Since 1983 sportfishing effort for salmon, halibut, and rockfish has more than doubled in Prince William Sound (ADF&G Division of Sport Fish 2004). Likewise, sport hunting for Sitka black-tailed deer, once a major staple of the local diet, has also increased. Generally, nonlocal hunters outnumber local hunters by almost a two to one margin, and most of the deer harvest takes place on Montague Island, which is the traditional territory of the Chenega people (ADF&G Division of Wildlife Conservation 2004:94).

<u>Comparisons of Uses and Harvests with Other Years</u>

Chenega Bay households were asked to assess their current harvest and use of subsistence resources compared to five years ago and before the oil spill. Asked about the five-year comparison, a majority (64.3%) said that overall their harvest and use was the same as five years ago (see Tables A-1 to A-27). In contrast, almost 74% of Tatitlek households said their overall harvest and use had declined within the same time period. Only in the case of marine invertebrates did a majority of Chenega Bay households say their harvest and use had declined. Several households mentioned that marine invertebrates were not as plentiful as they once were, and the main reason given for not harvesting them locally was fear of residual oil. One person said “less [marine invertebrates] and afraid to dig in vicinity because of residual oil on the beaches.” Another said, in response to a question about the decline in marine invertebrate harvests, “some beaches have residual oil.”

In comparing their current harvest and use to that of before the oil spill, a majority of Chenega Bay households (63.6%) said that their overall use of subsistence resources had remained the same (see Tables A-28 to A-57). Only in the case of marine invertebrates did a majority say their harvests were less than before the oil spill. An equal percentage of households (44.4%) said their harvest of marine mammals had either stayed the same or decreased.

As shown in Figure II-2, after dropping by more than half in 1989 and 1990, subsistence harvests began to rebound, surpassing pre-spill harvests in 1992 and again in 1997. Harvests also passed pre-spill levels in 2003. Looking at individual resource categories there has been a shift in emphasis in the composition of the harvest from marine mammals to fish (Figure II-3 and Table II-5). In 1984–85, marine mammals made up almost 50% of the total harvest and salmon and other fish made up about 30%, but in 2003 fish were over 70% of the harvest and marine mammals composed less than 10%. One reason for the increased harvest of salmon is the enhancement programs instituted by the State of Alaska since the oil spill. The decline in marine mammal harvests is due, in part, to a general decline in the population of seals and sea lions in Prince William Sound. Marine invertebrate harvests have remained relatively high despite fears of residual oil and possible PSP contamination. One explanation for this is that Chenega Bay residents have been traveling outside of Prince William Sound to harvest clams.

NATURAL RESOURCE CONDITIONS

Food Safety

As shown in Figure II-2, Chenega Bay households expressed a fairly high level of confidence in the safety of subsistence foods, and this confidence has increased somewhat since 1998. The percentage of households with confidence in herring has slipped from 80.0% in 1998 to 63.0% in 2003, but no household thought they were now unsafe to eat, as 20.0$ thought so in 1998. A majority of households still think seals, chitons, and clams are safe to eat, but there has been an increase in the number of households that think clams are unsafe (from 13.0% in 1998 to 25.0% in 2003) (Fall et al. 1999:F-5). People who thought clams were unsafe provided a variety of reasons, including condition of the resource, and lack of information on the condition of the resource (see Tables A-462 to A-463).

Status of Resource Populations

Chenega Bay residents were fairly split on assessing the recovery of subsistence resources since the oil spill. A slight majority (45.5%) said that resources had recovered. At the same time 36.4% said they had not recovered and 18.2% said they had never changed (see Tables A-82 and A-83). When asked what could be done to aid the recovery, Chenega Bay residents provided the following comments:

- Transplant sea mammals and shellfish.
- Transplant cockles in our area and open subsistence crab fishing.
- Restrict commercial and charter vessels from invading the area and quit exploiting our resources. Make a subsistence buffer zone around Chenega.
- Get the residual oil off the beaches. How do you bring back herring and crab?
- More oil clean up.
- I don't feel you should spend any more money on research, but spend more money on cleanup efforts.
- Research and monitor sea lions. Why don't herring spawn in our area? Do a crab survey; allow us to subsistence crab fish.
- Allow elders and their traditional knowledge to be involved in research.
- Black oystercatcher research. We need to know how many resources the commercial charter vessels are taking. Where and how much? By catch of commercial fisheries, king crab fishing for subsistence is sustainable and should not be restricted. Subsistence shrimping should be allowed all year.
- We should be involved in research projects.
- Conduct shellfish studies, and clam studies.

- Monitor harbor seals and clams.
- No ideas at this time.
- Shrimp and crab surveys so we can get subsistence rights to harvest those species and clams. We would like to know about the killer whale population going down.
- Stay away from Chenega Bay. I got a ticket for subsistence fishing with a rod and reel and I want my money back!

Chenega Bay residents were asked to assess changes in the availability of all five species of salmon, three species of non-salmon fish (halibut, "black bass", and herring), five different marine invertebrates (clams, bidarkies, Dungeness crab, sea urchins and octopus), deer, harbor seals and sea lions, sea ducks and berries. To begin with salmon, a majority of Chenega Bay households said that availability of Chinook salmon had declined compared to five years ago, but all other species had either remained the same or had increased. The reason for the decline in the availability of Chinook salmon is that the State of Alaska has suspended its enhancement program in Sawmill Bay (see Tables A-87 to A-90).

A majority of Chenega Bay respondents thought there were more herring than five years ago, and in fact one person noted the abundance of herring in Sawmill Bay. Most people thought that the availability of halibut and black rockfish was the same as five years ago, but 25.0% of respondents thought halibut had declined because of competition (note the discussion above about fishing charters) (See Tables A-147 to A-150).

In terms of marine invertebrates, no one said there were more than five years ago and in fact most people said there were less crab, octopus, and sea urchins. A majority of respondents did say there were more clams. No one specified any reason for the changes (see Tables A-204 to A-206). Most people thought the availability of deer and plants was the same as five years ago, and those who had an opinion about the availability of sea ducks thought there were less (see Tables A-260 to A-263, A-416 to A-418, and A-366 to A-369). Although asked to provide reasons why they thought the availability of resources had changed over the last five years, most people gave no response.

Habitat Changes

Chenega Bay households were split right down the middle about observed changes in habitat or the environment of subsistence resources (see Tables A-456 to A-457). Half reported that they had observed no changes and half reported that they had observed changes. Respondents provided two reasons why the environment has changed: 71.4% said it was climate and 14.3% competition. The comments provided by residents on this subject included:

- Less subsistence foods.
- Less bottom fish, seals and ducks.
- Deer and black bear seems to be more abundant.
- Too numerous to mention.
- More competition.
- More alders on the beach.

SOCIAL AND ECONOMIC CONDITIONS

Food Purchases

When asked whether they had to purchase subsistence foods, half of Chenega Bay households said yes and half said no. This is a decline compared to five years ago when 73.0% of households said they bought substitutes for subsistence foods (Fall et al. 1999:F-6). When asked if they needed to buy store foods to replace subsistence resources, well over half (75.0%) said yes, while only 25.0% said no. When asked what kinds of subsistence foods they need to buy, the overwhelming response was various kinds of shellfish, but primarily shrimp and crab (see Tables A-475 to A-478).

Sharing of Subsistence Resources

Regarding the sharing of resources, a majority of households (57.1%) said sharing was the same compared to five years ago, but more (28.6%) said that it had declined than had increased (14.3%) (see Tables A-472 to A-474). When asked the same question five years ago, half of Chenega Bay households said that sharing was higher than before the oil spill, while 40.0% said it was about the same (ibid.). Listed below are reasons why people think there is more or less sharing now.

- [Resources] Less plentiful
- Hardly any [resources] this year
- I get more of all species
- Availability of some subsistence foods are less
- Less food to share

Young Adults' Involvement in Subsistence Activities

According to a majority of Chenega Bay residents (60.0%), young adults are learning enough subsistence skills, while 40.0% said they were not (see Tables A-466 to A-468). This is in contrast to Tatitlek, where most households said that children were not learning enough skills. The current Chenega Bay responses to this question provide the same result as five years ago (Fall et al. 1999:F-6). Those who said that young adults were not learning the skills pointed to lack of interest (66.7%), and lack of teachers (33.3%). Almost every person who participated in the survey had a comment about the young people's involvement in subsistence activities. These comments are listed below.

- They are getting old enough to go out.
- Nuchek [spirit camp] and elders.
- Young adults are learning from elders and other hunters.
- Elders and youth camps.
- They have lack of incentive to learn – too many video movies.
- Uppa [grandfather] is teaching my children.
- Too much technology and game boys, watching more TV.
- From watching and participating.

- From elders and family.
- Too much TV and video games.
- Nobody is teaching them.
- They leave the village and go to the city.
- No one is teaching, with Nuchek once a year is not enough – that is their last
- chance.
- From preparing fish and going out and hunting and clamming.
- By watching elders.

Elders' Influence

In the interviews conducted in 2004, most (50.0%) Chenega Bay residents said that elders' influence had increased, which is in contrast to the perception five years before when most Chenega Bay households thought elders' influence had declined (Fall et al. 1999:F-7). However, 28.6% of households thought that elders' influence had declined while 21.4% said it had stayed the same (see Tables A-469 to A-471). Comments on this question are listed below. They reflect both demographic reasons (i.e., elders are dying off), and cultural reasons (i.e., children are not interested).

- Elders are dying off.
- I teach youth whenever possible, Nuchek [spirit camp] makes a big difference.
- Loss of elders and lack of interest with kids.
- Less people.
- Elders are teaching more and more is learned at Nuchek.
- Passing on and less resources.
- Because of the population of kids has decreased.

Status of the Traditional Way of Life

A large majority of Chenega Bay residents said that the traditional way of life had been affected by the oil spill. No one said that it had not been affected. A majority (53.8%) also said that the traditional way of life had not recovered while 30.8% said that it had recovered. These results are similar to those of five years ago (Fall et al. 1999:F-7). When asked what should be done to help the traditional way of life recover, most had no suggestion, but a few suggested taking legal and political action, developing more education and spirit camps, and responding to social disruptions (see Tables A-479 to A-481).

EVALUATION OF THE GEM PROGRAM

The last questions on the survey had to do with people's knowledge of the Gulf Ecosystem Monitoring Program (GEM). When asked if they were informed about the *Exxon Valdez* Oil Spill Trustee Council and GEM program, 66.7% of Chenega Bay residents said they were informed, and 33.3% said they were not informed (see Tables A-482 to A-483). Suggestions for improving communication about the Trustee Council and the GEM programs varied and included newsletters and mailings (25.0%), the Internet (25.0%), and better staffing (25.0%). When asked to assess adequacy of tribal council involvement, 78.6% said it was adequate while 21.4% said it was not adequate (see Tables A-484 to A-485).

DISCUSSION AND CONCLUSIONS

In many respects the residents of Chenega Bay suffered the most from the oil spill in terms of the amount of oil that washed over their beaches and into their waters. In 2003, the residents of Chenega Bay were somewhat positive about their children learning subsistence skills and the influence of elders, but most did not think that the traditional way of life had yet recovered from the oil spill. The harvest of wild resources in 2003 declined from five years ago, though it was higher than pre-spill years,[1] and Chenega Bay residents still use a wide diversity of resources (23.2% in 1997–98 and 24.0% in 2003). But since the oil spill the composition of the harvest has changed. In 1984, large land mammals and marine mammals were 67.0% of the total harvest but in 2003 they amounted to only 20.9% of the total. Fish and marine invertebrates, on the other hand, are now 76.5% of the harvest, whereas they were only 30.6% in 1984. Marine mammal harvests in Chenega Bay have been declining since the oil spill, and although they were higher in 2003 than previous years, 60.0% of Chenega Bay residents said that they still see few marine mammals. The increased reliance on fish is the result, in part, of salmon enhancement programs initiated by the State of Alaska (and not because of the strength of wild stocks), while the increase in marine invertebrates, is due to people traveling outside Prince William Sound to harvest clams.

A key issue is increased competition from other user groups. Most Chenega Bay residents who said that they had to increase efforts to find resources said it was because of competition. There were also respondents who said that they had reduced their efforts because of competition. In addition to the increased number of individuals coming into Prince William Sound to hunt and fish, Chenega Bay residents report seeing an increased number of charter boats that bring in nonlocal residents to hunt deer and black bear and to fish for salmon and halibut. The frustration over having to compete with nonlocal residents is expressed in this recommendation: "Restrict commercial and charter vessels from invading the area and quit exploiting our resources. Make a subsistence buffer zone around Chenega."

Finally, 15 years after the oil spill, there is still concern over residual oil. Most Chenega Bay households expressed confidence in the safety of subsistence foods, but there is increased uncertainty about clams and a majority of households said there are fewer crabs, octopuses, and sea urchins than five years ago. When asked specifically about marine invertebrates, Chenega

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[1] It should be noted, however, that the only pre-spill harvest data for Chenega Bay pertain to the first two years after the community's resettlement. These may have been lower than the years just before the spill, since households were still exploring and learning about the harvest areas near the new village when the pre-spill surveys were done (Stratton and Chisum 1986:113; Fall et al. 1996:103,109).

Bay residents said they were not as plentiful as they once were and the main reason for not harvesting them locally was fear of residual oil. The concern over the presence of the residual oil is best summed up in this quote from a Chenega Bay resident:

> Even though we are utilizing seal, sea lions, deer, clams, gumboots, we don't know what the long term effects are on the population. For example, we have had three early deaths and we don't know if they are related to their subsistence food they ate.

Table II-1. Population Profile, Chenega Bay, 2003

AGE	MALE			FEMALE			TOTAL		
	Number	Percent	Cum. Percent	Number	Percent	Cum. Percent	Number	Percent	Cum. Percent
0 - 4	2.50	7.69%	7.69%	5.00	21.05%	21.05%	7.50	13.33%	13.33%
5 - 9	3.75	11.54%	19.23%	1.25	5.26%	26.32%	5.00	8.89%	22.22%
10 - 14	2.50	7.69%	26.92%	0.00	0.00%	26.32%	2.50	4.44%	26.67%
15 - 19	5.00	15.38%	42.31%	2.50	10.53%	36.84%	7.50	13.33%	40.00%
20 - 24	1.25	3.85%	46.15%	0.00	0.00%	36.84%	1.25	2.22%	42.22%
25 - 29	1.25	3.85%	50.00%	2.50	10.53%	47.37%	3.75	6.67%	48.89%
30 - 34	2.50	7.69%	57.69%	1.25	5.26%	52.63%	3.75	6.67%	55.56%
35 - 39	5.00	15.38%	73.08%	2.50	10.53%	63.16%	7.50	13.33%	68.89%
40 - 44	2.50	7.69%	80.77%	0.00	0.00%	63.16%	2.50	4.44%	73.33%
45 - 49	0.00	0.00%	80.77%	1.25	5.26%	68.42%	1.25	2.22%	75.56%
50 - 54	1.25	3.85%	84.62%	3.75	15.79%	84.21%	5.00	8.89%	84.44%
55 - 59	1.25	3.85%	88.46%	1.25	5.26%	89.47%	2.50	4.44%	88.89%
60 - 64	3.75	11.54%	100.00%	0.00	0.00%	89.47%	3.75	6.67%	95.56%
65 - 69	0.00	0.00%	100.00%	1.25	5.26%	94.74%	1.25	2.22%	97.78%
70 - 74	0.00	0.00%	100.00%	0.00	0.00%	94.74%	0.00	0.00%	97.78%
75 - 79	0.00	0.00%	100.00%	0.00	0.00%	94.74%	0.00	0.00%	97.78%
80 - 84	0.00	0.00%	100.00%	1.25	5.26%	100.00%	1.25	2.22%	100.00%
85 - 89	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
90 - 94	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
95 - 99	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
100+	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
Missing	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
TOTAL	32.50	57.78%		23.75	42.22%		56.25		

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Survey, 2004

Figure II-1. Population of Chenega and Chenega Bay, 1858-2004

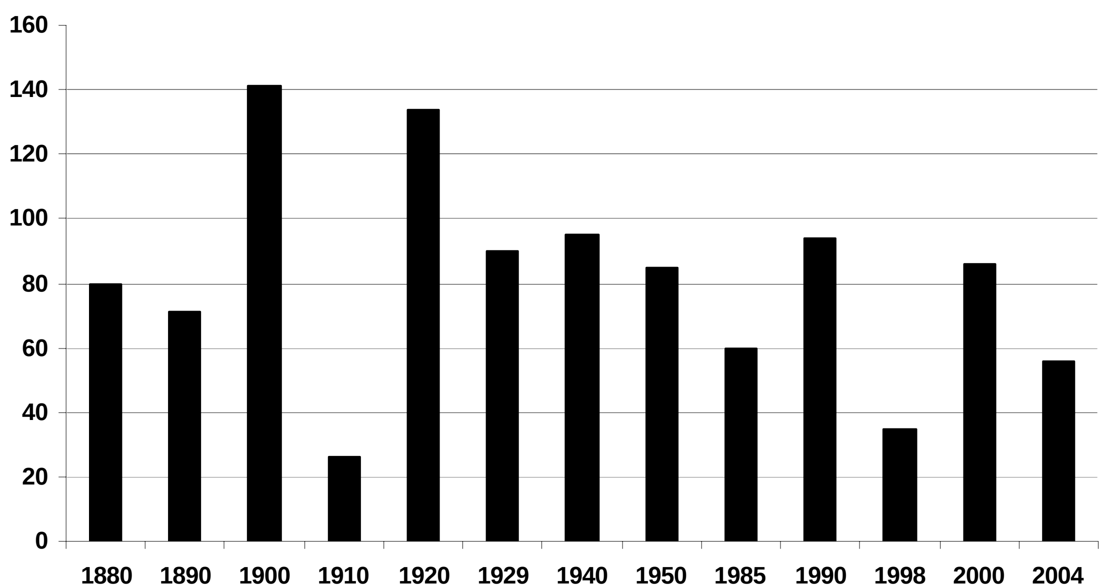


Table II-2. Resource Harvest and Use Characteristics of the Study Communities, Chenega Bay, Cordova, Tatitlek, 2003 Study Year

Study Community	Chenega Bay	Tatitlek	Non-Eyak Housholds Cordova	Eyak Households Cordova	All Cordova
Mean Number of Resources Used per Household	23.9	20.8	10.1	16.0	12.4
Minimum	4	10	0	0	0
Maximum	70	33	32	48	48
95% Confidence Limit(+/-)	16%	4%	13%	16%	11%
Median	26	21	8	13	10
Mean Number of Resources Attempted to Harvest per Household	15.8	9.7	7.3	9.3	8.1
Minimum	1	0	0	0	0
Maximum	66	25	30	46	46
95% Confidence Limit(+/-)	25%	9%	20%	26%	16%
Median	11	9	5	6	5
Mean Number of Resources Harvested per Household	13.3	5.9	6.7	8.5	7.4
Minimum	1	0	0	0	0
Maximum	55	25	29	43	43
95% Confidence Limit(+/-)	25%	15%	20%	24%	16%
Median	9	2	4	5.5	5
Mean Number of Resources Received per Household	19.6	16.3	4.5	10.0	6.6
Minimum	0	1	0	0	0
Maximum	47	30	17	28	28
95% Confidence Limit(+/-)	16%	6%	18%	18%	15%
Median	23	16	4	8	5
Mean Number of Resources Given Away per Household	13.4	12.4	3.3	8.5	5.3
Minimum	0	0	0	0	0
Maximum	41	31	16	43	43
95% Confidence Limit(+/-)	21%	7%	23%	25%	20%
Median	9.5	12	2	6	3
Mean Household Harvest, Pounds	1323.8	788.1	412.4	706.1	468.9
Minimum	5.0	0.0	0.0	0.0	0.0
Maximum	7155.2	3592.9	23768.5	17491.8	23768.5
Total Pounds Harvested	26475.9	21278.4	303098.6	123566.1	426664.6
Community per Capita Harvest, Pounds	470.7	289.7	151.8	292.9	176.4
Percent Using Any Resource	100.0%	100.0%	96.7%	94.6%	95.9%
Percent Attempting to Harvest Any Resource	100.0%	92.0%	88.0%	89.3%	88.5%
Percent Harvesting Any Resource	100.0%	92.0%	85.9%	85.7%	85.8%
Percent Receiving Any Resource	93.8%	100.0%	80.4%	87.5%	83.1%
Percent Giving Away Any Resource	87.5%	96.0%	69.6%	82.1%	74.3%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table II-3. Resources Used or Harvested by Chenega Bay Residents, 2003 Study Year

Finfish	**Invertebrates**	**Furbearers**	**Sea Mammals**
Salmon	Shrimp	Hare	Harbor Seal
Chinook	Octopus	Squirrel	Sea Lions
Sockeye	Clams		
Chum	Razor	**Plants and Trees**	**Land Mammals**
Pink	Butter	Blueberry	Sitka Black-tailed Deer
Coho	Gaper (Horse)	Cranberry, Highbush	Mountain Goat
Black cod	Surf Little Neck	Cranberry, Lowbush	Moose
Halibut	Cockles	Crowberry	
Gray Cod	Chitons (bidarkies)	Currant	**Wildfowl**
Rock fish, Red	Mussels, Blue	Fiddlehead fern	Ptarmigan
Rockfish, Black	Sea Urchin	Goosetongue	Grouse, Spruce hen
Herring		Hemlock, Mountain	Crane
Trout, Lake		Hemlock, Western	Canada Geese
Herring Roe on Kelp		Nagoon berry	Ducks
		Popweed	Mallard
		Raspberry	Pintails
		Salmonberry	Bufflehead
		Spruce	Goldeneye
		Watermelon berry	Scoter
		Wild Celery	Seagull (Eggs)
			Arctic Tern (Eggs)

Table II-4. Estimated Harvest and Use of Fish, Game, and Plant Resources, Chenega Bay, 2003

	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
Resource Name	Use	Att	Harv	Recv	Give	total	Mean HH	Percapita	Total	Units	Mean HH	Harvest
All Resources	100.0	100.0	100.0	93.8	87.5	26,475.89	1,323.79	470.68				90.58%
Fish	100.0	75.0	75.0	93.8	87.5	19,322.86	966.14	343.52				62.58%
Salmon	100.0	75.0	68.8	81.3	87.5	12,747.12	637.36	226.62	2,376.25		118.81	34.87%
Chum Salmon	75.0	56.3	50.0	50.0	56.3	1,563.50	78.18	27.80	331.25		16.56	29.99%
Coho Salmon	93.8	62.5	56.3	75.0	81.3	3,734.69	186.73	66.39	593.75		29.69	26.69%
Chinook Salmon	75.0	56.3	37.5	68.8	62.5	2,194.84	109.74	39.02	133.75		6.69	54.19%
Pink Salmon	81.3	56.3	43.8	68.8	56.3	884.45	44.22	15.72	332.50		16.63	28.40%
Sockeye Salmon	93.8	56.3	50.0	75.0	75.0	4,188.66	209.43	74.47	928.75		46.44	46.62%
Landlocked Salmon	12.5	6.3	6.3	6.3	12.5	46.88	2.34	0.83	31.25		1.56	92.29%
Unknown Salmon	6.3	6.3	6.3	0.0	6.3	134.11	6.71	2.38	25.00		1.25	92.29%
Non-Salmon Fish	93.8	75.0	75.0	87.5	81.3	6,575.74	328.79	116.90				53.11%
Herring	50.0	31.3	25.0	43.8	31.3	417.00	20.85	7.41	69.50	GAL	3.48	59.11%
Herring Roe	68.8	25.0	12.5	62.5	43.8	70.00	3.50	1.24	10.00	GAL	0.50	53.99%
Herring Roe/Unspecified	68.8	18.8	6.3	62.5	37.5	8.75	0.44	0.16	1.25	GAL	0.06	92.70%
Herring Sac Roe	6.3	6.3	6.3	0.0	0.0	26.25	1.31	0.47	3.75	GAL	0.19	92.29%
Herring Spawn on Kelp	6.3	6.3	6.3	0.0	6.3	35.00	1.75	0.62	5.00	GAL	0.25	92.29%
Smelt	31.3	6.3	0.0	31.3	18.8	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Eulachon (hooligan, candlefish)	25.0	6.3	0.0	25.0	12.5	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Unknown Smelt	12.5	0.0	0.0	12.5	6.3	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Bass	12.5	6.3	6.3	12.5	6.3	30.00	1.50	0.53	30.00		1.50	92.29%
Sea Bass	12.5	6.3	6.3	12.5	6.3	30.00	1.50	0.53	30.00		1.50	92.29%
Cod	31.3	31.3	25.0	18.8	25.0	263.00	13.15	4.68	107.50		5.38	57.19%
Pacific Cod (gray)	25.0	25.0	18.8	18.8	18.8	232.00	11.60	4.12	72.50		3.63	65.34%
Pacific Tom Cod	18.8	12.5	12.5	6.3	6.3	10.00	0.50	0.18	20.00		1.00	63.35%
Walleye Pollock (whiting)	6.3	6.3	6.3	6.3	0.0	21.00	1.05	0.37	15.00		0.75	92.29%
Eel	6.3	6.3	6.3	0.0	6.3	94.50	4.73	1.68	26.25		1.31	92.29%
Flounder	12.5	12.5	12.5	0.0	6.3	60.00	3.00	1.07	20.00		1.00	49.61%
Starry Flounder	12.5	12.5	12.5	0.0	6.3	33.75	1.69	0.60	11.25		0.56	65.18%
Unknown Flounder	6.3	6.3	6.3	0.0	6.3	26.25	1.31	0.47	8.75		0.44	92.29%
Greenling	50.0	43.8	37.5	37.5	31.3	277.50	13.88	4.93	165.00		8.25	48.79%
Lingcod	25.0	18.8	6.3	25.0	12.5	150.00	7.50	2.67	37.50		1.88	92.70%
Unknown Greenling	50.0	37.5	37.5	37.5	31.3	127.50	6.38	2.27	127.50		6.38	31.65%
Halibut	93.8	75.0	68.8	81.3	75.0	4,293.75	214.69	76.33	4,293.75	LBS	214.69	41.70%
Rockfish	68.8	43.8	43.8	62.5	43.8	745.24	37.26	13.25	322.50		16.13	23.03%
Black Rockfish	68.8	43.8	43.8	62.5	43.8	234.38	11.72	4.17	156.25		7.81	40.01%
Red Rockfish	68.8	43.8	37.5	62.5	31.3	300.00	15.00	5.33	75.00		3.75	42.99%
Unknown Rockfish	50.0	31.3	31.3	31.3	18.8	210.86	10.54	3.75	91.25		4.56	54.26%
Sablefish (black cod)	31.3	12.5	6.3	31.3	6.3	11.63	0.58	0.21	3.75		0.19	92.50%
Sculpin	6.3	6.3	6.3	0.0	6.3	1.25	0.06	0.02	2.50		0.13	92.29%
Irish Lord	6.3	6.3	6.3	0.0	6.3	1.25	0.06	0.02	2.50		0.13	92.29%
Unknown Irish Lord	6.3	6.3	6.3	0.0	6.3	1.25	0.06	0.02	2.50		0.13	92.29%
Unknown Sculpin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Shark	6.3	6.3	6.3	0.0	0.0	45.00	2.25	0.80	5.00		0.25	92.29%
Unknown Shark	6.3	6.3	6.3	0.0	0.0	45.00	2.25	0.80	5.00		0.25	92.29%
Skates	18.8	12.5	12.5	12.5	12.5	43.75	2.19	0.78	8.75		0.44	78.63%
Sole	6.3	0.0	0.0	6.3	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Sole	6.3	0.0	0.0	6.3	0.0	0.00	0.00	0.00	0.00		0.00	0.00%

(Continued)

Table II-4. Estimated Harvest and Use of Fish, Game, and Plant Resources, Chenega Bay, 2003

	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
Resource Name	Use	Att	Harv	Recv	Give	total	Mean HH	Percapita	Total	Units	Mean HH	Harvest
Wolffish	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Char	37.5	25.0	18.8	25.0	12.5	87.50	4.38	1.56	62.50		3.13	54.15%
Dolly Varden	37.5	25.0	18.8	25.0	12.5	63.00	3.15	1.12	45.00		2.25	71.43%
Lake Trout	18.8	6.3	6.3	18.8	6.3	24.50	1.23	0.44	17.50		0.88	92.29%
Grayling	6.3	6.3	6.3	0.0	6.3	43.75	2.19	0.78	62.50		3.13	92.29%
Sturgeon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Sturgeon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Trout	12.5	12.5	12.5	6.3	12.5	78.75	3.94	1.40	56.25		2.81	65.18%
Rainbow Trout	12.5	12.5	12.5	6.3	12.5	78.75	3.94	1.40	56.25		2.81	65.18%
Steelhead	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Trout	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Whitefish	6.3	6.3	6.3	0.0	6.3	13.13	0.66	0.23	7.50		0.38	92.29%
Unknown Whitefish	6.3	6.3	6.3	0.0	6.3	13.13	0.66	0.23	7.50		0.38	92.29%
Land Mammals	81.3	75.0	56.3	81.3	75.0	2,946.88	147.34	52.39	133.75		6.69	31.44%
Large Land Mammals	81.3	75.0	56.3	81.3	75.0	2,925.63	146.28	52.01	52.50		2.63	27.23%
Black Bear	12.5	0.0	0.0	12.5	6.3	0.00	0.00	0.00	0.00		0.00	0.00%
Brown Bear	0.0	6.3	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Caribou	37.5	6.3	0.0	37.5	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Deer	81.3	75.0	56.3	81.3	75.0	2,160.00	108.00	38.40	50.00		2.50	24.73%
Elk	12.5	0.0	0.0	12.5	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Goat	25.0	12.5	6.3	25.0	12.5	90.63	4.53	1.61	1.25		0.06	92.50%
Moose	43.8	6.3	6.3	43.8	12.5	675.00	33.75	12.00	1.25		0.06	92.29%
Dall Sheep	12.5	6.3	0.0	12.5	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Small Land Mammals	6.3	6.3	6.3	6.3	6.3	21.25	1.06	0.38	81.25		4.06	68.71%
Beaver	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Coyote	0.0	6.3	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Fox	0.0	6.3	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Red Fox	0.0	6.3	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Hare	6.3	6.3	6.3	6.3	6.3	15.00	0.75	0.27	7.50		0.38	92.29%
Snowshoe Hare	6.3	6.3	6.3	6.3	6.3	15.00	0.75	0.27	7.50		0.38	92.29%
Land Otter	6.3	6.3	6.3	0.0	0.0	0.00	0.00	0.00	27.50		1.38	92.29%
Lynx	0.0	6.3	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Marten	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Mink	6.3	6.3	6.3	6.3	0.0	0.00	0.00	0.00	25.00		1.25	92.29%
Muskrat	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Porcupine	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Squirrel	6.3	6.3	6.3	6.3	6.3	6.25	0.31	0.11	12.50		0.63	92.29%
Tree Squirrel	6.3	6.3	6.3	6.3	6.3	6.25	0.31	0.11	12.50		0.63	92.29%
Weasel	6.3	6.3	6.3	0.0	0.0	0.00	0.00	0.00	8.75		0.44	92.29%
Wolf	0.0	6.3	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Wolverine	0.0	6.3	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Marine Mammals	87.5	50.0	43.8	75.0	68.8	2,590.00	129.50	46.04	46.25		2.31	44.68%
Porpoise	12.5	0.0	0.0	12.5	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Seal	87.5	50.0	43.8	75.0	68.8	2,590.00	129.50	46.04	46.25		2.31	44.26%
Harbor Seal	87.5	50.0	43.8	75.0	68.8	2,590.00	129.50	46.04	46.25		2.31	44.26%
Harbor Seal (saltwater)	87.5	50.0	43.8	75.0	68.8	2,590.00	129.50	46.04	46.25		2.31	44.26%

(Continued)

Table II-4. Estimated Harvest and Use of Fish, Game, and Plant Resources, Chenega Bay, 2003

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	total	Mean HH	Percapita	Total	Units	Mean HH	Harvest
Sea Otter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Steller Sea Lion	18.8	6.3	0.0	18.8	6.3	0.00	0.00	0.00	0.00		0.00	0.00%
Whale	18.8	0.0	0.0	18.8	6.3	0.00	0.00	0.00	0.00		0.00	0.00%
Belukha	12.5	0.0	0.0	12.5	6.3	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Whale	12.5	0.0	0.0	12.5	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Birds and Eggs	62.5	43.8	43.8	50.0	31.3	140.06	7.00	2.49				26.94%
Migratory Birds	31.3	18.8	18.8	31.3	12.5	72.25	3.61	1.28	91.25		4.56	36.95%
Ducks	31.3	18.8	18.8	31.3	12.5	61.13	3.06	1.09	80.00		4.00	42.37%
Bufflehead	6.3	6.3	6.3	0.0	0.0	1.50	0.08	0.03	3.75		0.19	92.29%
Gadwall	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Goldeneye	31.3	18.8	18.8	25.0	12.5	30.00	1.50	0.53	37.50		1.88	75.98%
Unknown Goldeneye	31.3	18.8	18.8	25.0	12.5	30.00	1.50	0.53	37.50		1.88	75.98%
Harlequin	6.3	6.3	6.3	6.3	6.3	3.75	0.19	0.07	7.50		0.38	92.29%
Mallard	6.3	12.5	6.3	6.3	6.3	18.00	0.90	0.32	20.00		1.00	92.50%
Merganser	6.3	6.3	6.3	6.3	0.0	3.38	0.17	0.06	3.75		0.19	92.29%
Common Merganser	6.3	6.3	6.3	6.3	0.0	3.38	0.17	0.06	3.75		0.19	92.29%
Long-tailed Duck (Oldsquaw)	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Northern Pintail	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Scaup	6.3	6.3	6.3	0.0	0.0	1.13	0.06	0.02	1.25		0.06	92.29%
Unknown Scaup	6.3	6.3	6.3	0.0	0.0	1.13	0.06	0.02	1.25		0.06	92.29%
Scoter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Black Scoter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Surf Scoter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
White-winged Scoter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Scoter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Northern Shoveler	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Teal	6.3	6.3	6.3	0.0	0.0	0.75	0.04	0.01	2.50		0.13	92.29%
Green Winged Teal	6.3	6.3	6.3	0.0	0.0	0.75	0.04	0.01	2.50		0.13	92.29%
Wigeon	6.3	6.3	6.3	0.0	0.0	2.63	0.13	0.05	3.75		0.19	92.29%
American Wigeon	6.3	6.3	6.3	0.0	0.0	2.63	0.13	0.05	3.75		0.19	92.29%
Unknown Ducks	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Geese	6.3	6.3	6.3	6.3	0.0	10.50	0.53	0.19	5.00		0.25	78.63%
Brant	6.3	0.0	0.0	6.3	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Canada Geese	6.3	6.3	6.3	6.3	0.0	1.50	0.08	0.03	1.25		0.06	92.29%
Unknown Canada Geese	6.3	6.3	6.3	6.3	0.0	1.50	0.08	0.03	1.25		0.06	92.29%
Emperor Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
White-fronted Geese	6.3	6.3	6.3	0.0	0.0	9.00	0.45	0.16	3.75		0.19	92.29%
Unknown Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Crane	6.3	6.3	0.0	6.3	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sandhill Crane	6.3	6.3	0.0	6.3	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Shorebirds	6.3	6.3	6.3	6.3	0.0	0.63	0.03	0.01	6.25		0.31	92.29%
Common Snipe	6.3	6.3	6.3	6.3	0.0	0.63	0.03	0.01	6.25		0.31	92.29%
Seabirds & Loons	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Cormorants	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Double-Crested Cormorant	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Gulls	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Gull	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%

(Continued)

Table II-4. Estimated Harvest and Use of Fish, Game, and Plant Resources, Chenega Bay, 2003

	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
Resource Name	Use	Att	Harv	Recv	Give	total	Mean HH	Percapita	Total	Units	Mean HH	Harvest
Murre	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Common Murre	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Puffins	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Horned Puffin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tufted Puffin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Puffin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Other Birds	37.5	37.5	37.5	18.8	25.0	63.88	3.19	1.14	91.25		4.56	37.44%
Upland Game Birds	37.5	37.5	37.5	18.8	25.0	63.88	3.19	1.14	91.25		4.56	37.44%
Grouse	37.5	37.5	37.5	18.8	25.0	41.13	2.06	0.73	58.75		2.94	41.40%
Ptarmigan	6.3	6.3	6.3	6.3	6.3	22.75	1.14	0.40	32.50		1.63	92.29%
Bird Eggs	25.0	6.3	6.3	25.0	6.3	3.94	0.20	0.07	22.50		1.13	78.63%
Duck Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Duck Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Geese Eggs	6.3	0.0	0.0	6.3	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Geese Eggs	6.3	0.0	0.0	6.3	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Seabird & Loon Eggs	25.0	6.3	6.3	18.8	6.3	3.94	0.20	0.07	22.50		1.13	78.63%
Gull Eggs	25.0	6.3	6.3	18.8	6.3	3.38	0.17	0.06	11.25		0.56	92.29%
Unknown Gull Eggs	25.0	6.3	6.3	18.8	6.3	3.38	0.17	0.06	11.25		0.56	92.29%
Puffin Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tern Eggs	6.3	6.3	6.3	0.0	0.0	0.56	0.03	0.01	11.25		0.56	92.29%
Unknown Seabird Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Marine Invertebrates	81.3	56.3	50.0	75.0	43.8	966.09	48.30	17.18				33.69%
Chitons (bidarkis, gumboots)	56.3	31.3	31.3	50.0	18.8	87.50	4.38	1.56	22.50		1.13	31.43%
Red (large) Chitons	12.5	12.5	12.5	6.3	6.3	7.50	0.38	0.13	2.50	GAL	0.13	60.91%
Black (small) Chitons	56.3	31.3	31.3	50.0	18.8	80.00	4.00	1.42	20.00	GAL	1.00	35.35%
Clams	81.3	56.3	50.0	68.8	43.8	738.75	36.94	13.13	246.25	GAL	12.31	26.58%
Butter Clams	75.0	56.3	43.8	56.3	31.3	195.00	9.75	3.47	65.00	GAL	3.25	53.45%
Horse Clams (Gaper)	6.3	6.3	6.3	0.0	0.0	112.50	5.63	2.00	37.50	GAL	1.88	92.29%
Pacific Littleneck Clams (Steamers)	81.3	56.3	50.0	62.5	43.8	300.00	15.00	5.33	100.00	GAL	5.00	40.01%
Pinkneck Clams	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Razor Clams	56.3	12.5	12.5	56.3	25.0	131.25	6.56	2.33	43.75	GAL	2.19	78.63%
Unknown Clams	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Cockles	12.5	6.3	6.3	6.3	0.0	7.50	0.38	0.13	2.50	GAL	0.13	92.29%
Unknown Cockles	12.5	6.3	6.3	6.3	0.0	7.50	0.38	0.13	2.50	GAL	0.13	92.29%
Crabs	31.3	6.3	0.0	31.3	12.5	0.00	0.00	0.00	0.00		0.00	0.00%
Dungeness Crab	18.8	6.3	0.0	18.8	6.3	0.00	0.00	0.00	0.00		0.00	0.00%
King Crab	25.0	6.3	0.0	25.0	6.3	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown King Crab	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tanner Crab	18.8	6.3	0.0	18.8	12.5	0.00	0.00	0.00	0.00		0.00	0.00%
Tanner Crab, Bairdi	18.8	6.3	0.0	18.8	12.5	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Tanner Crab	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Crab	6.3	0.0	0.0	6.3	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Geoducks	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Limpets	6.3	6.3	6.3	0.0	0.0	0.47	0.02	0.01	0.31	GAL	0.02	92.29%
Mussels	12.5	6.3	0.0	12.5	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Unknown Mussels	12.5	6.3	0.0	12.5	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%

(Continued)

Table II-4. Estimated Harvest and Use of Fish, Game, and Plant Resources, Chenega Bay, 2003

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	total	Mean HH	Percapita	Total	Units	Mean HH	Harvest
Octopus	31.3	25.0	12.5	31.3	18.8	65.00	3.25	1.16	16.25		0.81	72.05%
Scallops	6.3	0.0	0.0	6.3	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Weathervane Scallops	6.3	0.0	0.0	6.3	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Sea Cucumber	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Sea Urchin	6.3	0.0	0.0	6.3	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Shrimp	56.3	18.8	18.8	50.0	18.8	65.00	3.25	1.16	65.00	LBS	3.25	52.82%
Snails	6.3	6.3	6.3	0.0	6.3	1.88	0.09	0.03	1.25	GAL	0.06	92.29%
Vegetation	87.5	81.3	81.3	68.8	75.0	510.00	25.50	9.07	198.75		9.94	20.83%
Berries	87.5	81.3	81.3	62.5	75.0	480.00	24.00	8.53		GAL		20.97%
Plants/Greens/Mushrooms	18.8	18.8	18.8	6.3	6.3	30.00	1.50	0.53	7.50	GAL	0.38	51.68%
Seaweed/Kelp	12.5	0.0	0.0	12.5	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Seaweed	12.5	0.0	0.0	12.5	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Wood	50.0	43.8	43.8	37.5	31.3	0.00	0.00	0.00	71.25	CORDS	3.56	47.23%

Note: Harvest amount in individual units unless otherwise specified

Source: Alaska Departement of Fish and Game, Division of Subsistence, Household Surveys 2004

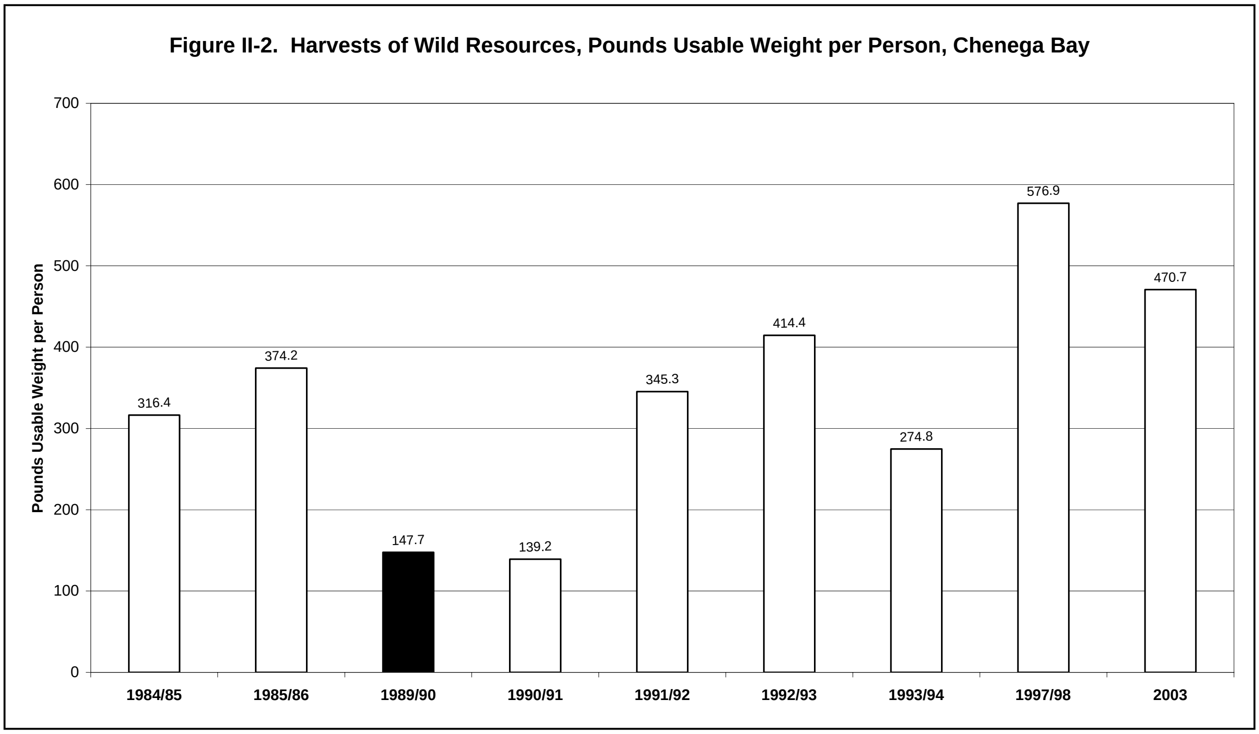


Figure II-2. Harvests of Wild Resources, Pounds Usable Weight per Person, Chenega Bay
Pounds Usable Weight per Person
0
100
200
300
400
500
600
700
316.4
374.2
147.7
139.2
345.3
414.4
274.8
576.9
470.7
1984/85
1985/86
1989/90
1990/91
1991/92
1992/93
1993/94
1997/98
2003

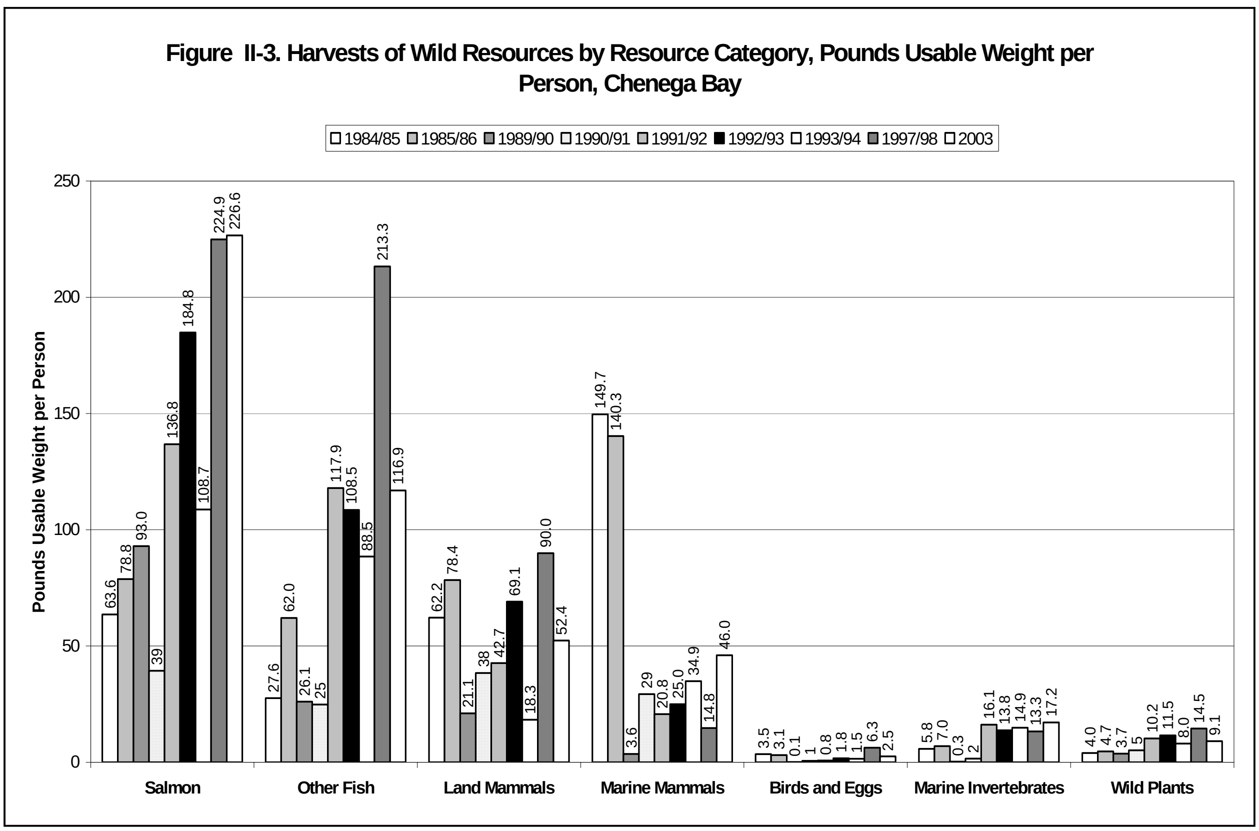


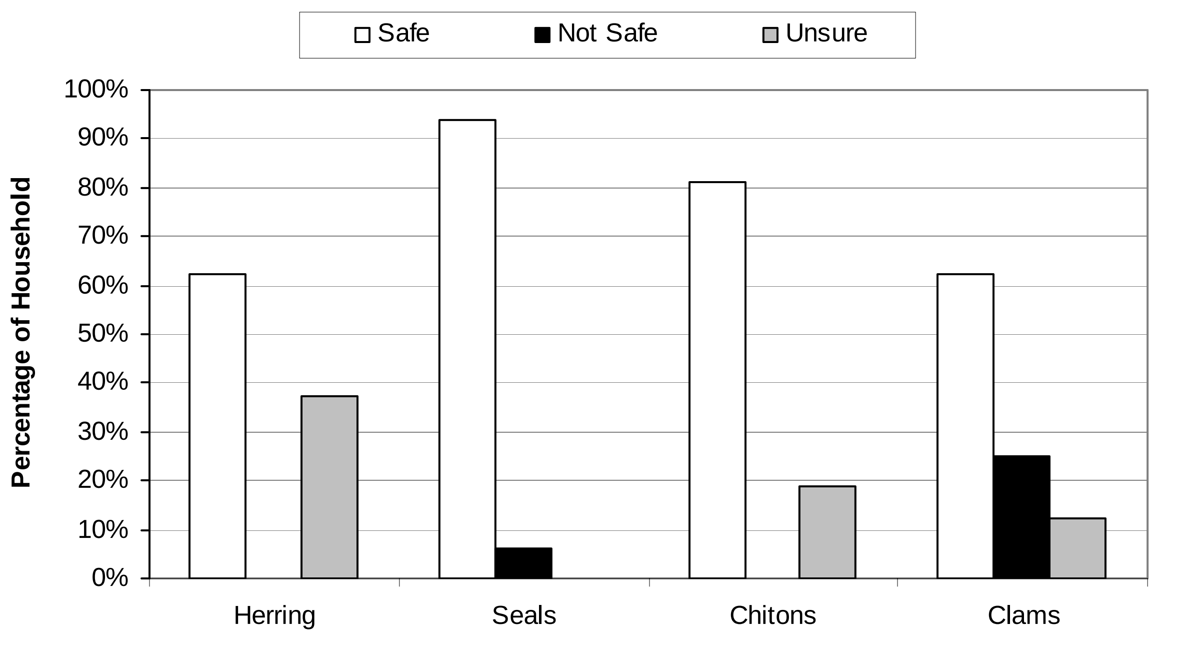
Figure II-3. Harvests of Wild Resources by Resource Category, Pounds Usable Weight per Person, Chenega Bay
1984/85 1985/86 1989/90 1990/91 1991/92 1992/93 1993/94 1997/98 2003
Pounds Usable Weight per Person
0
50
100
150
200
250
63.6 78.8 93.0 39 136.8 184.8 108.7 224.9 226.6
27.6 62.0 26.1 25 117.9 108.5 88.5 213.3 116.9
62.2 78.4 21.1 38 42.7 69.1 18.3 90.0 52.4
149.7 140.3 3.6 29 20.8 25.0 34.9 14.8 46.0
3.5 3.1 0.1 1 0.8 1.8 1.5 6.3 2.5
5.8 7.0 0.3 2 16.1 13.8 14.9 13.3 17.2
4.0 4.7 3.7 5 10.2 11.5 8.0 14.5 9.1
Salmon
Other Fish
Land Mammals
Marine Mammals
Birds and Eggs
Marine Invertebrates
Wild Plants

Table II-5. Composition of Resource Harvests by Resource Category, Chenega Bay

	Percentage of Total Harvest								
	1984/85	1985/86	1989/90	1990/91	1991/92	1992/93	1993/94	1997/98	2003
Salmon	20.1%	21.1%	62.9%	28.2%	39.6%	44.6%	39.6%	39.0%	48.1%
Other Fish	8.7%	16.6%	17.6%	17.8%	34.2%	26.2%	32.2%	37.0%	24.8%
Land Mammals	19.7%	20.9%	14.3%	27.6%	12.4%	16.7%	6.6%	15.6%	11.1%
Marine Mammals	47.3%	37.5%	2.4%	21.1%	6.0%	6.0%	12.7%	2.6%	9.8%
Birds and Eggs	1.1%	0.8%	0.0%	0.4%	0.2%	0.4%	0.5%	1.1%	0.5%
Marine Invertebrates	1.8%	1.9%	0.2%	1.1%	4.7%	3.3%	5.4%	2.3%	3.6%
Wild Plants	1.3%	1.3%	2.5%	3.7%	3.0%	2.8%	2.9%	2.5%	1.9%

SOURCE: Scott et al. 2001; Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Figure II-4. Assessments of Whether Subsistence Foods are Safe for the Family to Eat: Chenega Bay, 2003



CHAPTER III: CORDOVA

by

William E. Simeone

COMMUNITY BACKGROUND

Community History

Cordova was founded in 1906 as the railroad terminus for the copper mining industry centered in the Wrangell Mountains (Reynolds 1993: 143-145). Located within traditional Eyak territory, the town consisted of several villages inside the boundary of the present town. In 1939 the copper industry failed but Cordova thrived on the commercial salmon and razor clam industries (Janson 1975:16). Commercial salmon fishing started at the mouth of the Copper River in 1889 and by 1893 had expanded beyond the Copper River to include all of Prince William Sound (Seitz and Fall 1995:II-2). A commercial herring fishery began in 1913 and commercial razor clam operations started three years later. Halibut was fished commercially for the first time in the Gulf of Alaska in 1923. Dungeness crab fishing started in 1950, followed by King crab in 1959 and Tanner crab in 1968. Shrimp fishing began in 1960 and commercial longlining for rockfish, sablefish, and lingcod has occurred intermittently since 1979 (Seitz and Fall 1995:II-2). Due to their economic reliance on commercial fishing, Cordova fishermen opposed the building of the pipeline terminal in Valdez and went to court to try and stop it.

Demography

During the 1970s and 1980s the population of Cordova increased because of the construction of the Trans-Alaska Pipeline and the stabilization of the commercial fishing industry through diversification and construction of salmon hatcheries in Prince William Sound (Figure III-1). Part of this increase included seasonal residents who arrived in the summer with the fishing season. There was another slight increase in the population in 1990. The 2000 census reported a total population of 2,454 people, 254 of which were Alaska Native. In 2003, census data collected by Alaska Department of Fish and Game (ADF&G), Division of Subsistence indicate a population of 2,397. There are an estimated 910 households with an average size of 2.6 persons. The community is 16.8% Alaska Native and the average length of residency is 19.2 years. The average age is 33.9 years (see Chapter I, Table I-8 and Table III-1).

Economic Overview

The largest employers in Cordova are North Pacific Processors, Cordova School District, the hospital, city government, Alaska Department of Transportation, the U.S. Forest Service, and the U.S. Coast Guard. But the commercial salmon fishery is the mainstay of the Cordova economy (Alaska Department of Commerce, Community Online Database). Just over 340 Cordova residents hold commercial fishing permits and nearly half of all households have someone who works in the commercial fishing industry either as a harvester or processor (ibid.). The commercial fishery in Prince William Sound is organized into several fisheries and some residents of Cordova take part in more than one. Probably the best known is the drift gillnet fishery at the mouth of the Copper River that takes place from mid-May until August and targets three species of salmon: Chinook, sockeye, and coho. A purse-seine fishery takes place in Prince William Sound and targets pink and chum salmon that are primarily produced by hatcheries. A drift-net and set gillnet fishery take place in western Prince William Sound targeting both wild and hatchery stocks of sockeye, pink, chum, and coho salmon. There is also a herring fishery, which has been closed since the oil spill, and a bottomfish fishery. The crab and shrimp fisheries have been also been closed for a number of years.

SUBSISTENCE RESOURCE HARVEST AND USES

Participation in Hunting, Fishing and Gathering Activities

In 2003, Cordova households reported using an average of 12.4 different kinds of resources, harvesting an average of 7.4 resources, and attempting to harvest an average of 8.1 resources (see Chapter I, Table I-10). In Cordova the sample of households surveyed was divided into non-Eyak households, i.e., households that did not belong to the Eyak Tribe, and Eyak households, those households that did belong to the tribe. In general, Eyak households used, harvested, and attempted to harvest a greater variety of wild foods than their non-Eyak counterparts. Just over 88% of all Cordova households attempted to harvest a subsistence resource and 85.8% said that they actually harvested a resource (see Table II-2).

As is usual in many communities, more people said they were involved in harvesting and processing plants and fish than in harvesting and processing of large or small land mammals. More households were involved in the harvest of fish (71.6%) than any other resource. Next, in terms of level of involvement, was the harvest of vegetation (68.9%), followed by large land mammals (42.6%), marine invertebrates (30.4%), birds and eggs (29.1%), small land mammals (16.9%), and finally marine mammals (8.8%) (see Table III-2). Note that only Alaska Natives are allowed to hunt marine mammals, and 21.4% of Eyak households said they harvested marine mammals. Almost 96% of households said that they had used a wild resource during the study year. Fish were used by almost 93% of households, while large land mammals were used by just over 73% of households. Slightly over 20% reported using small game. Only 14.9% of households said they used marine mammals, and almost 43% of households said they used birds and eggs, while 50.7% said they used marine invertebrates. Finally, 69.6% of households said they used vegetation. In terms of the use of wild resources there was not a lot of difference between Eyak and non-Eyak households except in the categories of birds and eggs (58.9 and 32.6% respectively), and marine invertebrates (66.1 and 23.9% respectively).

Success rates among Cordova households were high. Except for the harvest of large land mammals, which had a 91.4% success rate, success in the harvest of all other major categories of resources (i.e., fish, marine mammals, birds and eggs, marine invertebrates and vegetation) was 95% or better (see Table III-2). For all resources, except sea mammals, both Eyak and non-Eyak households had comparable success rates. Success rates for Cordova residents during the study year were higher than those reported for 1997–98. This information differs from Tatitlek, which reported higher success rates five years ago than in 2003.

Resource Harvest Quantities and Harvest Composition

Table III-2, summarizing resource harvest and use, is organized first by general category and then by specific species. In all instances domesticated animals and plants have been excluded. All resources have been recorded in pounds (see Appendix D for conversion factors). The "harvest" category includes resources actually taken by a member of the surveyed household during the year covered in the survey. The "use" category includes all resources taken and given away by a household, and resources acquired after a harvest, either as gifts, by trade, or through hunting partnerships and meat given to hunting guides by their clients. The "use" category was not confined to resources for human consumption, but incorporated all non-commercial uses of resources including trap bait and dog food. Purchased seafood such as halibut, crab, and salmon were not recorded. Differences between harvest and use percentages reflect sharing between households, which resulted in a wider distribution of wild foods.

For the study year, Cordova's total community harvest of wild resources was 426,664.6 pounds usable weight. The average household harvest for all wild foods was 468.9 pounds or 176.4 pounds per person (see Table III-2). These figures are very similar to 1997–98. In that year the total community harvest was 449,841.1 pounds, or 541.9 pounds per household and 179.4 pounds per capita (Fall et al. 1999). In 2003 the community harvested 256,960.2 pounds of fish, followed by 132,251.7 pounds of land mammals, 15,022.7 pounds of vegetation, 9,319.8 pounds of marine mammals, 6,832.7 pounds of marine invertebrates, and 6,277.6 pounds of birds and eggs.

The five top resources harvested by Cordova residents in terms of pounds usable weight were: coho salmon (74,730.8 pounds), moose (59,722.8 pounds), deer (58,500.8 pounds) sockeye salmon (55,449.7 pounds), and Chinook salmon (50,319.9 pounds). The only other resource that came close to these amounts was halibut at 35,000.8 pounds. Next in order of total pounds harvested were berries (12,399.3 pounds) herring (9,742.9 pounds), rockfish (7,796.7 pounds), migratory birds (5,411.6 pounds), clams (3,948.7 pounds), beaver (3,039.2 pounds), and hare (1,344.1 pounds) (see Table III-2).

Salmon composed 43.8% of the total harvest in 2003 and 34.8% of the harvest in 1997–98 (Fall et al. 1999 1-3). As noted above, of the five top resources harvested by Cordova residents in 2003 three were salmon: Chinook, sockeye, and coho. The community harvested much less pink or chum salmon (see Table III-2). Over 90% of households, in 2003, said they used salmon, while over 65% said they harvested the fish. In 2003 the mean household harvest of salmon was 282.3 pounds or 106.2 pounds per person. Eyak households harvested an average of 258.4 pounds of salmon compared to 192.7 pounds for non-Eyak households.

Non-salmon fish species made up 16.4% of the total Cordova subsistence harvest and were used by 81.8% of households. As shown in Table III-2, 56.1% of households attempted to harvest non-salmon fish and 55.4% actually caught some. At the same time 42.6% of households said they gave away non-salmon species and 64.2% said they received non-salmon species. Cordova residents harvested over 70,050.7 pounds of non-salmon fish compared to 106,837.5 pounds in 1997–98. Eyak households harvested (158.5 pounds) over twice the amount of non-salmon fish species as did non-Eyak households (57.5 pounds). Of the 70,050.7 pounds of non-salmon fish species harvested by Cordova residents, half was halibut (35,000 pounds). The rest of the harvest was composed of herring (9,742.8 pounds), red rockfish (5,731.5 pounds), smelt (4,974.4 pounds), cod (3,937.3 pounds), trout (2,087.2 pounds), with lesser amounts of sablefish and char.

In Cordova, 64.9% of households said they used deer, 50.7% said they used moose and just over 10% of households reported using black bear and goat. While 73.6% of households said they used large land mammals only 20.3% said they used any small mammals. The most widely used of these was hare (12.2% of households) and beaver (6.1% of households). The total harvest of all land mammals in 2003 was 132,251.7 pounds, only a slightly lower harvest than 1997–98 (136,611. 6 pounds).

As noted above, only Alaska Natives are allowed to hunt marine mammals. The total harvest of marine mammals for Cordova in 2003 was 9,319.7 pounds, which was almost the same amount (9,113.7 pounds) harvested in 1997–98. Most of the 2003 harvest was composed of harbor seal (8,069.7 pounds) and the rest was sea lion (1,250 pounds). Just under 15% of Cordova households reported using sea mammals, while 8.8% reported a harvest.

Cordova residents harvested 1,538.8 pounds of birds and eggs. Almost 58.9% of households said they used birds and eggs and 33.9% said they harvested them. Several species of ducks (906.3 pounds) provided the bulk of the harvest, followed by 140.4 pounds of geese, 78.7 pounds of crane and 171.6 pounds of upland birds. The 2003 harvest of birds and eggs was less than half of what it was in 1998 (5,593.2 pounds) (Fall et al: 1999:1-6).

Marine invertebrates made up less than one percent of the total Cordova harvest. In 2003 Cordova residents harvested a total of 6,832 .7 pounds of marine invertebrates in 2003, which was less than half of what it was in 1998 (13,844.2 pounds). Just over half of the total in 2003 was made up of various species of clams (3,948.7 pounds), particularly razor clams and butter clams. Cordova households also said that they harvested 1,509.1 pounds of crab and lesser amounts of mussels, cockles, scallops, and octopus. Just over 50% of households said they used marine invertebrates and just over 30% said they harvested them.

The last category of resources to be considered is vegetation. In 2003 Cordova residents said they harvested a total of 15,022.7 pounds of vegetation. Most of the harvest was composed of various species of berries (12,399.3 pounds) but Cordova households also harvested 2,074.5 pounds of various assortment of plants, greens and mushrooms. The total harvest of vegetation in 2003 was only slightly than that of 1998 (20,965.9 pounds). In 2003 69.6% of Cordova Households said they used some form of vegetation while 64.2% of households said they harvested vegetation.

Harvest Effort

Cordova residents were asked to assess the amount of effort it took for them to harvest salmon, non-salmon fish, marine invertebrates, large and small land mammals, marine mammals, birds and eggs, and wild plants as compared to five years ago. In each instance a majority of households said it took the same amount of effort as five years ago (see Tables A-58 to A-81). For those households that said it took them more effort to find resources, most said that it was because of competition from other users. At the same time others said they had reduced their harvest efforts because of competition. Another prominent reason given for increased effort was that people had to travel farther to harvest resources. Like the residents of Chenega Bay and Tatitlek, Cordova residents have noted an increase in the number of sport hunters and fishermen in Prince William Sound. Sportfishers come to Cordova to fish for various species of non-salmon fish such as trout. Some are flown to remote sites by helicopter but others fish in area streams that are accessible by foot or automobile. In the fall, charter boats from Seward and

Valdez take deer hunters to Montague Island, which is also used by Cordova residents to hunt deer.

Comparisons of Uses and Harvests with Other Years

Besides being asked to assess their effort, households were also asked to assess their current harvest and use of subsistence resources compared to five years ago and to before the oil spill. When asked about their overall use compared to five years ago 43.1% said it was the same, while 32.9% said it was less (see Tables A-1 to A-27). When asked why their use was less, a majority said it was because they had less interest in pursuing subsistence activities. Other reasons given for the decline were changes in life circumstances, and the reduced abundance of resources. In comparing their current harvest and use to that of before the oil spill, a majority of Cordova households (45.3%) said their overall use of subsistence resources was less (see Tables A-28 to A-52).

Figure III-2 shows that Cordova harvests have been fairly consistent since 1985. Note that no harvest survey was conducted in Cordova immediately following the oil spill. Likewise, the composition of the harvest has been uniform except for the downward trend in the harvest of marine invertebrates (Table III-3). Looking at individual resource categories on a per capita basis, salmon harvests in 2003 (77.3 pounds) were higher in all years except 1991 (86.2 pounds), however, the 2003 harvest of fish other than salmon (29.0 pounds) was lower than any other previous year (Figure III-3). Land mammal harvests in 2003 (54.7 pounds) were identical to those in 1998 (54.5 pounds), but higher than in other years. Likewise, marine mammal harvests in 2003 (3.9 pounds) were the same as 1998 (3.6 pounds) and higher than other years. The harvest of birds and eggs in 2003 (2.6 pounds) was the same as in 1998 (2.2 pounds), but only slightly higher than previous years. Marine invertebrate harvests are the only category showing a decline in 2003. In 2003 the per capita harvest of marine invertebrates was 2.8 pounds, lower than any previous year. Finally, the harvest of wild plants was in line with other years.

NATURAL RESOURCE CONDITIONS

Food Safety

Cordova households evenly divided between whether herring were safe to eat and being unsure (see Tables A-458 to A-465). Only 11.7% of households said that herring were unsafe to eat. Most who said that herring were unsafe provided several reasons including oil spill contamination (31.4%); resource condition (15.7%), paralytic shellfish poisoning (PSP) (7.9%), and that herring caused illness or reaction (10.9%) (see Table A-463). When asked about the safety of herring one respondent said, “It has to do with the oil spill. They show a disease. I think it’s because of all the toxins. I’m not a scientist but that’s my feeling”, and another said, “I feel herring are not safe to eat and they are diseased.” When asked about the safety of seals and chitons, a majority said they were unsure about these resources (mainly because most do not use either resource), but in the case of clams, a majority said they were safe to eat. The major reason given for why seals, chitons, and clams were unsafe was because of contamination from the oil spill. For example, one respondent put it this way, “because the poison from the oil spill affects them. There may be areas where they are safe but I still question the safety. I haven’t heard of too many people going out to get clams." Another said, "I feel clams on the east side of the Sound are safe to eat, but not on the west side of the Sound in the oil-impacted areas."

Status of Resource Populations

When asked if subsistence resources had recovered since the oil spill, 53.8% of Cordova households said that they had not recovered, while 13.7% said they had. On the other hand, 32.5% said they had never changed (see Tables A-82 to A-83). When asked what should be done to help resources recover, the majority of respondents had no opinion. Of those who did have an opinion, 5.4% said more studies and resource monitoring, 4.5% said more time was needed, 2.2% said that there should be education about spill effects on resources, 3.1% suggested more restoration and enhancement projects, and 3.1% said reduce source of oil pollution. Below is a selection of comments taken from the survey.

- Somewhat recovered. Bad feeling persists in the oil spill communities. People's attitudes have changed since the spill. They have been hurt emotionally. Need to help people heal as well as the animals and the environment.
- We have always been dependent on subsistence. I don't know what can be done. More respect for it. Not violate the resources.
- Use money to restock areas that are not oil spill impacted, for example razor clams can be stocked in the eastern sound. Leave the oil impacted area alone to recover, it will take time to heal.
- Not recovered in the Native villages. The oil spill settlement claim should be settled as soon as possible.
- They forgot the #1 resource and that's PEOPLE! How have they recovered?
- Octopus has suffered and oil spill impacted area has not recovered.
  Exxon Valdez Oil Spill was a devastating blow to our subsistence resources in Prince William Sound and they have not recovered yet.

Cordova residents were asked to assess changes in the availability of all five species of salmon, three species of non-salmon fish (halibut, "black bass", and herring), five different marine invertebrates (clams, bidarkies, Dungeness crab, sea urchins and octopuses), deer, harbor seals and sea lions, sea ducks and berries. One hundred percent of households said that there were less marine invertebrates than five years ago (see Tables A-219 to A-222). When asked why, no one mentioned contamination; instead, the majority said that it had to do with changes in the environment. Asked about salmon, a majority said that the availability of all five species of salmon was the same as five years ago. Those who thought there were less salmon gave various answers, but the most prominent were problems with management and changes in the environment (see Tables A-103 to A-106). A majority thought there were both less halibut and herring than five years ago. The principal reason given for less halibut was competition, which is in line with people's concerns about charter boats bringing sport fishermen into the area. People gave three reasons why there was less herring: contamination, management, and changes in the environment (see Tables A-163 to A-166). A majority thought that deer were as available as they were five years ago. Those who thought there was less deer related the decline to competition and changes in the environment (see Tables A-272 to A-275). A majority thought the availability of marine mammals and plants and berries were the same but equal number of people thought that birds and eggs had declined as stayed the same (see Tables A-326 to A-329, A-427 to A-430 and A-381 to A-384). In summary, a majority of people thought the availability of subsistence resources was the same in 2003 as it was in 1998. Most of those who thought there was a decrease attributed the decline to environmental changes such as the 1964 earthquake and global warming. The following quotes summarize the opinions of two life-long Cordova residents who view environmental change as the principal cause for the decline in the availability of subsistence resources.

- I think that subsistence use as it applies to me personally hasn't changed because of the oil spill. On my growing up years in Cordova moose hunting, deer, birds, king salmon, dungies even razor clams were more abundant. These changes were environmental but not man caused in my opinion. Harlequin ducks, don't know if they are breeding successfully. I don't think there is a healthy herring stock anymore. That was a major economic mainstay in this town. Wild stock salmon in a lot of places are gone.
- I think the bottom profile of Prince William Sound is changing. I'm seeing more skates, sharks, Pollock and lingcod. I assume the habitat is changing.

Habitat Changes

A majority of Cordova residents (54.4%) said that they had not observed changes in the habitat or environment of subsistence resources, while 45.6% said they had (see Tables A-456 and A-457). Of those who thought the environment had changed, 18. 3% said that it was the result of contamination, while 64.8% said it was the result of climate change. The latter observations are consistent with their answers about the decline in the availability of subsistence resources. Just over 5% of respondents named competition from other resource users as a change in habitat. Below is a selection of comments about changes in the habitat taken from the survey forms. These comments reflect the diversity of opinions and the changes that have occurred in the Prince William Sound.

- Birds that nested on islands that were affected by the oil spill are less (than before). You use them up (and) it's going to take a long time to bring them back.
- Since 1989, yes. There was a big oil spill and there is more traffic in the Sound.
- Clam beds haven't recovered (from) sea otter predation.
- Left over oil under rocks, herring population (has declined).
- Knowing the safety of things that we are eating, things that could be infected by oil.
- Crab fishing (closed by ADF&G), herring no longer available to fish. Oil spill changed the subsistence (resources) available to harvest.
- Logging has changed some things. (There are) places in PWS that oil has sunk and killed off all the animals.

- Natural changes occurring, turning from a wetland into a forest.
- The heavily oil spilled areas are still affected to this day (and) will take a lot of time to heal.
- A lot more people are fishing closer to town. The logged areas have affected habitat. People and habitat are changing.
- Habitat is changing on the Copper River Delta. Becoming more of a forest than a wetland. Affecting moose habitat.
- The herring, marine invertebrates and other species are coming back since the oil spill. There seems to be less garbage in the Sound and less oil in the harbors. There is more awareness to keep it clean.
- The habitat in the oil spill area is contaminated with oil.
- Increased sea otter population (eating clams and crabs that could be harvested by subsistence users).
- More outsiders.

SOCIAL AND ECONOMIC CONDITIONS

Food Purchases

Just over 57.5% of Cordova households said that they did not have to purchase subsistence foods during the study year, but 42.5% said they did (see Tables A-475 to A-478). Of those who said they had to purchase subsistence foods, 1.8% said it was because of contamination, 2.3% said it was because of a change in the area, and 5.6% said it was because of changes in management/regulations, which refers to closing of the subsistence crab and shrimp fisheries in Prince William Sound. Another 5.6% said it was because of the decline in the population of certain species, particularly marine invertebrates, while 17.2% said it was because of changes in their personal lives (see Table A-478). Several Cordova residents mentioned that once they had retired from commercial fishing and sold their boat they had no way of going out to harvest wild foods so they had to purchase them. One resident explained that in recent years someone from outside the community brought shellfish and other subsistence foods harvested commercially in other areas of the state and sold these foods in Cordova.

Sharing of Subsistence Resources

Most Cordova residents (64.9%) said that the sharing of subsistence resources within the community was the same as five years ago (see Table A-472). Only 15.5% said it was less, while 19.7% said it was more.

Young Adults' Involvement in Subsistence Activities

In response to the question about learning hunting and fishing skills, 52.8% of Cordova households said yes, young people were learning these skills and 47.2% responded no. Respondents who said yes were then asked how young adults learned these skills. Just over 55% said family members, 30.2% said school programs, 16.8% said other community members and 5.8% said elders. Of those who responded that young people were not learning enough skills, 37.0% said it was because of lack of interest on the part of the young people, 13.5% said it was because of lack of teachers, 11.6% said it was due to changes in the community, 7% said there were too many other things to do. Some of the comments associated with this question are listed below (see Tables A-466 to A-468).

- I have been going to the Eyak lunches where the kids use hides (to make things), serve deer meat, and use berries. They invite the elders once a month. They served smoked fish in jars. They really do a lot of things. They showed us how they tanned deer hides.
- I am more aware of it and Native culture has had a new awakening.
- Fewer young people want to get involved.
- Harder to teach because they have to travel further, less time to teach young adults.
- More awareness and pride in their culture, not wanting it to be lost.

Elders' Influence

Towards the end of the survey respondents were asked questions about the influence of elders' in the community and whether or not young adults were learning enough subsistence skills. In response to the first question, 50.8% of households said that elders' influence was the same as five years ago, 26.6% thought it was more, and 22.5% said it was less. Reasons given for the decrease in influence were demographic (35.9%), that is many elders' have died or moved away, cultural (22.2%), young people were not paying attention to elders because they were busy doing other things, and that elders are less active than they used to be (14.0%) (see Tables A-469 to A-471).

Status of the Traditional Way of Life

When asked if the traditional way of life was affected by the oil spill, 82.8% of Cordova households said yes, and only 4.7% said no. Of those who said it had been affected, 73.6% said it had not recovered, and only 10.5% said that it had. At the same time, 15.9% said that they did not know if the traditional way of life had recovered (see Tables A-479 to A-481). There were a variety of suggestions given of ways to assist in the recovery of the traditional way of life. For example, 15.1% of households suggested increasing the populations of subsistence resources, 8.6% said take legal or political action, another 8.3% said it would take time for the traditional way of life to recover, 4.0% suggested more spirit camps, 7.7% said to continue with the study of impacts, and 1.2% said get rid of the oil. A majority of respondents (44.7%) had no suggestion.

EVALUATION OF THE GEM PROGRAM

The final questions on the survey asked for people's opinions about the *Exxon Valdez* Oil Spill Trustee Council and the Gulf Ecosystems Monitoring Program (GEM) (see Tables A-482 and A-483). When asked if people felt they were adequately informed about the GEM program, 40.1% said they did not know. Of those who knew about the program, 39.0% said they were adequately informed, while 61.0% said they were not. When asked to suggest how the Trustee Council could improve communication about the programs, 32.1% said newsletters or mailings, 5.4% mentioned community meetings, 5.0% suggested structural changes in the program, 2.5% suggesting using the Public Broadcasting System, 4.4% said the internet and 1.0% said to simplify the information. A selection of comments is listed below.

- Trustee Council should give the land back to the Natives. Should work to get shrimp and crab subsistence open again. It opened all areas except PWS. Should encourage more large-scale visitor industry – development throughout the Sound in order to generate employment to supplement our subsistence lifestyle.
- I would like to see more information from the GEM program. I'd like to see more money given to PWS science center to fund research in the oil spill area. I'd like to see a better job of publicizing the records from research that they are funding. I'd like Cordova to get its fair share. I don't know that we are. I'd like more monitoring of the water and air quality, standards at the oil terminal in Valdez and the information to be made public. I would like more public input on the way the Trustees of the Trustee Council are appointed. I would like a fair and balanced Council, not one that just represents the administrations' views.
- I don't know how we can solve some of the problems related to the oil spill because all of the oil is still out there. We still have to monitor the tankers to make sure no more oil is spilled. If a spill happens today are we prepared? Are the personnel trained? Is the equipment ready? We need to have a plan in place. We need to make sure that the Coast Guard is on top of the monitoring. When the tankers go out are the people running them able run them alcohol and drug free?
- Double hulled tankers that are built in the US. Not to recover resources but to insure that it won't happen again. Continued research on spill-affected animals and plants.

Cordova residents were also asked to assess the adequacy of tribal involvement in the GEM program (see Tables A-484 and A-485). Over 65% said they did not know. Of those who said they knew, 83.4% said there was adequate involvement while 16.6% said there was not. The most prevalent suggestion for improving tribal involvement was to get the tribe more involved.

DISCUSSION AND CONCLUSIONS

Cordova is primarily a fishing community, and most long-time residents have deep roots in commercial fishery. In early spring they fished for herring in Prince William Sound and in late spring for Chinook and sockeye salmon on the Copper River flats. During the summer they seined for salmon in the bays and inlets of western Prince William Sound and in the fall some went back to the flats to harvest silver salmon. At the same time they hunted deer and seals, dug for clams and cockles, caught octopus, and set traps for crab and shrimp. In the 1980s salmon prices peaked and fishermen made a full year's salary in a couple of months. Then came the oil spill, salmon prices plummeted, and the herring fishery crashed and has not reopened. Both the shrimp and crab fisheries were closed after the spill, so today there is neither a commercial nor a subsistence harvest. As one Cordova resident said, "fifteen years after the oil spill, Prince William Sound is still in recovery and it has changed forever."

This conclusion is consistent with the findings of the survey. When asked if the traditional way of life was affected by the oil spill, over 93% of Cordova respondents said yes, and almost 69% said it had not recovered yet. When asked if subsistence resources had recovered since the oil spill, more than 53% of Cordova households said no, whereas only about 13.7% said they had. While people's assessment of how much effort it took to harvest subsistence resources was not so different from 1998, their concern about the safety of subsistence foods has increased. In 1998 Cordova residents expressed a very high level of confidence in the safety of subsistence foods, and when asked about the safety of herring, seals, clams and bidarkies, 80% or more said they were safe (Fall et al. 1999:G-5). In 2003 a majority of Cordova residents still said that clams were safe to eat but more people were unsure than in 1998. When asked about herring, only 42.0% said they were safe compared to 80% in 1998. Likewise, the number of people who thought seals were safe to eat had declined from 87% in 1998 to 31% in 2003, and people's confidence in bidarkies or chitons had declined even further from 82% to 24%. The major reason given for why seals, chitons, and clams were unsafe to eat was because of contamination from the oil spill.

A theme emerged in Tatitlek, Chenega Bay, and Cordova that "after the oil spill, came the discovery of Prince William Sound by the charter boat crowd." In all of these communities much of the increased effort to harvest subsistence resources was attributed to competition from outsiders. One Cordova resident also brought up the issue of increased competition from non-local commercial hunting guides who have obtained permits to guide on Chugach National Forest land that was sold to the EVOS Trustee Council by local Native corporations. According to this person, the land was supposed to be for the future use of the community, but the nonlocal guides bring in nonlocals so that now there are more nonlocals than locals hunting in certain areas of Prince William Sound.

Another change noted by some residents was that people who retired from commercial fishing (for various reasons including a decline in the price of salmon, and closure of the herring fishery) have sold their boats and now have no way to harvest subsistence foods. Elders in Cordova are now purchasing shellfish and crab because they do not get it locally from younger people, and cannot go out and harvest it themselves. In addition, those who still have boats cannot afford to purchase fuel to go out and harvest subsistence foods. As one person noted "Going to COSTCO (in Anchorage) is cheaper than trying to go hunt."

Figure III-1. Population of Cordova, 1910-2000 (Simeone and Miraglia 2000)

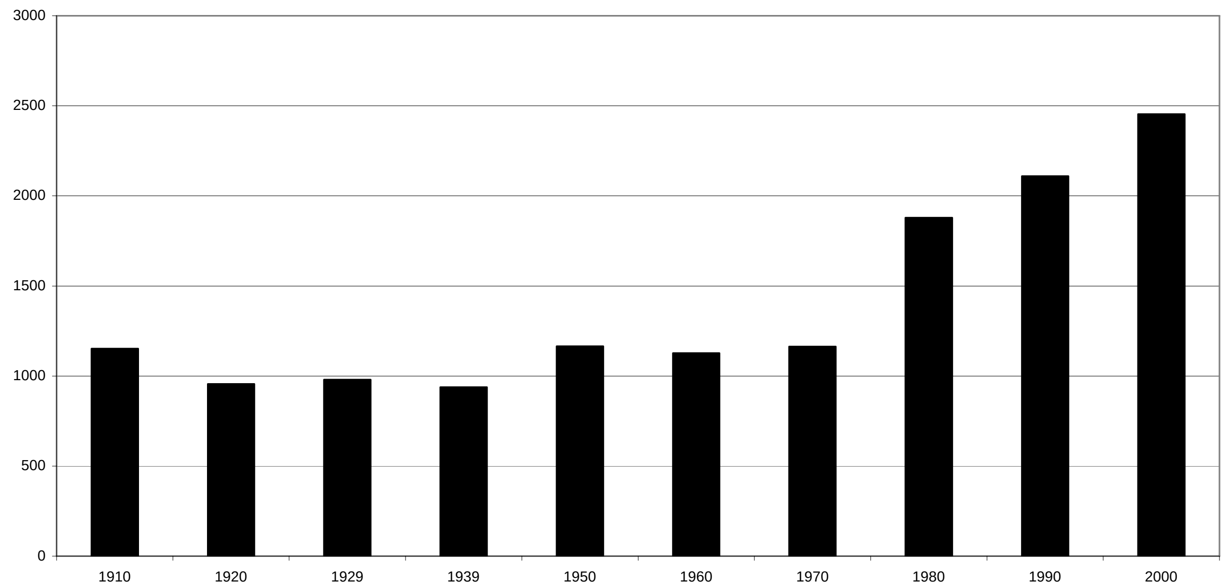


Table III-1. Population Profile, Cordova, 2003 Study Year

AGE	MALE			FEMALE			TOTAL		
	Number	Percent	Cum. Percent	Number	Percent	Cum. Percent	Number	Percent	Cum. Percent
0 - 4	54.18	4.35%	4.35%	71.90	6.24%	6.24%	126.09	5.26%	5.26%
5 - 9	114.97	9.23%	13.58%	106.98	9.29%	15.54%	221.96	9.26%	14.52%
10 - 14	128.86	10.34%	23.92%	106.63	9.26%	24.80%	235.49	9.82%	24.34%
15 - 19	125.38	10.06%	33.98%	63.56	5.52%	30.32%	188.94	7.88%	32.22%
20 - 24	59.05	4.74%	38.72%	33.34	2.90%	33.21%	92.39	3.85%	36.08%
25 - 29	23.97	1.92%	40.65%	55.92	4.86%	38.07%	79.89	3.33%	39.41%
30 - 34	91.01	7.30%	47.95%	121.22	10.53%	48.60%	212.23	8.85%	48.26%
35 - 39	87.53	7.03%	54.98%	100.38	8.72%	57.32%	187.91	7.84%	56.10%
40 - 44	87.17	7.00%	61.97%	98.64	8.57%	65.88%	185.82	7.75%	63.85%
45 - 49	181.30	14.55%	76.53%	122.61	10.65%	76.53%	303.91	12.68%	76.53%
50 - 54	92.39	7.42%	83.94%	116.01	10.08%	86.61%	208.40	8.69%	85.22%
55 - 59	97.26	7.81%	91.75%	55.57	4.83%	91.43%	152.83	6.37%	91.60%
60 - 64	42.72	3.43%	95.18%	30.22	2.62%	94.06%	72.93	3.04%	94.64%
65 - 69	19.10	1.53%	96.71%	27.09	2.35%	96.41%	46.20	1.93%	96.57%
70 - 74	15.63	1.25%	97.97%	6.25	0.54%	96.95%	21.88	0.91%	97.48%
75 - 79	17.36	1.39%	99.36%	23.97	2.08%	99.03%	41.33	1.72%	99.20%
80 - 84	0.00	0.00%	99.36%	3.13	0.27%	99.31%	3.13	0.13%	99.33%
85 - 89	7.99	0.64%	100.00%	7.99	0.69%	100.00%	15.98	0.67%	100.00%
90 - 94	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
95 - 99	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
100+	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
Missing	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
TOTAL	1245.87	51.97%		1151.41	48.03%		2397.28		

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table III-2. Estimated Harvest and Use of Fish, Game and Plant Resources, Cordova, 2003 Study Year

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
All Resources	95.9	88.5	85.8	83.1	74.3	426,664.63	468.86	176.37				36.90%
Fish	92.6	75.0	71.6	76.4	63.5	256,960.16	282.37	106.22				24.07%
Salmon	91.9	71.6	66.2	62.2	56.1	186,909.51	205.40	77.26	29,153.94		32.04	19.40%
Chum Salmon	14.2	7.4	5.4	10.8	6.1	2,896.26	3.18	1.20	613.61		0.67	103.03%
Coho Salmon	75.0	61.5	57.4	29.7	43.9	74,730.75	82.12	30.89	11,880.88		13.06	24.05%
Chinook Salmon	75.7	44.6	39.2	49.3	33.8	50,319.85	55.30	20.80	3,066.41		3.37	42.29%
Pink Salmon	13.5	9.5	8.1	6.8	5.4	3,331.29	3.66	1.38	1,252.36		1.38	83.39%
Sockeye Salmon	82.4	49.3	47.3	48.0	41.9	55,449.67	60.93	22.92	12,294.83		13.51	33.57%
Landlocked Salmon	0.7	0.7	0.7	0.0	0.0	35.95	0.04	0.01	23.97		0.03	180.23%
Unknown Salmon	2.0	1.4	0.7	1.4	0.7	145.75	0.16	0.06	21.88		0.02	180.23%
Non-Salmon Fish	81.8	56.1	55.4	64.2	42.6	70,050.65	76.98	28.96				25.42%
Herring	24.3	13.5	12.8	14.9	11.5	9,742.88	10.71	4.03	1,623.81	GAL	1.78	76.04%
Herring Roe	16.2	4.7	4.7	14.2	9.5	833.72	0.92	0.34	119.10	GAL	0.13	87.19%
Herring Roe/Unspecified	16.2	4.7	4.7	14.2	9.5	833.72	0.92	0.34	119.10	GAL	0.13	87.19%
Herring Sac Roe	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Herring Spawn on Kelp	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Smelt	37.2	21.6	20.9	25.0	20.9	4,974.42	5.47	2.06	1,530.59	GAL	1.68	41.40%
Eulachon (hooligan, candlefish)	27.0	14.9	14.2	17.6	14.9	2,561.30	2.81	1.06	788.09	GAL	0.87	56.25%
Unknown Smelt	29.1	12.2	11.5	19.6	14.9	2,413.13	2.65	1.00	742.50	GAL	0.82	67.60%
Bass	2.0	1.4	1.4	1.4	1.4	100.00	0.11	0.04	100.00		0.11	130.57%
Sea Bass	2.0	1.4	1.4	1.4	1.4	100.00	0.11	0.04	100.00		0.11	130.57%
Cod	10.8	6.1	5.4	5.4	4.1	3,937.39	4.33	1.63	1,237.17		1.36	117.15%
Pacific Cod (gray)	10.1	5.4	4.7	5.4	4.1	3,933.39	4.32	1.63	1,229.18		1.35	117.19%
Pacific Tom Cod	1.4	0.7	0.7	0.7	0.7	3.99	0.00	0.00	7.99		0.01	180.23%
Walleye Pollock (whiting)	0.7	0.0	0.0	0.7	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Eel	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Flounder	1.4	2.0	1.4	0.0	0.0	42.72	0.05	0.02	14.24		0.02	133.61%
Starry Flounder	1.4	2.0	1.4	0.0	0.0	42.72	0.05	0.02	14.24		0.02	133.61%
Unknown Flounder	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Greenling	16.2	8.8	8.8	8.8	8.8	991.58	1.09	0.41	300.76		0.33	57.98%
Lingcod	14.9	7.4	7.4	8.8	8.1	921.09	1.01	0.38	230.27		0.25	62.45%
Unknown Greenling	1.4	1.4	1.4	0.0	0.7	70.49	0.08	0.03	70.49		0.08	171.75%
Halibut	73.6	43.2	39.9	49.3	28.4	35,000.81	38.46	14.47	35,000.81	LBS	38.46	40.94%
Rockfish	38.5	18.2	18.2	25.7	10.8	7,796.99	8.57	3.22	2,481.72		2.73	40.89%
Black Rockfish	11.5	8.1	8.1	5.4	2.7	1,142.49	1.26	0.47	761.66		0.84	59.55%
Red Rockfish	30.4	13.5	13.5	20.3	10.1	5,731.55	6.30	2.37	1,432.89		1.57	56.47%
Unknown Rockfish	8.8	5.4	5.4	4.7	3.4	922.95	1.01	0.38	287.17		0.32	91.15%
Sablefish (black cod)	25.0	4.7	4.7	20.9	9.5	1,962.07	2.16	0.81	632.93		0.70	116.65%

(Continued)

Table III-2. Estimated Harvest and Use of Fish, Game and Plant Resources, Cordova, 2003 Study Year

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Sculpin	0.7	0.7	0.7	0.0	0.0	7.81	0.01	0.00	15.63		0.02	180.23%
Irish Lord	0.7	0.7	0.7	0.0	0.0	7.81	0.01	0.00	15.63		0.02	180.23%
Unknown Irish Lord	0.7	0.7	0.7	0.0	0.0	7.81	0.01	0.00	15.63		0.02	180.23%
Unknown Sculpin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Shark	0.7	0.0	0.0	0.7	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Shark	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Skates	0.7	1.4	0.7	0.0	0.7	312.50	0.34	0.13	62.50		0.07	180.23%
Sole	0.7	0.7	0.0	0.7	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Sole	0.7	0.7	0.0	0.7	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
(Continued)												
Wolffish	2.0	2.0	2.0	0.0	1.4	103.67	0.11	0.04	207.34		0.23	108.76%
Char	12.8	10.1	10.1	2.7	2.0	1,815.78	2.00	0.75	1,296.98		1.43	51.04%
Dolly Varden	12.2	9.5	9.5	2.7	1.4	1,368.39	1.50	0.57	977.42		1.07	59.73%
Lake Trout	2.0	2.0	2.0	0.0	0.7	447.39	0.49	0.18	319.57		0.35	109.12%
Grayling	0.7	0.7	0.7	0.0	0.0	22.37	0.02	0.01	31.96		0.04	180.23%
Pike	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Pike	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sturgeon	0.7	0.7	0.7	0.0	0.0	318.75	0.35	0.13	9.38		0.01	180.23%
Unknown Sturgeon	0.7	0.7	0.7	0.0	0.0	318.75	0.35	0.13	9.38		0.01	180.23%
Trout	13.5	10.1	10.1	5.4	4.7	2,087.20	2.29	0.86	1,490.86		1.64	80.24%
Cutthroat Trout	2.7	2.0	2.0	0.7	1.4	1,297.43	1.43	0.54	926.74		1.02	142.99%
Rainbow Trout	3.4	2.7	2.7	1.4	0.7	217.34	0.24	0.09	155.24		0.17	103.42%
Steelhead	3.4	1.4	1.4	2.0	0.0	19.93	0.02	0.01	14.24		0.02	133.60%
Unknown Trout	5.4	4.7	4.7	2.0	3.4	552.49	0.61	0.23	394.63		0.43	80.69%
Whitefish	1.4	0.0	0.0	1.4	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Whitefish	1.4	0.0	0.0	1.4	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Land Mammals	74.3	50.7	45.3	59.5	38.5	132,251.71	145.33	54.67	3,971.17		4.36	20.52%
Large Land Mammals	73.6	46.6	42.6	58.8	37.2	127,717.74	140.35	52.79	1,560.30		1.71	20.10%
Bison	0.7	0.0	0.0	0.7	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Black Bear	10.1	8.1	2.7	8.1	3.4	2,034.73	2.24	0.84	35.08		0.04	93.77%
Brown Bear	3.4	5.4	2.0	1.4	0.7	1,875.00	2.06	0.78	12.50		0.01	109.15%
Caribou	6.8	1.4	1.4	6.1	0.7	3,595.11	3.95	1.49	23.97		0.03	133.60%
Deer	64.9	43.9	39.2	39.2	31.8	58,500.78	64.29	24.18	1,354.18		1.49	27.65%
Elk	1.4	0.0	0.0	1.4	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Goat	10.8	2.7	1.4	9.5	2.7	1,158.42	1.27	0.48	15.98		0.02	126.59%
Moose	50.7	14.2	12.2	41.2	18.9	59,722.83	65.63	24.69	110.60		0.12	40.22%
Dall Sheep	1.4	0.7	0.7	0.7	1.4	830.87	0.91	0.34	7.99		0.01	180.23%

(Continued)

Table III-2. Estimated Harvest and Use of Fish, Game and Plant Resources, Cordova, 2003 Study Year

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Small Land Mammals	20.3	19.6	16.9	4.7	6.8	4,533.97	4.98	1.87	2,410.87		2.65	47.91%
Beaver	6.1	5.4	5.4	1.4	1.4	3,039.20	3.34	1.26	347.34		0.38	73.23%
Coyote	3.4	2.7	2.0	1.4	0.7	0.00	0.00	0.00	31.96		0.04	109.12%
Fox	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Red Fox	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Hare	12.2	13.5	10.8	1.4	2.7	1,344.13	1.48	0.56	672.07		0.74	54.31%
Snowshoe Hare	12.2	13.5	10.8	1.4	2.7	1,344.13	1.48	0.56	672.07		0.74	54.31%
Land Otter	4.7	4.7	4.1	0.7	2.0	0.00	0.00	0.00	446.90		0.49	149.92%
Lynx	0.7	0.7	0.7	0.0	0.0	63.91	0.07	0.03	15.98		0.02	180.23%
Marten	3.4	2.7	2.7	0.7	0.0	0.00	0.00	0.00	168.78		0.19	103.91%
Mink	6.1	6.1	6.1	0.7	1.4	0.00	0.00	0.00	504.21		0.55	96.82%
Muskrat	1.4	2.0	1.4	0.0	0.7	17.98	0.02	0.01	23.97		0.03	133.61%
Porcupine	1.4	0.7	0.7	0.7	1.4	50.00	0.05	0.02	6.25		0.01	180.23%
Squirrel	0.7	0.7	0.7	0.0	0.7	18.75	0.02	0.01	37.50		0.04	180.23%
Tree Squirrel	0.7	0.7	0.7	0.0	0.7	18.75	0.02	0.01	37.50		0.04	180.23%
Weasel	2.7	2.7	2.7	0.0	0.0	0.00	0.00	0.00	155.92		0.17	140.26%
Wolf	0.0	0.7	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Wolverine	0.0	0.7	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Marine Mammals	14.9	8.8	8.8	8.8	8.8	9,319.78	10.24	3.85	434.73		0.48	81.66%
Porpoise	0.7	0.0	0.0	0.7	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Seal	10.1	6.1	6.1	6.1	8.8	8,069.78	8.87	3.34	144.10		0.16	91.17%
Harbor Seal	10.1	6.1	6.1	6.1	8.8	8,069.78	8.87	3.34	144.10		0.16	91.17%
Harbor Seal (saltwater)	10.1	6.1	6.1	6.1	8.8	8,069.78	8.87	3.34	144.10		0.16	91.17%
Sea Otter	10.8	6.8	6.8	4.7	2.0	0.00	0.00	0.00	284.38		0.31	85.32%
Steller Sea Lion	2.0	0.7	0.7	1.4	0.7	1,250.00	1.37	0.52	6.25		0.01	180.23%
Whale	0.7	0.0	0.0	0.7	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Belukha	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Whale	0.7	0.0	0.0	0.7	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Birds and Eggs	42.6	29.7	29.1	21.6	15.5	6,277.59	6.90	2.59				18.03%
Migratory Birds	33.8	24.3	23.6	15.5	13.5	5,411.58	5.95	2.24	6,696.10		7.36	19.36%
Ducks	33.1	24.3	23.6	12.8	12.8	4,575.43	5.03	1.89	6,155.42		6.76	22.39%
Bufflehead	1.4	1.4	1.4	0.0	0.7	20.00	0.02	0.01	50.00		0.05	130.57%
Gadwall	4.1	4.1	3.4	0.7	1.4	66.13	0.07	0.03	82.66		0.09	100.40%
Goldeneye	3.4	3.4	3.4	0.0	2.0	127.78	0.14	0.05	159.73		0.18	97.51%
Unknown Goldeneye	3.4	3.4	3.4	0.0	2.0	127.78	0.14	0.05	159.73		0.18	97.51%
Harlequin	2.7	2.0	2.0	0.7	0.7	67.19	0.07	0.03	134.38		0.15	117.87%
Mallard	29.7	23.6	23.0	8.8	11.5	2,404.68	2.64	0.99	2,671.86		2.94	46.35%

(Continued)

Table III-2. Estimated Harvest and Use of Fish, Game and Plant Resources, Cordova, 2003 Study Year

Resource Name	Percentage of Households Use	Att	Harv	Recv	Give	Pounds Harvested Total	Mean HH	Per Capita	Amount Harvested Total	Units	Mean HH	Conf Limit 95% (+/-) Harvest
Merganser	0.7	0.7	0.7	0.0	0.7	28.13	0.03	0.01	31.25		0.03	180.23%
Common Merganser	0.7	0.7	0.7	0.0	0.7	28.13	0.03	0.01	31.25		0.03	180.23%
Long-tailed Duck (Oldsquaw)	1.4	1.4	1.4	0.0	1.4	37.50	0.04	0.02	46.88		0.05	180.23%
Northern Pintail	14.2	13.5	12.2	2.7	5.4	515.11	0.57	0.21	643.89		0.71	48.33%
Scaup	4.1	4.1	4.1	0.0	1.4	109.71	0.12	0.05	121.90		0.13	98.11%
Unknown Scaup	4.1	4.1	4.1	0.0	1.4	109.71	0.12	0.05	121.90		0.13	98.11%
Scoter	2.0	2.0	2.0	0.0	0.7	90.00	0.10	0.04	100.00		0.11	144.38%
Black Scoter	1.4	1.4	1.4	0.0	0.7	87.19	0.10	0.04	96.88		0.11	149.01%
Surf Scoter	0.7	0.7	0.7	0.0	0.0	2.81	0.00	0.00	3.13		0.00	180.23%
White-winged Scoter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Scoter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Northern Shoveler	3.4	3.4	3.4	0.0	0.7	102.33	0.11	0.04	170.54		0.19	87.31%
Teal	13.5	14.2	13.5	1.4	4.7	264.57	0.29	0.11	881.89		0.97	54.00%
Green Winged Teal	13.5	14.2	13.5	1.4	4.7	264.57	0.29	0.11	881.89		0.97	54.00%
Wigeon	14.2	14.2	13.5	2.0	6.8	742.31	0.82	0.31	1,060.44		1.17	48.84%
American Wigeon	14.2	14.2	13.5	2.0	6.8	742.31	0.82	0.31	1,060.44		1.17	48.84%
Unknown Ducks	2.0	1.4	0.0	2.0	0.7	0.00	0.00	0.00	0.00		0.00	0.00%
Geese	16.9	16.9	14.2	4.1	6.1	551.29	0.61	0.23	459.41		0.50	46.67%
Brant	1.4	1.4	0.7	0.7	0.0	11.25	0.01	0.00	9.38		0.01	180.23%
Canada Geese	16.2	15.5	13.5	4.1	6.1	540.04	0.59	0.22	450.03		0.49	48.34%
Dusky Canada Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Canada Geese	16.2	15.5	13.5	4.1	6.1	540.04	0.59	0.22	450.03		0.49	48.34%
Emperor Geese	0.0	0.7	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
White-fronted Geese	0.7	1.4	0.7	0.0	0.7	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Crane	6.8	5.4	3.4	3.4	1.4	280.08	0.31	0.12	33.34		0.04	82.97%
Sandhill Crane	6.8	5.4	3.4	3.4	1.4	280.08	0.31	0.12	33.34		0.04	82.97%
Shorebirds	1.4	1.4	1.4	0.0	0.7	4.79	0.01	0.00	47.93		0.05	180.23%
Common Snipe	1.4	1.4	1.4	0.0	0.7	4.79	0.01	0.00	47.93		0.05	180.23%
Seabirds & Loons	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Cormorants	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Double-Crested Cormorant	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Gulls	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Gull	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Murre	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Common Murre	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%

(Continued)

Table III-2. Estimated Harvest and Use of Fish, Game and Plant Resources, Cordova, 2003 Study Year

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Puffins	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Horned Puffin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tufted Puffin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Puffin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Other Birds	16.9	17.6	15.5	3.4	4.1	595.52	0.65	0.25	850.75		0.93	37.97%
Upland Game Birds	16.9	17.6	15.5	3.4	4.1	595.52	0.65	0.25	850.75		0.93	37.97%
Grouse	12.8	13.5	12.2	2.7	3.4	212.00	0.23	0.09	302.86		0.33	51.43%
Ptarmigan	10.1	10.8	8.8	2.0	2.0	383.52	0.42	0.16	547.89		0.60	59.92%
Bird Eggs	12.8	4.1	4.1	9.5	3.4	270.48	0.30	0.11	2,477.12		2.72	96.41%
Duck Eggs	0.0	0.7	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Duck Eggs	0.0	0.7	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Geese Eggs	0.7	0.0	0.0	0.7	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Geese Eggs	0.7	0.0	0.0	0.7	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Seabird & Loon Eggs	12.8	4.1	4.1	9.5	3.4	270.48	0.30	0.11	2,477.12		2.72	96.40%
Gull Eggs	12.8	4.1	3.4	9.5	3.4	175.95	0.19	0.07	586.49		0.64	112.60%
Unknown Gull Eggs	12.8	4.1	3.4	9.5	3.4	175.95	0.19	0.07	586.49		0.64	112.60%
Puffin Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tern Eggs	1.4	1.4	1.4	0.0	1.4	94.53	0.10	0.04	1,890.63		2.08	180.23%
Unknown Seabird Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Marine Invertebrates	50.7	31.8	30.4	35.1	20.9	6,832.66	7.51	2.82				23.77%
Chitons (bidarkis, gumboots)	8.8	4.7	4.7	7.4	3.4	443.75	0.49	0.18	118.75	GAL	0.13	87.30%
Red (large) Chitons	1.4	0.7	0.7	1.4	0.7	93.75	0.10	0.04	31.25	GAL	0.03	180.23%
Black (small) Chitons	8.1	4.7	4.7	6.8	3.4	350.00	0.38	0.14	87.50	GAL	0.10	100.74%
Clams	37.2	25.0	23.6	20.9	14.2	3948.67	4.34	1.63	1,316.22	GAL	1.45	31.74%
Butter Clams	17.6	14.2	13.5	6.1	8.1	1010.63	1.11	0.42	336.88	GAL	0.37	42.99%
Horse Clams (Gaper)	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Pacific Littleneck Clams (Steamers)	10.1	8.1	7.4	4.1	4.7	898.13	0.99	0.37	299.38	GAL	0.33	64.11%
Pinkneck Clams	0.7	0.7	0.7	0.0	0.0	18.75	0.02	0.01	6.25	GAL	0.01	180.23%
Razor Clams	29.1	16.2	14.9	18.9	9.5	1,997.20	2.19	0.83	665.73	GAL	0.73	56.25%
Unknown Clams	0.7	0.7	0.7	0.0	0.0	23.97	0.03	0.01	7.99	GAL	0.01	180.23%
Cockles	2.7	1.4	0.7	2.0	2.7	23.97	0.03	0.01	7.99	GAL	0.01	180.23%
Unknown Cockles	2.7	1.4	0.7	2.0	2.7	23.97	0.03	0.01	7.99	GAL	0.01	180.23%
Crabs	25.7	7.4	7.4	19.6	10.8	1,509.13	1.66	0.62	1,404.59		1.54	77.41%
Dungeness Crab	20.3	5.4	5.4	16.2	7.4	693.31	0.76	0.29	990.44		1.09	98.03%
King Crab	16.9	1.4	1.4	15.5	6.8	503.32	0.55	0.21	218.83		0.24	131.22%
Unknown King Crab	1.4	1.4	1.4	0.0	1.4	503.32	0.55	0.21	218.83		0.24	131.22%
Tanner Crab	6.8	0.7	0.7	6.1	4.1	312.50	0.34	0.13	195.31		0.21	180.23%
Tanner Crab, Bairdi	6.1	0.0	0.0	6.1	3.4	0.00	0.00	0.00	0.00		0.00	0.00%

(Continued)

Table III-2. Estimated Harvest and Use of Fish, Game and Plant Resources, Cordova, 2003 Study Year

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Unknown Tanner Crab	0.7	0.7	0.7	0.0	0.7	312.50	0.34	0.13	195.31		0.21	180.23%
Unknown Crab	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Geoducks	0.7	0.0	0.0	0.7	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Limpets	2.0	2.0	2.0	0.7	0.7	200.54	0.22	0.08	133.70	GAL	0.15	148.15%
Mussels	2.7	2.0	2.0	0.7	0.7	64.08	0.07	0.03	42.72	GAL	0.05	102.64%
Unknown Mussels	2.7	2.0	2.0	0.7	0.7	64.08	0.07	0.03	42.72	GAL	0.05	102.64%
Octopus	8.1	1.4	1.4	6.8	2.0	94.46	0.10	0.04	23.61		0.03	152.77%
Scallops	2.0	0.0	0.0	2.0	0.7	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Weathervane Scallops	2.0	0.0	0.0	2.0	0.7	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Sea Cucumber	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Sea Urchin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Shrimp	20.3	5.4	4.1	16.9	8.8	548.07	0.60	0.23	548.07	LBS	0.60	92.69%
Snails	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Whelk	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Vegetation	75.0	70.9	68.9	34.5	45.3	15,022.74	16.51	6.21				17.30%
Berries	69.6	66.9	64.2	20.9	38.5	12,399.35	13.63	5.13	3,099.84	GAL	3.41	18.54%
Plants/Greens/Mushrooms	24.3	21.6	20.9	6.8	10.1	2,074.51	2.28	0.86	518.63	GAL	0.57	62.00%
Seaweed/Kelp	13.5	6.8	6.1	9.5	6.1	548.88	0.60	0.23	137.22	GAL	0.15	96.25%
Unknown Seaweed	13.5	6.8	6.1	9.5	6.1	548.88	0.60	0.23	137.22	GAL	0.15	96.25%
Wood	31.8	29.7	27.0	9.5	10.1	0.00	0.00	0.00	1,394.48	CORDS	1.53	46.31%

Note: Harvest amount in individual units unless otherwise specified.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

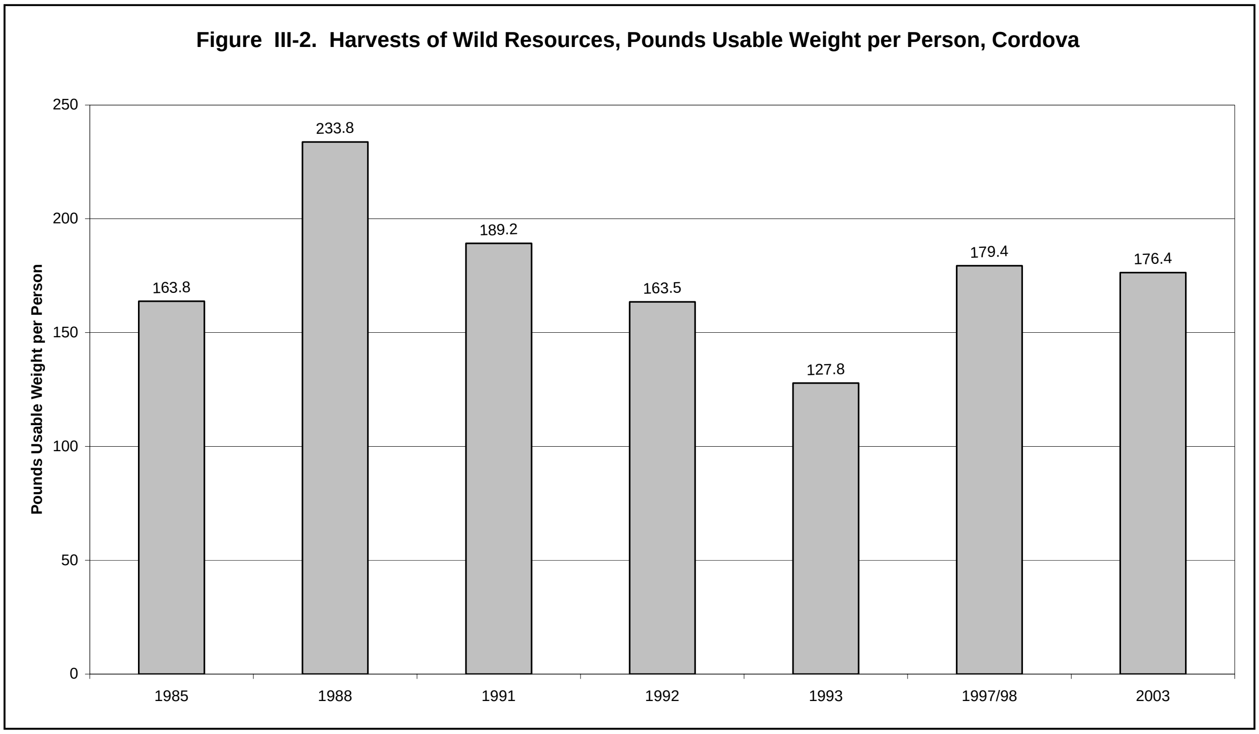


Table III-3. Composition of Resource Harvests by Resource Category, Cordova

	Percentage of Total Harvest						
	1984/85	1985/86	1989/90	1990/91	1991/92	1997/98	2003
Salmon	38.0%	25.4%	45.6%	43.6%	45.6%	34.9%	43.8%
Other Fish	22.5%	39.1%	21.2%	25.0%	23.4%	23.7%	16.4%
Land Mammals	26.8%	21.5%	26.4%	25.9%	19.5%	30.4%	31.0%
Marine Mammals	0.6%	0.3%	0.2%	0.0%	0.6%	2.0%	2.2%
Birds and Eggs	1.1%	2.0%	1.0%	0.8%	0.8%	1.2%	1.5%
Marine Invertebrates	7.7%	9.3%	2.9%	2.8%	4.3%	3.1%	1.6%
Wild Plants	3.3%	2.4%	2.7%	1.9%	5.8%	4.7%	3.5%

SOURCE: Scott et al. 2001; Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

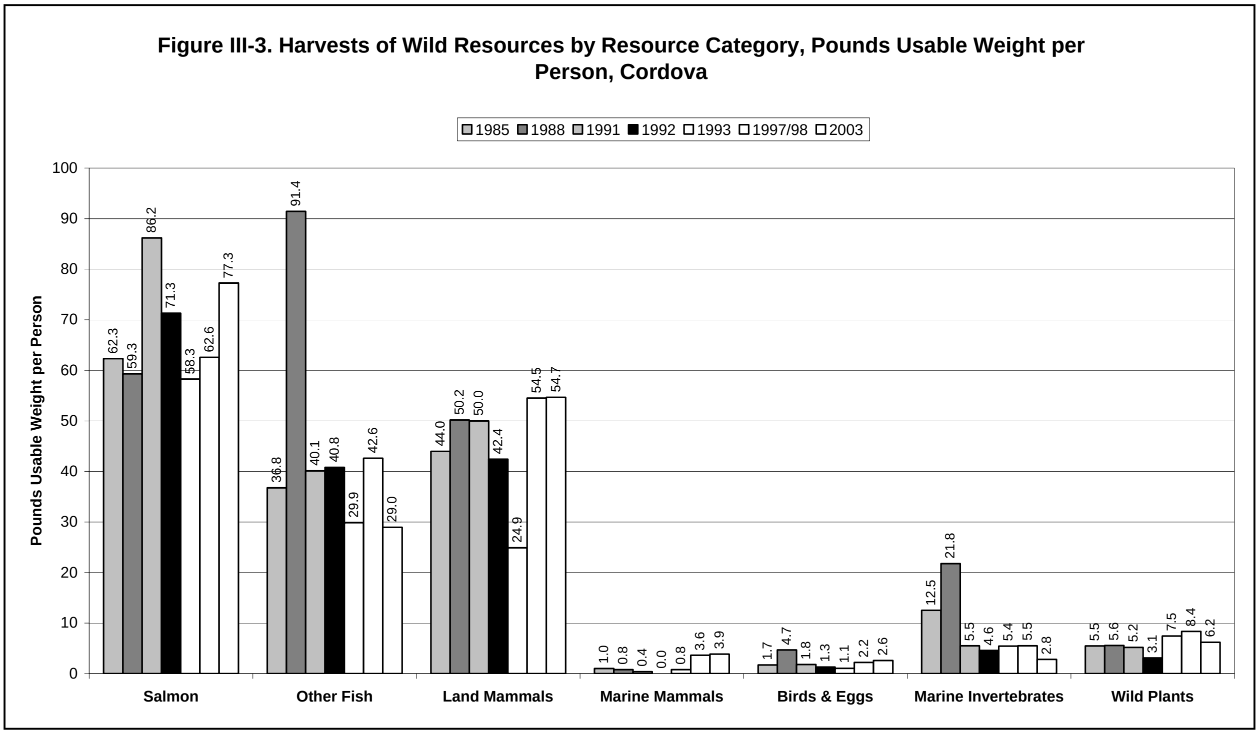


Figure III-3. Harvests of Wild Resources by Resource Category, Pounds Usable Weight per Person, Cordova
1985 1988 1991 1992 1993 1997/98 2003
Pounds Usable Weight per Person
Salmon
Other Fish
Land Mammals
Marine Mammals
Birds & Eggs
Marine Invertebrates
Wild Plants
62.3 59.3 86.2 71.3 58.3 62.6 77.3
36.8 91.4 40.1 40.8 29.9 42.6 29.0
44.0 50.2 50.0 42.4 24.9 54.5 54.7
1.0 0.8 0.4 0.0 0.8 3.6 3.9
1.7 4.7 1.8 1.3 1.1 2.2 2.6
12.5 21.8 5.5 4.6 5.4 5.5 2.8
5.5 5.6 5.2 3.1 7.5 8.4 6.2

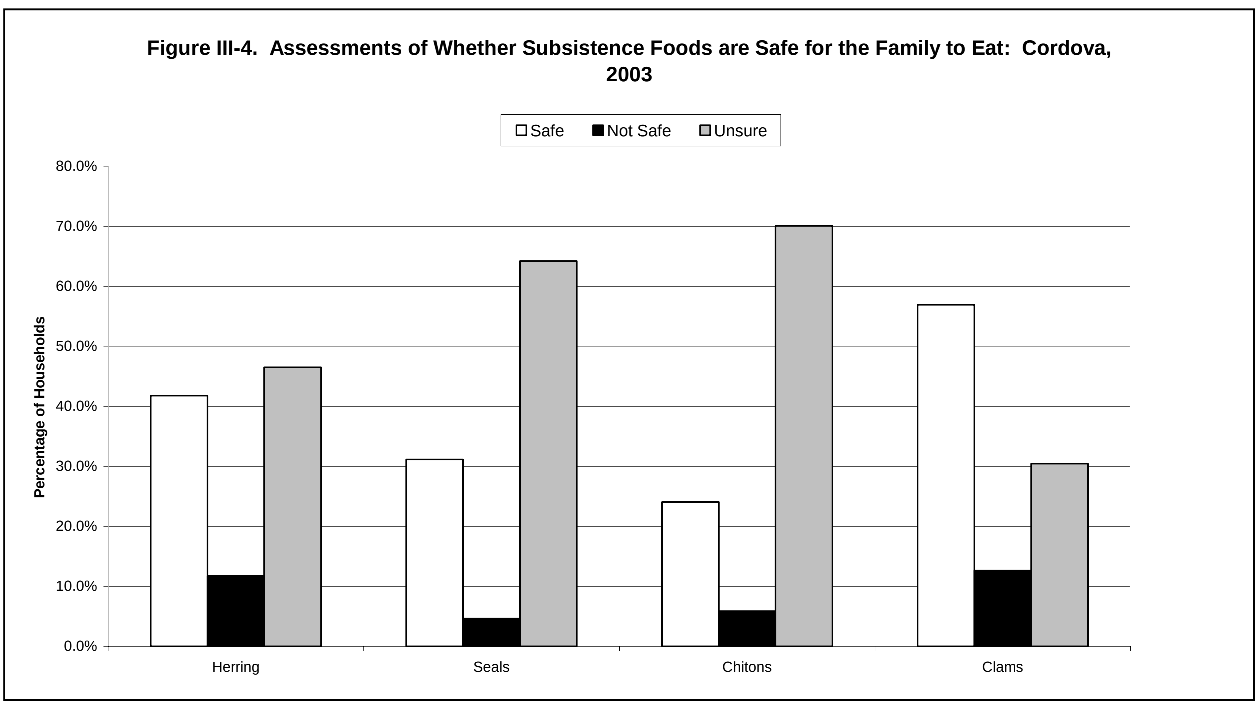


Figure III-4. Assessments of Whether Subsistence Foods are Safe for the Family to Eat: Cordova, 2003
Safe Not Safe Unsure
Percentage of Households
Herring
Seals
Chitons
Clams

CHAPTER IV: TATITLEK

by

William E. Simeone

COMMUNITY BACKGROUND

Community History

Tatitlek is an Alutiiq village located in northern Prince William Sound, approximately 20 miles from Bligh Reef, and 30 miles from the Valdez tanker terminal. Up until the beginning of the 20th century, the Tatitlek people were one of eight groups of Alutiiq who inhabited the sound. Today, only they and Chenega Bay remain. Tatitlek ("Titiglikskoe") is mentioned in the Russian American Company records as early as 1847. Between 1847 and 1900 the village was moved at least three times. In 1858 Tatitlek was described as lying on a cape, and in 1880 it was shown on the southern end of Boulder Bay. The village was relocated to its present location on Tatitlek Narrows in 1900.

Demography

Figure IV-1 shows the population of Tatitlek between 1858 and 2000. Demographic shifts resulting from changes in the local economy are graphically illustrated by the census data from 1920, 1929, and 1940. In 1920 people moved to Tatitlek from smaller outlying communities in order to take advantage of employment opportunities offered by the copper mine at Ellamar. When the mine closed in 1926, many Native people moved to Valdez or Cordova in order to find work. One explanation for the increase in population for the years 1940–50 was the opening of a cannery in Ellamar that operated intermittently until it burned down in 1952. The spike in population for 1970 can be attributed to an influx of Chenega residents who moved to Tatitlek after the 1964 earthquake and the decline in population in 1980 can be attributed to the exodus of Chenega refugees who moved on to Anchorage and Cordova. One explanation for the increase in the 1990 population, the year after the *Exxon Valdez* oil spill, was an influx of temporary residents who came to work on the oil spill (Fall et al. 1996:51).

In 2003, census data collected by ADF&G, Division of Subsistence indicated a population of 73 people, which is less than the U.S. Census estimate of 107. There are an estimated 27 households in the community with an average size of 2.7 persons. The community is 97.1% Alaska Native and the average length of residency in the community is 32.8 years. The average age is 38.3 years (see Table I-8 and Table IV-1).

Economic Overview

Up until the 1980s the economy of Tatitlek was based on commercial fishing. Between 1978 and 1985 there were an average of 12 commercial salmon fishing permits held by Tatitlek residents (Simeone and Miraglia 2000:47). In 1986 the number of permits began to decline and by 1992 there were only two. During that time employment in the commercial fishing industry has fluctuated. Between 1987 and 1989 almost half of the jobs held by Tatitlek residents were in commercial fishing, but in 1989, the year of the oil spill, commercial fishing was third in terms of category of employment, as most people worked on the spill clean up. In 1991–92 commercial fishing again became the dominant form of employment, but in 1993–94 it accounted for only 5% of employment, and only one household reported income from commercial fishing, compared to 15 households in 1987–88 (Seitz and Fall 1995:V-5; Stratton 1990).

The current economy of Tatitlek is based largely on wages earned through seasonal employment, supported by the public sector with the most stable employment opportunities in education and public service. As the community has become more dependent on federal and state funds, the village leadership has undertaken efforts to develop local infrastructures that will make it more economically self-sufficient, although it is not likely to become so in the near future. At the same time, subsistence harvests provide a significant addition to household economies. For example, if the replacement cost of subsistence foods was pegged at five dollars a pound, a Tatitlek household between the years 1987 and 1992 would have had to use, on average, almost a quarter of its annual income to replace foods provided by subsistence harvesting (Simeone and Miraglia 2000:61). In 2003 the average Tatitlek household used 788.1 pounds of wild foods, which at five dollars a pound the replacement cost would have been $3,940 per household.

SUBSISTENCE RESOURCE HARVEST AND USES

Participation in Hunting, Fishing and Gathering Activities

One characteristic of village subsistence economies in Alaska is the wide variety of wild resources that households use, harvest, and share. For example, in 1993–94 Tatitlek households said they used, on average, 19 different kinds of resources and harvested 11 or 12 kinds of resources. In 2003, Tatitlek households reported using an average of 20.8 different resources and actually harvesting an average of 5.9 different kinds of resources. Every Tatitlek household said that they used subsistence resources (see Chapter 1, Table I-10).

Overall, 92.0% of Tatitlek households said they had attempted to harvest a wild resource during the study year, and 92.0% said they harvested a wild resource. In terms of specific categories of resources, more households were involved in the harvest and processing of plants and fish than game or furbearers. The most widely harvested category of wild resources was plants and fish (68.0% each), followed by marine mammals (44%), marine invertebrates (40%), birds (36%), bird eggs (28%), large land mammals (28.0%), and finally small land mammals (4.0%). Every household said they used fish, large land mammals, marine invertebrates and marine mammals. Fifty two percent of households reported using birds and 48.0% bird eggs, but only 4.0% of households reported using small land mammals (see Table IV-2).

One reason why more households reported using a resource than harvesting one, was that many households received food from friends, relatives, or neighbors who participated in a successful hunt. This occurrence is reflected in the number relating to the use and harvest of specific kinds of resources (see Table IV-2). For example, sockeye salmon and deer were used by 100% of households but harvested by only 28.0% of households. Even more to the point, 92.0% of households said they used octopus, but only 12.0% harvested them. No household said they harvested a butter clam, but 76.0% said they used them, meaning that clams were probably brought in from outside of the community.

Success rates among Tatitlek households were high, reflecting the fact that Tatitlek people are generally skilled hunters, fishers, and gatherers. For example, 80.9% of households who attempted to harvest fish were successful, 100% who attempted to harvest marine mammals were successful, and 90% who attempted to harvest birds and eggs were successful. Over half (53.3%) of the households that attempted to harvest a large mammal were successful and 66.6% were successful in harvesting marine invertebrates. Finally, 89.4% who attempted to harvest some kind of wild vegetation were successful (see Table IV-2). While success rates during the study year were high, they were not as high as in 1997-98 when Tatitlek households reported a 100% success rate at harvesting large land mammals, marine mammals, birds and eggs, and marine invertebrates, and over a 90% success rate in harvesting fish and vegetation (Fall et al. 1999). According to Tatitlek people, many resources are now more difficult to find than compared to five years ago (see below).

Resource Harvest Quantities and Harvest Composition

Table IV-2, summarizing resource harvest and use, is organized by general category first and then by specific species. In all instances domesticated animals and plants have been excluded. All resources have been recorded in pounds (see Appendix D for conversion factors). The "harvest category" includes resources actually taken by a member of the surveyed household during the year covered in the survey. The "use" category includes all resources taken and given away by a household, resources acquired after a harvest, either as gifts, by trade, or through hunting partnerships, and meat given to hunting guides by their clients. The "use" category was not confined to resources for human consumption, but incorporated all non-commercial uses of resources including trap bait and dog food. Purchased seafood such as halibut, crab, and salmon were not recorded. Differences between harvest and use percentages reflect sharing between households, which resulted in a wider distribution of wild foods.

For the study year, Tatitlek's total community harvest of wild resources was 21,278.3 pounds usable weight. The average household harvest for all wild foods was 788.0 pounds or 289.7 pounds per person (see Table IV-2). By comparison, the total community harvest in 1997/98 was 32,915 pounds, and the mean household harvest was 1,219 pounds or 406 pounds per person (Fall et al. 1999). In 2003 the community harvested 11,841.7 pounds of fish (54.3% of the total harvest) (see Table IV-6). Tatitlek residents also harvested a total of 1,423.9 pounds of large land mammals (6.5% of the total harvest), 7,361.2 pounds of marine mammals (33.8% of the total harvest), 294.9 pounds of birds and eggs (1.3% of the total harvest), 60.7 pounds of marine invertebrates (0.2% of the total harvest), and 295.5 pounds of vegetation (1.3% of the total harvest).

In terms of specific resources, coho salmon and harbor seals made up the largest components of the community's resource harvest as measured by edible weight (4,096.8 and 4,898.8 pounds, respectively). Next, in order of total pounds harvested, were Stellar sea lions (2,376.0 pounds), herring roe (1,979.8 pounds), halibut (1,389.2), sockeye salmon (1,381.5 pounds), rockfish (1,371.8 pounds), and deer (1,283.0 pounds) (see Table IV-6). The community harvested much smaller amounts of cod, birds and eggs, marine invertebrates and vegetation.

Salmon made up 29.1% of the total harvest in 2003. The community harvested 6,182.6 pounds of salmon, compared to 7,552.1 pounds in 1997/98 (Fall et al 1999:U-3). In order of magnitude, the 2003 salmon harvest was composed of coho salmon (4,096.8 pounds), sockeye salmon (1,381.5 pounds), Chinook salmon (437.7 pounds), and small amounts of pink and chum salmon (205.4 and 61.1 pounds, respectively). Every household in 2003 said they used salmon, while 48.0% said they harvested the fish. In 2003 the mean household harvest of salmon was 438.5 pounds or 161.2 pounds per person (see Table IV-4).

Tatitlek residents voiced several concerns about local salmon runs. In their view salmon runs have rebounded because of enhancement projects, but the natural runs are not back to normal. Comments included: "farmed fish are what's going back in the creek", "don't get wild fish any more, get mostly farmed fish," and "tricky" [question] – the harvest would have been less if hatchery didn't transplant." Another problem is Billy's Hole, a traditional fishing area for Tatitlek residents. People said they have stayed away from this area because of increasing competition with people from Valdez. The presence of an Alaska Department of Fish and Game (ADF&G), Division of Sport Fish research camp at that location has also made it uncomfortable for Tatitlek people to fish there.

Non-salmon fish species made up 26.5% of the total Tatitlek subsistence harvest and were used by 100% of households. As shown in Table IV-2, 80.0% of households attempted to harvest non-salmon fish and 56.0% actually caught some. At the same time, 96.0% of households said they gave away or received freshwater species. Tatitlek residents harvested over 5,600 pounds of non-salmon fish compared to 5,306 pounds in 1997–98. The 2003 non-salmon fish harvest was composed of halibut (1,389.2 pounds), herring roe (1,381.5 pounds), rockfish (1,371.6 pounds), and cod (273.0 pounds).

All Tatitlek households said they used deer, 20.0% said they used black bear, and 40.0% used goat. In addition, 32.0% of households reported using moose meat, which came from outside the community. No household reported harvesting and eating any small game species. The total harvest of game in 2003 was 1,423.9 pounds, less than half of what it was in 1997–98 (3,720.0 pounds). In discussing game harvests with several Tatitlek hunters, they remarked that competition made it hard for them to find deer, and regulations made it difficult for them to meet their subsistence needs for mountain goat. The hunters thought that the population of goats was large enough to sustain a larger harvest from local subsistence hunters, and in their minds, regulations favored nonlocal sport hunters and big-game guides. Currently, in Game Management Unit (GMU) 6D, the subunit where Tatitlek is located, there is a federal registration hunt open to rural residents only. Harvest quotas for each of the sub-areas in 6D are between 1 and 4 goats. Under state regulation there is a registration hunt open to both resident and nonresident hunters.

The total subsistence marine mammal harvest for Tatitlek in 2003 was 7,361.2 pounds. The harvest was composed of harbor seal (4,898.8 pounds), sea lion (2,376.0 pounds), and a small amount of porpoise (86.4 pounds). All Tatitlek households reported using sea mammals, but only 44.0% reported a harvest. In 1997-98 Tatitlek residents harvested a total 13,371.7 pounds of marine mammals, more that twice the amount harvested in 2003. Tatitlek hunters said that seal and sea lion populations have not recovered from the oil spill, and that hunters have to travel much farther than usual to find animals.

Birds and eggs harvested by Tatitlek households were used by just over half the households (52.0%). The total harvest of birds and eggs was 239.5 pounds and composed primarily of ducks (103.5 pounds) and geese (136.5 pounds). Just over 50% of households said they used birds and eggs and 36.0% said they harvested them. Thirty-six percent of households said they gave away birds and eggs and 44.0% said they received them. In 1997–98 Tatitlek's harvest of birds and eggs was 797.4 pounds, twice of that in 2003. During the current survey, Tatitlek residents were very reluctant to provide information about with bird or egg harvest. For several years Tatitlek residents said they have had trouble with State enforcement and people thought if they divulged their egg and spring bird harvests that might bring further problems. As a result, these harvest numbers are probably low.

One of the most important resource groups harvested by Tatitlek residents is marine invertebrates. In 2003, all households said they used marine invertebrates, 60.0% said they attempted some harvest, while 40.0% succeeded. Tatitlek residents reported a harvest of only 60.7 pounds of marine invertebrates, less than one pound per person. The 2003 harvest was composed of chitons (38.8 pounds), cockles (4.6 pounds) and octopus (17.2 pounds). No one reported a harvest of crab, clams or shrimp.

The harvest of marine invertebrates in Tatitlek has declined substantially since 1997–98, when the community reported a harvest of 1,500 pounds. This decline may, in part, be an artifact of some households refusing to provide harvest data in 2003, but it also reflects a real decline in the availability of most marine invertebrate species. In the 2003 survey, many more households reported using and receiving clams and octopus than harvesting them, indicating that households either did not report all of their harvest or that these resources came from outside the community. At the same time Tatitlek residents have, since the 1980s, noted a decline in clams. During the recent survey, many said that marine invertebrates have not recovered since the oil spill so there is hardly enough for them to harvest. Octopus is one indicator of this decline. In 1988–89 and again in 1989–90 octopuses contributed the largest portion of the marine invertebrate harvest (751 pounds in 1988–89 and 1,643 pounds in 1989–90), and was used by the highest number of households (Stratton 1990:105). Five years later, in 2003, Tatitlek residents harvested just 0.2 pounds of octopus per person.

The last category of resources to be considered is vegetation. In 2003, Tatitlek residents said they harvested a total of 295.5 pounds of vegetation, all of it various species of berries. Just over 90% of households said they used berries, and 68.0% said they harvested them. Over half of households received or gave away berries. In 1997–98 Tatitlek households said they harvested 658.1 pounds of vegetation, including berries (445.5 pounds), seaweed/kelp (202.5 pounds), and 10.1 pounds of plants, greens and mushrooms.

Harvest Effort

On the survey Tatitlek residents were asked to assess the amount of effort it took to harvest wild resources as compared to five years ago. This question was asked about eight resource categories: salmon, non-salmon fish, marine invertebrates, large and small land mammals,[1] marine mammals, birds and eggs, and wild plants. In every case, except for plants, a majority of households said it took more effort to harvest resources than five years ago (see Tables A-58 to A-81). In the case of plants, a majority (52.4%) said it took the same amount of effort as five years ago. For every resource category, a majority said they had to travel further to harvest resources and that they had to exert more effort because resources were less abundant than five years ago. In fact, over 90% of Tatitlek residents said that both marine mammals (92.3%) and deer (90.9%) were less abundant than five years ago, and 100% said plants were less abundant. A majority also said that they had to exert more effort because of increased competition that came either directly from nonlocal hunters and fishers, or indirectly from tour boats and tourists that frighten game (especially marine mammals). Some residents noted that

[1] No one commented on the effort it took to harvest small land mammals.

they had decreased their harvest effort because they had to travel further, and there was more competition, particularly for salmon and large land mammals.

Comparisons of Uses and Harvests with Other Years

Tatitlek households were asked to assess their current harvest and use of subsistence resources compared to five years ago, and to before the oil spill. Asked about the five-year comparison, 73.9% of Tatitlek households said that overall their use of subsistence resources has declined (see Table A-25). When asked about specific resource categories over half of households said their use of subsistence resources had declined in every category except wild plants. In that case, 47.6% said their harvest and use was less, while 38.1% said it was the same (see Tables A-1 to A-27). Note that no one provided a comparison for the category of small game. In comparing their current harvest and use to that of before the oil spill, 87.0% of Tatitlek residents said that their overall use of subsistence resources had declined (see Table A-52). When asked about their use of specific resource categories since the oil spill, a majority said that their use of every category of resource had declined with the exception of wild plants and small game. In terms of plants, more people (47.4%) said that their harvest and use of wild plants had remained the same since the oil spill, while everyone (100%) agreed that their harvest and use of small game was the same. Few people provided any reason why declines had occurred (see Tables A-28 to A-57).

After dropping by more than half during the year of the oil spill, subsistence harvests at Tatitlek rebounded gradually through 1993–94, but did not equal either of the two pre-spill estimates (Figure IV-2). The subsistence harvest of 406 pounds per person in 1997–98 was the highest estimate since the oil spill and was greater than one pre-spill estimate of 352 pounds per capita in 1987–88, but lower than the 644 per capita estimate of 1988–89. It was also lower than the pre-spill average of 498 pounds per capita. In 2003, harvest levels fell back to 1993–94 levels. Looking at individual resource categories, we see that salmon harvests in 2003 are the second lowest on record since the oil spill, with only the harvest the year after the oil spill (1990–91) being lower (Figure IV-3). The harvest of fish other than salmon in 2003 (75.5 pounds) was higher than previous post-spill years, but lower than any of the pre-spill years. Land mammal harvests (18.4 pounds) in 2003 were considerably lower than any year except for that following the oil spill. The harvest of marine mammals (99.9 pounds) also declined in 2003 from those of 1997–98 (which were the highest recorded), but they were higher than any other post-spill year. The harvest of birds and eggs in 2003, at 3.4 pounds, was only slightly lower than the post-spill average of 4.8 pounds per capita, but half the pre-spill average of 8.4 pounds. The harvest of marine invertebrates and plants showed the most declines in 2003, being much lower than any previous year.

The composition of the 2003 harvest reflected the decline in the harvest of land mammals, marine invertebrates, and plants. Land mammals made up only 6.6% of the harvest, which was less than either pre-spill or post-spill years, and marine invertebrates were less than one percent of the harvest in 2003, similar to what it was the year of the oil spill. Plants made up only 1.2% of the harvest in 2003, which was half of what it had been in either pre-spill or most post-spill years. Marine mammals made up the largest component of the harvest, followed by fish other than salmon, and then salmon (see Table IV-3).

There are two reasons why Tatitlek harvests show a decline in 2003. The first reason is that over the past several years Tatitlek residents have had problems with state enforcement, and some residents were reluctant to provide full harvest information for the current survey. Apparently Tatitlek residents have been cited for salmon fishing within the mouth of creeks. Out of the 25 households interviewed, only six provided full harvest data. A second, more general reason is that increased competition from sport fishermen and sport hunters has made it difficult for Tatitlek people to subsistence hunt and fish. There is the view that after the oil spill Prince William was "discovered" by the public. Since the oil spill, not only has competition for wild resources increased, but the simple influx of tourists has made it more difficult to hunt. In the 1990s, Valdez, which is 30 miles from Tatitlek, became one of the most popular sportfishing ports in Prince William Sound. In 2001, fishing trips out of Valdez represented 53% of all trips into Prince William Sound and 45% of all trips in 2002. Valdez is also the most important port for charter boats into Prince William Sound, representing at least 50% of fleet moorings (ADF&G, Division of Sport Fish 2004).

Since 1983 sport fishing has increased substantially in Prince William Sound. In 1983, sportfishing effort, measured in angler days, was 47,614 days. In 2002, sportfishing effort had more than doubled to 125,074 angler days. The sport harvest of salmon, halibut and rockfish have all increased in Prince William Sound. For example the total sport harvest of coho salmon in Prince William Sound has increased from 10,405 fish in 1983 to 90,760 fish in 2002. Total halibut harvests have increased from 3,493 in 1983 to 27,651 in 2002 and the total sport harvest of rockfish has increased from 6,514 in 1983 to 20,348 in 2002 (ADF&G, Division of Sport Fish 2004).

Sport hunting for Sitka black-tailed deer, once a major staple of the local diet of Tatitlek residents, has also increased over the years. In 2000–01 the sport deer harvest was 1,697 deer and in 2001-2002 it was 2,641 deer. The lower harvest in 2000–01 was due to previous bad winters. Generally, nonlocal hunters (those from outside Prince William Sound) outnumber local hunters by almost a two to one margin. For example, in 1999-2000 there were 835 nonlocal hunters and 531 locals, or 57.2% more nonlocals than locals. In 2001/02 there were 64.1% more nonlocal hunters (550 locals and 903 nonlocal hunters) (ADF&G, Division of Wildlife Conservation 2004). Most of the deer harvest takes place on Montague Island. Much lower harvests occur in northern and eastern Prince William Sound (ADF&G, Division of Wildlife Conservation 2004:94). The reported harvest of deer in northern and eastern Prince William Sound (where Tatitlek is located) has declined every year since 1997-98 when 153 deer were harvested. In 2001-2002 the harvest was 14 deer. Tatitlek people say that they now have to travel further to harvest deer and although Montague Island is accessible to Tatitlek residents who have fishing boats or cabin cruisers they still have to compete with nonlocal hunters who go there to hunt.

NATURAL RESOURCE CONDITIONS

Food Safety

As shown in Figure IV-4, Tatitlek households expressed a fairly high level of confidence in the safety of subsistence foods, but this confidence has slipped since 1997–98. At that time 100% of households said that chitons or bidarkies were safe to eat, 85% of households said that clams were safe to eat, and 93% of households said that herring and seals were safe to eat (Fall et al. 1999:M-5). In 2003, 81.0% of households expressed confidence in the safety of chitons, 68.0% in the safety of clams, 72.0% in the safety of herring, and 80.0% in the safety of seals.

Five years ago, no household stated definitely that any resource was unsafe to eat; in the current survey, 8.0% of households said that herring were unsafe, and 4.0% said that clams and seals were unsafe. The only reason people gave for a subsistence food not being safe to eat was oil spill contamination.

Status of Resource Populations

Just over 72.0% of Tatitlek residents said that subsistence resources have not recovered since the oil spill. Only 9.1% said they have recovered, and 18.2% said they have never changed (see Tables A-82 and A-83). The comments on this question are listed below. Several of the comments reflect the difficulties Tatitlek people have had with State enforcement and increased competition over wild resources. Only a few people made suggestions on what could be done to help the recovery of resources and these suggestions are also listed below.

- Don't know, we are having to spend more money on whiteman food.
- Spend more time studying how to increase our subsistence resources instead of how to increase sport hunting and fishing.
- More community involvement in management.
- Herring population decline and the effect on other resources.
- Co-management.
- Make information from scientists more understandable and more accessible.
- Nothing can be done, the damage is done.
- Spill prevention.
- Probably more studies.
- Fix it so Natives could get our limit of fish, seals, ducks without being afraid of getting fined.
- Fish and Game watch, too many people are getting pinched and scared of Fish and Game.
- Research butter clam.
- More community involvement and management.
- Herring population decline and the effect the that decline on other resources.

Tatitlek residents were asked to assess changes in the availability of all five species of salmon, three species of non-salmon fish (halibut, "black bass", and herring), five different marine invertebrates (clams, bidarkies, Dungeness crab, sea urchins and octopus), large land mammals (deer), two species of marine mammals (harbor seals and sea lions), birds and eggs (sea ducks) and wild plants (berries). In terms of salmon, a majority of Tatitlek residents said that, compared to five years ago, there were fewer chums (50%), Chinooks (72.7%), or sockeye salmon (72.7%), but most (60%) agreed the same amount of coho was available (because of a local enhancement program) (see Tables A-139-to A-142). Most people (70%), thought that black rockfish were as abundant as five years ago, but a majority (68.4%) said there were less herring and less halibut (72.7%) (see Tables A-196-to A-199). Likewise, a preponderance of households agreed there were fewer chitons, clams, Dungeness crabs, and octopuses (see Tables A-254 to A-256). There are a couple of caveats to these responses. The subsistence harvest of Dungeness crab has been closed in Prince William Sound for several years and Tatitlek people have noted a decline in clams since the mid-1980s (Stratton 1990:107). Exactly half of Tatitlek residents said there were less deer than five years ago while 45.0% said that the availability of deer was the same (see Tables A-303 to A-306). In contrast, just over 86.0% of Tatitlek residents said there were fewer harbor seals and 68. 4% said there were fewer sea lions (see Tables A-360 to A-363). When asked about sea ducks, 70.0% of households said there were fewer ducks than five years ago (see Tables A-410 to A-412). Finally, 52.4% of Tatitlek residents said that availability of plants was about the same, while 47.6% said it was less (see Tables A-454 and 455). Note that recent dry weather has made berries more difficult to find. Although people were asked to provide reasons why they thought the availability of resources had changed over the last five years, practically no one provided a reason.

Habitat Changes

A majority of Tatitlek residents (72.7%) said that there have been changes in the habitat or environment of subsistence resources (see Tables A-456 and A-457). Of those who said there had been changes in the environment, 56.3% related it to changes in climate or the weather, 6.3% said there was more competition, and another 6.3% said there had been an undefined change in the area. Comments from the survey on changes in the environment include the following:

- The food is slow coming back, you have to travel further to catch it.
- Traffic (i.e., nonlocal hunters, fishers and tourists), can't hunt, travel further and hunt harder.
- Seals, ducks and herring are not here like they used to be.
- Herring coming back in the last couple of years which brings seals, sea lions and sea birds back.
- Seals aren't coming around like they used to.
- Less.
- Less abundant.
- Less subsistence food available.
- Seal not around as much.
- Seals aren't around like they used to be.
- They are (animals) not in the immediate area anymore.

SOCIAL AND ECONOMIC CONDITIONS

Food Purchases

When asked if there were subsistence foods they had to purchase because they could not get them by harvesting or sharing, 58.3% of Tatitlek residents said no and 41.7% said yes (see Tables A-475 to A-478). These results are similar to those from five years ago (Fall et al. 1999:M-6). Reasons for why people said they had to buy subsistence foods ranged from PSP, fish and game regulations, and less sharing, to they were ill and could not hunt and fish. Foods that people said they had to buy included shrimp and halibut, clams and crab, seal, and sockeye salmon. However, one person said that "its not subsistence foods if you have to buy and that you cannot replace subsistence foods."

Sharing of Subsistence Resources

The sharing of wild resources is important in Tatitlek and there is considerable sharing among Tatitlek households (See Tables A-472 to A-474). All households reported receiving a resource and 96.0% said they gave one or more resources away. Households gave away an average of 12.4 different kinds of resources and received an average of 16.3 different kinds of resources. The most commonly-distributed resources by households were fish (96.0%), deer (80.0%), followed by berries (72.0%), marine mammals (particularly harbor seal, 68.0%), marine invertebrates (52.0%), and birds and eggs (36.0%). Those resources most commonly received were fish (96.0%) (especially sockeye salmon (88.0%) and halibut (88.0%)), marine invertebrates (96.0%), deer (88.0%), and harbor seals (88.0%). Fifty-two percent of households said they received berries and 44.0% said they received birds and eggs.

Although evidence from the survey indicates considerable sharing between households, a majority (58.3%) said that sharing had decreased compared to five years ago, and 37.5% said that sharing was about the same. Only 4.2% said there was more sharing. When asked why they thought sharing had declined, only three people provided answers saying that they were concerned about food contamination, either generally or from PSP. In conversation one person said "hunters aren't catching enough to share these days," and another person said that because of the low price of commercially caught salmon, fishermen have to sell all of their catch, rather than distributing some of it to the community.

Young Adults' Involvement in Subsistence Activities

According to a majority of Tatitlek residents (66.7%), young adults are not learning enough subsistence skills, while 33.3% said they were (see Tables A-466 to A-468). This is the same result as five years ago (Fall et al. 1999:M-6). Those who said that young adults were not learning the skills pointed to lack of interest (56.3%), lack of teachers (12.5%), changes in the community (12.5%), too much else to do (6.3%), and a decline in the availability of resources (6.3%). Emphasis on a "lack of interest " was similar to results from five years ago. Unlike five years ago, no one said that spirit camps were how young people were learning subsistence skills.

Elders' Influence

A majority of Tatitlek residents (52.2%) said that the elders' influence had declined compared to five years ago. Just over 30% said that the elder's influence had increased and 17.4% said that it had remained static (see Tables A-469 to A-471). These results are in contrast to five years ago when a majority of residents said that elders' influence had increased or remained the same since the oil spill (Fall et al. 1999:M-7). In 2003, people provided a wide range of reasons why they thought the elders' influence had decreased, but most said it was because there were fewer elders, and those still alive were less active.

Status of the Traditional Way of Life

Everyone said that the traditional way of life had been affected by the oil spill and a majority (77.3%) said that it has not recovered. Only 9.1% said that the traditional way of life had recovered and 4.5% were unsure (see Tables A-479 to A-481). These results are similar to those of five years ago when everyone said that that the traditional way of life had been affected by the oil spill and 80.0% said that recovery had not taken place (Fall et al. 1999:M-7). When asked what should be done to help the traditional way of life recover, most had no suggestion. Those that did suggested more education, spirit camps, jobs, and new sources of income.

EVALUATION OF THE GEM PROGRAM

The last questions on the survey had to do with people's knowledge of the GEM program. When asked if people were informed about the *Exxon Valdez* Oil Spill Trustee Council and GEM program, 66.7% of Tatitlek residents said they were not informed, while 33.3% said they were informed (see Tables A-482 and A-483). Suggestions for improving communication about the Trustee Council and the GEM programs varied. Twenty-five percent of Tatitlek residents had no suggestions for improving communication, 33.3% suggested using newsletters or other mailings, 16.7% suggested holding community meetings, and 8.3% said to use public broadcasting, the internet, and improve staffing. Comments to this question are listed below.

- They should provide more info through all media.
- Let us know more, send someone.
- Send more news letters.
- Bring to community meetings.
- Don't have a clue what it is.
- Never heard of it, use email or flyers.
- Increased community involvement.
- Better working relationship with the Trustee Council.
- Council needs to be more involved in monitoring resources, needs to be informed of opportunities for local residents to be directly involved in scientific research.

DISCUSSION AND CONCLUSIONS

Fifteen years later Tatitlek residents are still feeling the affects of the oil spill. There is still uncertainty, fear, confusion, and anger. Tatitlek people have maintained an economic and cultural dependence on the fish and wildlife resources of Prince William Sound. Since the oil spill their harvest and use of these resources has rebounded so that by 1998 harvest quantities approached, if not quite reached, pre-spill levels. In 2003, the rebound seems to have stalled. Overall, subsistence harvests in Tatitlek have declined by 35% from five years ago. Most resource categories' harvests are down 40–60% from five years ago, with the exception of marine invertebrates, which declined by 96%, and fish harvests, which declined by only 0.7%. One reason for this decline is that many Tatitlek households refused to provide harvest numbers, particularly in regards to the harvest of birds and eggs, while still indicating that they used, harvested, gave, and received subsistence foods.

At the same time, a majority of Tatitlek residents say that harvests are low because resources are not as abundant as they were five years ago. As noted by Fall et al. (1999:97) 10 years after the oil spill, explanations for this decline moved away from those linked solely to the oil spill to more diverse, complex explanations that include climate change, development, and increased competition with nonlocals. Now people know that warmer weather has had an effect on the availability of berries and the ability of salmon to spawn, but many Tatitlek residents still think that the natural runs of salmon have not rebounded since the oil spill. There is also a concern that warmer water may bring on PSP and additional problems to marine invertebrates. This is in addition to a decline in marine invertebrates that has concerned Tatitlek residents since the 1980s. Concerns over food safety have grown among Tatitlek residents over the last five years based on their uncertainty regarding the long-term health effects of eating wild foods from the oil spill area.

Competition over resources is also a problem reflected in such comments as "Traffic (i.e. nonlocal hunters, fishers and tourists), can't hunt, travel further and hunt harder." Nonlocal hunters and fishers compete directly with locals, especially for salmon, deer, and goat, while the presence of tourists have the effect of scaring game, such as sea mammals, and making them more elusive. Some people see the increased competition as an outgrowth the oil spill by putting Prince William Sound on the map and in the nation's consciousness.

Fifteen years after the oil spill, Tatitlek people have also developed more complex explanations for social changes. Survey results indicate that people are still sharing resources but many people believe that there is less sharing than five years ago because resources are scarcer. The low price of fish, for example, has forced commercial fishermen to sell all of their catch rather than distributing some of it to the community. A majority said that young people are not learning the necessary subsistence skills, mostly because they are not interested, and that the elders' influence is waning because they are older and have become less active. This is in contrast to five years ago when people thought the elders' influence was on the increase. Yet 77% of Tatitlek residents still think the traditional way of life has not recovered and a majority still does not think that subsistence resources have recovered since the oil spill.

Figure IV-1. Population of Tatitlek, 1858-1990 (Simeone and Miraglia 2000)

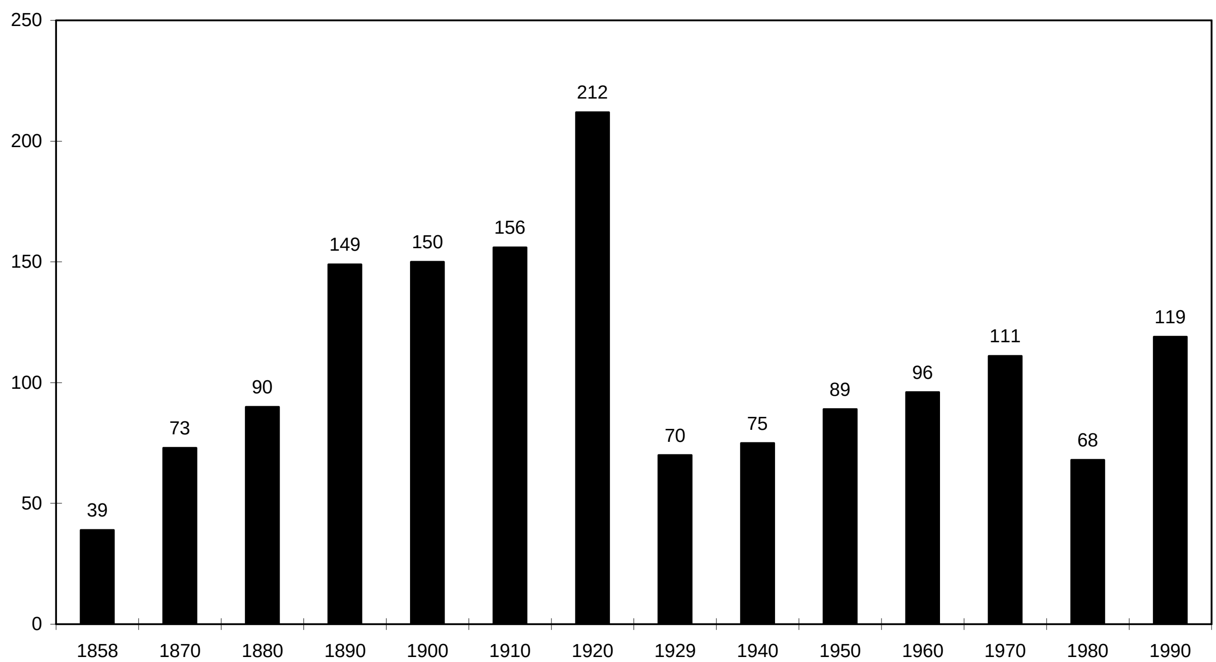


Table IV-1. Population Profile, Tatitlek, 2003 Study Year

AGE	MALE			FEMALE			TOTAL		
	Number	Percent	Cum. Percent	Number	Percent	Cum. Percent	Number	Percent	Cum. Percent
0 - 4	2.16	6.25%	6.25%	0.00	0.00%	0.00%	2.16	2.94%	2.94%
5 - 9	1.08	3.13%	9.38%	3.24	8.33%	8.33%	4.32	5.88%	8.82%
10 - 14	3.24	9.38%	18.75%	2.16	5.56%	13.89%	5.40	7.35%	16.18%
15 - 19	3.24	9.38%	28.13%	5.40	13.89%	27.78%	8.64	11.76%	27.94%
20 - 24	3.24	9.38%	37.50%	1.08	2.78%	30.56%	4.32	5.88%	33.82%
25 - 29	0.00	0.00%	37.50%	3.24	8.33%	38.89%	3.24	4.41%	38.24%
30 - 34	2.16	6.25%	43.75%	1.08	2.78%	41.67%	3.24	4.41%	42.65%
35 - 39	1.08	3.13%	46.88%	6.48	16.67%	58.33%	7.56	10.29%	52.94%
40 - 44	2.16	6.25%	53.13%	3.24	8.33%	66.67%	5.40	7.35%	60.29%
45 - 49	4.32	12.50%	65.63%	2.16	5.56%	72.22%	6.48	8.82%	69.12%
50 - 54	3.24	9.38%	75.00%	1.08	2.78%	75.00%	4.32	5.88%	75.00%
55 - 59	3.24	9.38%	84.38%	2.16	5.56%	80.56%	5.40	7.35%	82.35%
60 - 64	0.00	0.00%	84.38%	2.16	5.56%	86.11%	2.16	2.94%	85.29%
65 - 69	1.08	3.13%	87.50%	2.16	5.56%	91.67%	3.24	4.41%	89.71%
70 - 74	1.08	3.13%	90.63%	1.08	2.78%	94.44%	2.16	2.94%	92.65%
75 - 79	1.08	3.13%	93.75%	2.16	5.56%	100.00%	3.24	4.41%	97.06%
80 - 84	2.16	6.25%	100.00%	0.00	0.00%	100.00%	2.16	2.94%	100.00%
85 - 89	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
90 - 94	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
95 - 99	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
100+	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
Missing	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
TOTAL	34.56	47.06%		38.88	52.94%		73.44		

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table IV-2. Estimated Harvest and Use of Fish, Game, and Plant Resources, Tatitlek, 2003

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	total	Mean HH	Percapita	Total	Units	Mean HH	Harvest
All Resources	100.0	92.0	92.0	100.0	96.0	21,278.39	788.09	289.74				30.59%
Fish	100.0	84.0	68.0	96.0	96.0	11,841.79	438.58	161.24				23.00%
Salmon	100.0	68.0	48.0	92.0	84.0	6,182.69	228.99	84.19	1,074.51		39.80	28.86%
Chum Salmon	44.0	20.0	8.0	40.0	28.0	61.17	2.27	0.83	12.96		0.48	55.18%
Coho Salmon	88.0	52.0	24.0	76.0	68.0	4,096.82	151.73	55.78	651.32		24.12	39.96%
Chinook Salmon	96.0	40.0	32.0	76.0	72.0	437.75	16.21	5.96	26.68		0.99	23.40%
Pink Salmon	64.0	32.0	20.0	48.0	36.0	205.41	7.61	2.80	77.22		2.86	43.40%
Sockeye Salmon	100.0	44.0	28.0	88.0	64.0	1,381.54	51.17	18.81	306.33		11.35	26.19%
Landlocked Salmon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Salmon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Non-Salmon Fish	100.0	80.0	56.0	96.0	96.0	5,659.10	209.60	77.06				14.70%
Herring	92.0	28.0	20.0	88.0	68.0	518.40	19.20	7.06	86.40	GAL	3.20	23.87%
Herring Roe	100.0	76.0	52.0	64.0	84.0	1,979.81	73.33	26.96	282.83	GAL	10.48	17.12%
Herring Roe/Unspecified	100.0	76.0	52.0	64.0	84.0	1,979.81	73.33	26.96	282.83	GAL	10.48	17.12%
Herring Sac Roe	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Herring Spawn on Kelp	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Smelt	60.0	4.0	4.0	56.0	32.0	21.06	0.78	0.29	6.48	GAL	0.24	55.04%
Eulachon (hooligan, candlefish)	48.0	4.0	4.0	44.0	24.0	21.06	0.78	0.29	6.48	GAL	0.24	55.04%
Unknown Smelt	48.0	0.0	0.0	48.0	24.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Bass	4.0	4.0	4.0	0.0	0.0	5.40	0.20	0.07	5.40		0.20	55.04%
Sea Bass	4.0	4.0	4.0	0.0	0.0	5.40	0.20	0.07	5.40		0.20	55.04%
Cod	44.0	20.0	20.0	32.0	12.0	273.02	10.11	3.72	85.32		3.16	29.85%
Pacific Cod (gray)	44.0	20.0	20.0	32.0	12.0	273.02	10.11	3.72	85.32		3.16	29.85%
Pacific Tom Cod	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Walleye Pollock (whiting)	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Eel	4.0	4.0	4.0	0.0	4.0	3.89	0.14	0.05	1.08		0.04	55.04%
Flounder	4.0	4.0	4.0	0.0	0.0	51.84	1.92	0.71	17.28		0.64	55.04%
Starry Flounder	4.0	4.0	4.0	0.0	0.0	51.84	1.92	0.71	17.28		0.64	55.04%
Unknown Flounder	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Greenling	8.0	4.0	4.0	4.0	4.0	12.96	0.48	0.18	3.24		0.12	55.04%
Lingcod	8.0	4.0	4.0	4.0	4.0	12.96	0.48	0.18	3.24		0.12	55.04%
Unknown Greenling	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Halibut	96.0	44.0	32.0	88.0	72.0	1,389.26	51.45	18.92	1,389.26	LBS	51.45	23.89%
Rockfish	64.0	36.0	28.0	56.0	40.0	1,371.60	50.80	18.68	572.40		21.20	21.94%
Black Rockfish	20.0	16.0	16.0	4.0	8.0	550.80	20.40	7.50	367.20		13.60	50.40%
Red Rockfish	64.0	32.0	24.0	56.0	40.0	820.80	30.40	11.18	205.20		7.60	24.43%
Unknown Rockfish	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sablefish (black cod)	36.0	8.0	4.0	32.0	16.0	16.74	0.62	0.23	5.40		0.20	55.09%
Sculpin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Irish Lord	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Irish Lord	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Sculpin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Shark	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Shark	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Skates	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sole	4.0	4.0	4.0	0.0	0.0	12.96	0.48	0.18	12.96		0.48	55.04%
Unknown Sole	4.0	4.0	4.0	0.0	0.0	12.96	0.48	0.18	12.96		0.48	55.04%

(Continued)

Table IV-2. Estimated Harvest and Use of Fish, Game, and Plant Resources, Tatitlek, 2003

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	total	Mean HH	Percapita	Total	Units	Mean HH	Harvest
Wolffish	8.0	8.0	8.0	0.0	4.0	2.16	0.08	0.03	4.32		0.16	37.30%
Char	12.0	4.0	0.0	12.0	4.0	0.00	0.00	0.00	0.00		0.00	0.00%
Dolly Varden	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Lake Trout	12.0	4.0	0.0	12.0	4.0	0.00	0.00	0.00	0.00		0.00	0.00%
Grayling	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sturgeon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Sturgeon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Trout	4.0	0.0	0.0	4.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Rainbow Trout	4.0	0.0	0.0	4.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Steelhead	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Trout	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Whitefish	8.0	0.0	0.0	8.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Whitefish	8.0	0.0	0.0	8.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Land Mammals	100.0	60.0	32.0	92.0	80.0	1,423.98	52.74	19.39	34.02		1.26	17.98%
Large Land Mammals	100.0	56.0	28.0	92.0	80.0	1,423.98	52.74	19.39	31.86		1.18	17.83%
Black Bear	20.0	8.0	4.0	20.0	4.0	62.64	2.32	0.85	1.08		0.04	55.09%
Brown Bear	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Caribou	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Deer	100.0	56.0	28.0	88.0	80.0	1,283.04	47.52	17.47	29.70		1.10	19.72%
Elk	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Goat	40.0	12.0	4.0	36.0	28.0	78.30	2.90	1.07	1.08		0.04	55.13%
Moose	32.0	0.0	0.0	32.0	16.0	0.00	0.00	0.00	0.00		0.00	0.00%
Dall Sheep	4.0	0.0	0.0	4.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Small Land Mammals	4.0	4.0	4.0	0.0	0.0	0.00	0.00	0.00	2.16		0.08	55.09%
Beaver	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Coyote	4.0	4.0	4.0	0.0	0.0	0.00	0.00	0.00	2.16		0.08	55.04%
Fox	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Red Fox	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Hare	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Snowshoe Hare	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Land Otter	0.0	4.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Lynx	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Marten	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Mink	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Muskrat	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Porcupine	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Squirrel	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tree Squirrel	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Weasel	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Wolf	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Wolverine	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Marine Mammals	100.0	44.0	44.0	92.0	68.0	7,361.28	272.64	100.24	100.80		3.73	11.49%
Porpoise	36.0	12.0	8.0	32.0	24.0	86.40	3.20	1.18	1.44		0.05	55.09%
Seal	96.0	44.0	44.0	84.0	68.0	4,898.88	181.44	66.71	87.48		3.24	16.86%
Harbor Seal	96.0	44.0	44.0	84.0	68.0	4,898.88	181.44	66.71	87.48		3.24	16.86%
Harbor Seal (saltwater)	96.0	44.0	44.0	84.0	68.0	4,898.88	181.44	66.71	87.48		3.24	16.86%

(Continued)

Table IV-2. Estimated Harvest and Use of Fish, Game, and Plant Resources, Tatitlek, 2003

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	total	Mean HH	Percapita	Total	Units	Mean HH	Harvest
Sea Otter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Steller Sea Lion	72.0	24.0	24.0	60.0	48.0	2,376.00	88.00	32.35	11.88		0.44	22.41%
Whale	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Belukha	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Whale	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Birds and Eggs	52.0	40.0	36.0	44.0	36.0	294.97	10.92	4.02				25.37%
Migratory Birds	40.0	32.0	28.0	24.0	32.0	239.57	8.87	3.26	239.26		8.86	30.21%
Ducks	40.0	32.0	28.0	20.0	32.0	103.05	3.82	1.40	125.50		4.65	7.44%
Bufflehead	4.0	0.0	0.0	4.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Gadwall	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Goldeneye	24.0	20.0	16.0	12.0	20.0	18.66	0.69	0.25	23.33		0.86	33.12%
Unknown Goldeneye	24.0	20.0	16.0	12.0	20.0	18.66	0.69	0.25	23.33		0.86	33.12%
Harlequin	8.0	8.0	8.0	0.0	4.0	8.64	0.32	0.12	17.28		0.64	37.30%
Mallard	24.0	20.0	16.0	12.0	16.0	20.02	0.74	0.27	22.25		0.82	29.59%
Merganser	20.0	16.0	16.0	4.0	12.0	13.61	0.50	0.19	15.12		0.56	25.10%
Common Merganser	20.0	16.0	16.0	4.0	12.0	13.61	0.50	0.19	15.12		0.56	25.10%
Long-tailed Duck (Oldsquaw)	4.0	4.0	4.0	0.0	4.0	5.18	0.19	0.07	6.48		0.24	55.04%
Northern Pintail	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Scaup	4.0	4.0	0.0	4.0	4.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Scaup	4.0	4.0	0.0	4.0	4.0	0.00	0.00	0.00	0.00		0.00	0.00%
Scoter	16.0	12.0	12.0	8.0	16.0	36.94	1.37	0.50	41.04		1.52	20.37%
Black Scoter	16.0	12.0	12.0	8.0	16.0	19.44	0.72	0.26	21.60		0.80	34.63%
Surf Scoter	4.0	4.0	4.0	0.0	0.0	5.83	0.22	0.08	6.48		0.24	55.04%
White-winged Scoter	8.0	8.0	8.0	0.0	4.0	11.66	0.43	0.16	12.96		0.48	37.30%
Unknown Scoter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Northern Shoveler	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Teal	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Green Winged Teal	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Wigeon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
American Wigeon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Ducks	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Geese	20.0	16.0	16.0	12.0	12.0	136.51	5.06	1.86	113.76		4.21	52.86%
Brant	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Canada Geese	16.0	12.0	12.0	8.0	12.0	6.91	0.26	0.09	5.76		0.21	37.30%
Unknown Canada Geese	16.0	12.0	12.0	8.0	12.0	6.91	0.26	0.09	5.76		0.21	37.30%
Emperor Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
White-fronted Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Geese	4.0	4.0	4.0	4.0	0.0	129.60	4.80	1.76	108.00		4.00	55.04%
Crane	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sandhill Crane	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Shorebirds	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Common Snipe	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Seabirds & Loons	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Cormorants	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Double-Crested Cormorant	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%

(Continued)

Table IV-2. Estimated Harvest and Use of Fish, Game, and Plant Resources, Tatitlek, 2003

	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
Resource Name	Use	Att	Harv	Recv	Give	total	Mean HH	Percapita	Total	Units	Mean HH	Harvest
Gulls	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Gull	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Murre	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Common Murre	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Puffins	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Horned Puffin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tufted Puffin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Puffin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Other Birds	4.0	4.0	4.0	0.0	0.0	1.51	0.06	0.02	2.16		0.08	55.04%
Upland Game Birds	4.0	4.0	4.0	0.0	0.0	1.51	0.06	0.02	2.16		0.08	55.04%
Grouse	4.0	4.0	4.0	0.0	0.0	1.51	0.06	0.02	2.16		0.08	55.04%
Ptarmigan	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Bird Eggs	48.0	36.0	28.0	36.0	36.0	53.89	2.00	0.73	235.44		8.72	21.82%
Duck Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Duck Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Geese Eggs	4.0	4.0	4.0	0.0	4.0	3.89	0.14	0.05	12.96		0.48	55.04%
Unknown Geese Eggs	4.0	4.0	4.0	0.0	4.0	3.89	0.14	0.05	12.96		0.48	55.04%
Seabird & Loon Eggs	48.0	36.0	28.0	36.0	36.0	50.00	1.85	0.68	222.48		8.24	23.67%
Gull Eggs	44.0	32.0	16.0	36.0	32.0	46.66	1.73	0.64	155.52		5.76	25.43%
Unknown Gull Eggs	44.0	32.0	16.0	36.0	32.0	46.66	1.73	0.64	155.52		5.76	25.43%
Puffin Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tern Eggs	32.0	20.0	16.0	16.0	16.0	3.35	0.12	0.05	66.96		2.48	38.24%
Unknown Seabird Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Marine Invertebrates	100.0	60.0	40.0	96.0	52.0	60.79	2.25	0.83				32.58%
Chitons (bidarkis, gumboots)	48.0	24.0	20.0	28.0	16.0	38.88	1.44	0.53	9.72	GAL	0.36	46.12%
Red (large) Chitons	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Black (small) Chitons	48.0	24.0	20.0	28.0	16.0	38.88	1.44	0.53	9.72	GAL	0.36	46.12%
Clams	84.0	24.0	4.0	84.0	24.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Butter Clams	76.0	24.0	0.0	76.0	20.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Horse Clams (Gaper)	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Pacific Littleneck Clams (Steamers)	16.0	8.0	4.0	12.0	4.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Pinkneck Clams	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Razor Clams	36.0	0.0	0.0	36.0	8.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Unknown Clams	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Cockles	40.0	28.0	16.0	28.0	20.0	4.63	0.17	0.06	1.54	GAL	0.06	55.18%
Unknown Cockles	40.0	28.0	16.0	28.0	20.0	4.63	0.17	0.06	1.54	GAL	0.06	55.18%
Crabs	24.0	0.0	0.0	24.0	8.0	0.00	0.00	0.00	0.00		0.00	0.00%
Dungeness Crab	20.0	0.0	0.0	20.0	8.0	0.00	0.00	0.00	0.00		0.00	0.00%
King Crab	4.0	0.0	0.0	4.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown King Crab	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tanner Crab	20.0	0.0	0.0	20.0	4.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tanner Crab, Bairdi	20.0	0.0	0.0	20.0	4.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Tanner Crab	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Crab	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Geoducks	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Limpets	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%

(Continued)

Table IV-2. Estimated Harvest and Use of Fish, Game, and Plant Resources, Tatitlek, 2003

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	total	Mean HH	Percapita	Total	Units	Mean HH	Harvest
Mussels	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Unknown Mussels	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Octopus	92.0	24.0	12.0	80.0	40.0	17.28	0.64	0.24	4.32		0.16	55.18%
Scallops	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Weathervane Scallops	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Sea Cucumber	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Sea Urchin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Shrimp	16.0	0.0	0.0	16.0	8.0	0.00	0.00	0.00	0.00	LBS	0.00	0.00%
Snails	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Vegetation	92.0	76.0	68.0	52.0	72.0	295.58	10.95	4.02				13.47%
Berries	92.0	76.0	68.0	52.0	72.0	295.58	10.95	4.02	73.89	GAL	2.74	13.47%
Plants/Greens/Mushrooms	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Seaweed/Kelp	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Unknown Seaweed	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Wood	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	CORDS	0.00	0.00%

Note: Harvest amount in individual units unless otherwise specified

Source: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys 2004

Figure IV-2. Harvests of Wild Resources, Pounds Usable Weight per Person, Tatitlek

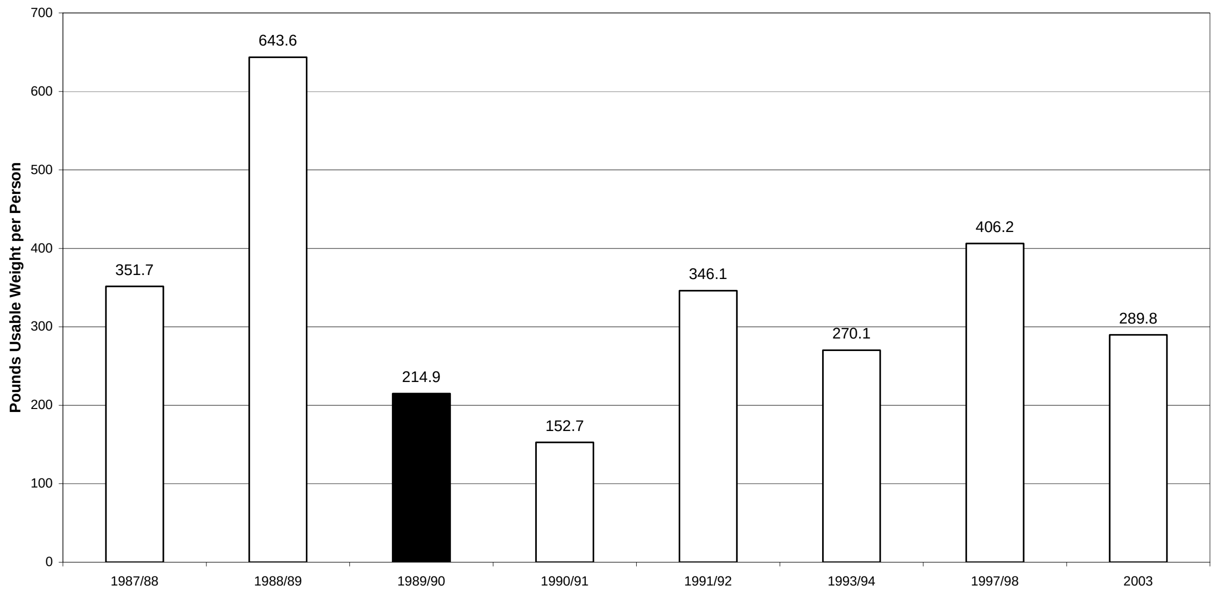


Figure IV-3. Harvests of Wild Resources by Resource Category, Pounds Usable Weight per Person, Tatitlek

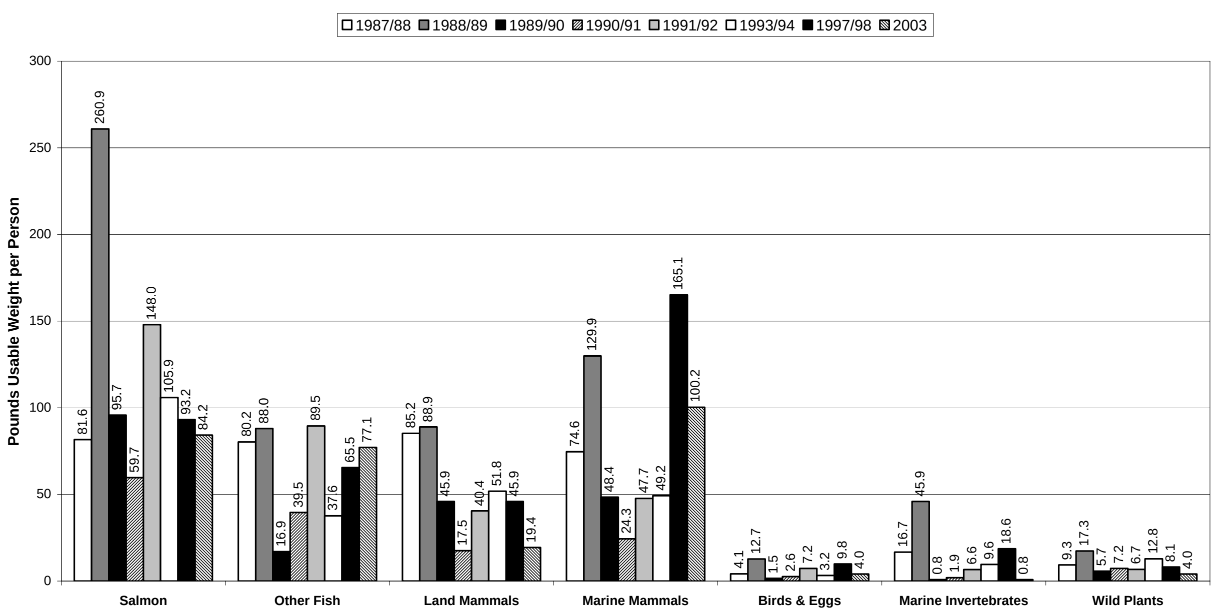
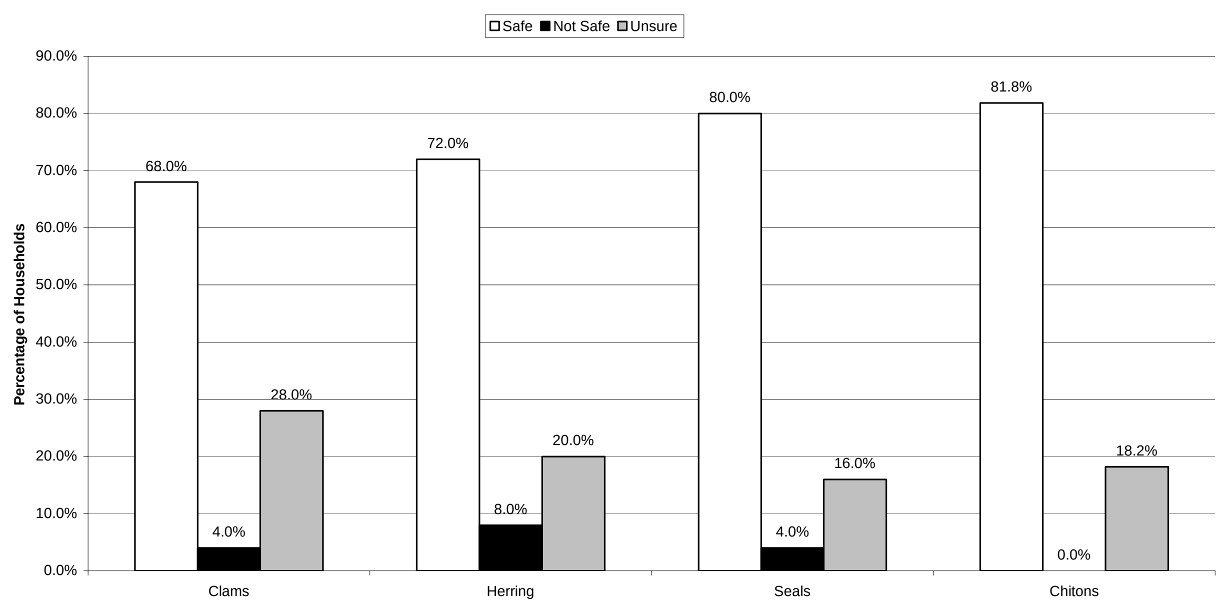


Table IV-3. Composition of Resource Harvests by Resource Category, Tatitlek

	Percentage of Total Harvest							
	1984/85	1985/86	1989/90	1990/91	1991/92	1993/94	1997/98	2003
Salmon	23.2%	40.5%	44.5%	39.1%	42.8%	39.2%	22.9%	29.1%
Other Fish	22.8%	13.7%	7.9%	25.9%	25.9%	13.9%	16.1%	26.6%
Land Mammals	24.2%	13.8%	21.4%	11.5%	11.7%	19.2%	11.3%	6.7%
Marine Mammals	21.2%	20.2%	22.5%	15.9%	13.8%	18.2%	40.6%	34.6%
Birds and Eggs	1.2%	2.0%	0.7%	1.7%	2.1%	1.2%	2.4%	1.4%
Marine Invertebrates	4.7%	7.1%	0.4%	1.2%	1.9%	3.6%	4.6%	0.3%
Wild Plants	2.6%	2.7%	2.7%	4.7%	1.9%	4.7%	2.0%	1.4%

SOURCE: Scott et al. 2001; Alaska Department of Fish and Game, Division of Subsistence Household Survey 2004

Figure IV-4. Assessments of Whether Subsistence Foods are Safe for the Family to Eat,Tatitlek, 2003



CHAPTER V: NANWALEK

by

Ronald T. Stanek

COMMUNITY BACKGROUND

Community History

The Alutiiq, or Suqpiat, ancestors of today's Nanwalek residents occupied the Gulf of Alaska and Lower Cook Inlet for hundreds of years prior to contact with explorers from England, Spain, and Russian fur traders (Workman and Workman 1988; Meganack 1982). Suqpiat lived semi-nomadic lives at seasonal camps, to which they traveled from more permanent settlements for specific resource harvest, social, and spiritual activities as well as habitation needs.

Prince William Sound and the lower Kenai Peninsula Suqpiat were organized in nine regional bands (Birket-Smith 1953; Tanape 1982; Ukatish 1997). This system of social organization was disrupted by the highly-competitive fur trade in the late 1700s and early 1800s when Russian traders established trading posts at Nuchek and Nanwalek. Suqpiat bands were broken up and intruded on neighboring territories resulting in bloody turf battles. In 1786 the Russian fur trading company of Shelikof-Golikof established a fort at Nanwalek to claim the territory of the lower inlet. While the Russians named the fort Alexandrovsk, the community was later named English Bay. For only a few years in the 1850s, the community was all but abandoned when residents were relocated by Russian mining interests to Coal Village just a few miles to the northeast.

Suqpiat settlement patterns changed from disbursed settlements in the traditional territories to being focused around the new trading posts as the supply of fur diminished, and the Suqpiat became increasingly dependent on cash and trade goods. Russian traders intermarried with the Suqpiat, and the Russian Orthodox religion became the dominant spiritual practice adopted by the Native people of the region. The collapse of the fur trade was followed by the rise of the salmon industry in the late 1800s; and commercial fishing became the dominant cash economy of the region. Into the late 1800s, many families lived in small settlements along the outer coast of the Kenai Peninsula at places such as Aialek, Yalik, Windy, Koyuktolik, and Port Chatham bays. With the establishment of Orthodox chapels, and schools in only a few communities, families were forced to move to communities such as Tatitlek, Chenega in the Sound, and Koyuktolik Bay and Nanwalek on the lower Kenai Peninsula. Some families from the Sound even moved to the outer Kenai Peninsula and eventually to Nanwalek. In the early 1900s, many of the same families moved to Port Graham when a cannery was established there in 1910 (Stanek 2000).

Demography

Nanwalek's population (see Table V-1) remained relatively stable since the earliest census figures were recorded. There were years with moderate growth, but during the periods 1970 to 1980 and 1990 to 2003, growth accelerated by nearly half (45.6%). The study year 2003 saw 51 households with an estimated 230 people. These growth spurts were due to economic phases such the canneries and a trading post, and in the mid-1900s, to government-sponsored housing construction (Stanek 1985 and 1995a); also see the following section on wage economy. Households have been consistently large and the 2003 average was no exception at 4.5 people.

The overall population in 2003 was very young with an average age of 23.8 years due to the large number of births during the previous three years (see Table V-2). In 2002 alone, 11 new babies were born, while most elders over 70 years old passed away or moved to care facilities outside the community just prior to the construction of a new elder care facility in the community. Several elderly household members were not surveyed in this study so their information is not represented.

The majority of households are headed by one or more Alaska Natives (95.5%), and the overall population is 96.0% Alaska Native.

Economic Overview

Nanwalek residents have always relied heavily on wild resources as a basis of their mixed subsistence and wage economies. Commercial harvesting of wild resources was the basis for establishing a trading post in the 1780s and 1800s in the sea otter and land-fur trade. When fur markets lost their high value, commercial fishing for salmon (in the early 1900s), shellfish, non-salmon fish (throughout the mid 1900s), and in recent years berry picking and forestry have provided cash incomes. Commercial fishing and cannery work were the primary wage sources from the early-1900s through the late-1980s (Stanek 1985). However, after the *Exxon Valdez* oil spill, salmon prices declined so earning a profit in the salmon fishery became more difficult. Operating costs, including fuel prices, permit fees, and equipment expenses increased with no corresponding increase in fish prices paid to fishermen. Most commercial fishermen sold their permits, boats, and equipment. The Port Graham cannery, a continuous source of jobs for Nanwalek residents since the 1910s, failed to make a profit and operated marginally until it burned in 1996. A new, $1.5 million state-of-the-art cannery was built in 1998, but could not sustain a profit margin after operating for a couple years. Low returns of salmon to the English Bay River system forced the closure of local waters to commercial fishing for a ten-year period. Only three setnet permits remained in ownership of Nanwalek residents. In the late-1990s, after an enhancement project began restoration of red salmon runs, minimal commercial fishing was allowed. But by then, fishermen had mostly divested themselves of their commercial interests (Stanek 1995a).

Other economic means of support were pursued by the village council during the 1990s, and grants for housing and infrastructure development provided much needed employment opportunities (op. cit.). A large number of new homes, a day-care facility, low income housing, and clinics were constructed, and annual operating and maintenance for these facilities provided constant sources of income, but not enough to support the burgeoning population.

SUBSISTENCE RESOURCE HARVESTS AND USES

Participation in Hunting, Fishing and Gathering Activities

Wild resources, as mentioned above, have always been a major part of the economy of Nanwalek. “Native” foods play a primary role in the everyday lives of Nanwalek residents as a source of sustenance, cultural identity, and economic survival (Stanek 1985). Without the bounty of the sea and land around them, Nanwalek residents would have a very difficult time surviving as the cost of purchasing food would be prohibitive. This characteristic of the community demonstrates why the oil spill had such a profoundly negative impact on the economy, and why Nanwalek residents returned with high levels of uncertainty about food safety to pre-spill levels of resource use.

Since before the oil spill and continuing to this study, Nanwalek has harvested the highest average number of different wild resources among all communities in the area of the spill with 24.8 taken in 2003 (see Table V-3). The harvest of such a diverse number of resources is a testament to the richness of the marine environment at this community's doorstep. While the largest number of wild resources harvested by an individual household was 49.0, the fewest number was 7, showing that every household in the survey harvested resources. Furthermore, with the mean number of resources being received at 15.9 and given away at 14.0, every household surveyed shared resources. These levels of resource sharing and use are comparable to pre-spill levels reported in 1987 (Fall et al. 2001).

Individual involvement in resource harvest activities is highly variable depending on the person's experience and the type of resource. Owing to the young age of Nanwalek's population discussed above, fewer people than expected participated in harvest and processing activities. Whereas normal participation levels would easily be at 100%, Nanwalek's 2003 level was 93.9% for any resource; a decrease from five years earlier and since before the spill (see Table V-4; op. cit.). Despite the young age of the community, 81.8% fished and 81.8% processed fish, 82.8% gathered plants and berries, while the specialized activity of hunting game involved 31.3% and 39.4% who processed game. While Nanwalek has a large variety of resources in its vicinity, the majority of these are marine species, which are relatively difficult to get to over rocky shorelines and on inlet waters, to which the village has limited access compared to neighboring Port Graham, which has a boat harbor.

Resource Harvest Quantities and Harvest Composition

Nanwalek harvested resources for subsistence uses from seven broad categories during 2003 (see Tables V-5, V-6, and V-7). These included: salmon which comprised the dominant portion of the harvest with 292.6 pounds per person and 74.4% of the total harvest; other fish with 58.1 pounds per capita and 14.8% of the overall harvest; marine invertebrates which contributed 15.4 pounds per capita and 3.9% of the total harvest; wild plants, which surprisingly surpassed land mammals with 14.6 pounds per person and 3.7% of the overall total; marine mammals that produced 8.7 pounds for every person or 2.2% of the total; land mammals that normally include one of two moose, but this year included only black bear and porcupine adding 1.6 pounds per individual; and lastly birds and eggs of which hunters brought in 2.2 pounds per person, 0.6% of the harvest.

In 2003, Nanwalek harvesters produced a new high of 393.2 pounds per person of total wild foods (Fig. V-1). However, it was only salmon that accounted for the exceptionally high total. As mentioned above salmon were 74.1% or 67,823.7 pounds of the total 2003 harvest (see Tables V-6 and V-7). All other resource categories were either equal to or below the annual averages (Fig. V-2).

Salmon returns to the English Bay River have fluctuated dramatically over time, but usually dominate the harvest. Enhancement efforts implemented since the late 1990s have produced surpluses enough to provide for a cost recovery program and allow a small commercial fishery. Subsistence fishermen in 2003 have also benefited from large returns, particularly in their harvest of sockeye salmon (33,420.0 pounds), the favored fish of Nanwalek households. The major portion (over 14,000 pounds) was taken by setnet while rod and reel accounted for nearly 12,000 pounds. Salmon returning to the English Bay Lakes system are easily accessible near the village from the saltwater beach where fishermen use setnets, and in the intertidal lagoon and river system by rod and reel. Other salmon species that return and spawn in the English Bay River system include pink salmon, of which 12,009.9 pounds were estimated taken mostly by rod and reel, and coho or silver salmon with just over 14,000 pounds harvested by setnet and rod and reel. Although chum salmon do return to local streams, they are relatively few in numbers, and like king salmon, which are taken in setnets in saltwater only, their large body size accounts for high amounts of poundage in the harvest.

All households surveyed reported taking salmon in 2003. While nearly every household harvested pink and sockeye (95.5%), 81.8% took cohos, 59.1% Chinook, and 50.0% harvested chums (see Table V-7). In some instances, commercial fishers either took too few fish to sell or processors were not available to buy the catch. Such was the case in the 2003 commercial salmon fishery at Nanwalek from which 10,277.8 pounds of salmon were removed from commercial harvests and used for personal consumption. The majority of these were coho (3,960.6 pounds) and pink salmon (2,533.3 pounds) (see Table V-8).

Other fish taken by subsistence users in Nanwalek included non-salmon species such as halibut, cod, rockfish, smelt, and Dolly Varden (see Table V-9 and V-10). Of these species, 4,906.7 pounds of halibut were taken by long-line and rod and reel, along with 3,136.0 pounds of Dolly Varden Char taken by subsistence seine net and rod and reel. Rockfish also were taken by long-line and rod and reel methods, and 1,468.6 pounds of black rockfish appeared in the 2003 harvest.

About 80% of Nanwalek households fished for non-salmon species with just over half (59.1%) trying for halibut and Dolly Varden, 40.9% going for rainbow trout, greenling, and cod, while almost one-third (27.3%) fished for black rockfish (see Table V-11).

Marine invertebrates taken in 2003 totaled 3,579.5 pounds and were comprised mostly of chiton or bidarkie with 1,414.1 pounds. This is a very well-liked resource for which 100% of households interviewed reported an average of 27.7 pounds harvest. Both the black Katie and large red gumboot chitons were harvested. Over 1,200 pounds of clams were also taken; mostly butter clams (973.6 pounds) but also some razor clams (194.7 pounds) were likely taken on beaches along the upper Kenai Peninsula. Octopus (593.5 pounds), snails (125.2 pounds), and mussels (107.8 pounds) also appeared in the 2003 harvests.

Marine mammals were harvested by 18.2% of Nanwalek households, but used by 77.3% indicating the popularity of these foods. The 32.5 harbor seals harvested produced an estimated 1,557.8 pounds of edible meat and fat, and the 2.3 sea lions another 463.6 pounds of food.

As mentioned earlier the only large land mammal taken by Nanwalek hunters was black bear of which five were reported by 9.8% of the households. The only other land mammal harvested was porcupine of which 9.3 were taken.

Harvest Effort

Nanwalek households were requested to assess the amount of effort it took them to harvest resources, making comparisons of the study year with five years previous and giving reasons for the changes (see Tables A-55 to A-81). Overall just over 50% of Nanwalek households found that it took more effort in 2003 than five years earlier to harvest salmon, non-salmon fish, marine invertebrates, and wild plants. The reasons for this were having to travel farther and more competition for salmon. Traveling farther, less abundance, and more competition were reasons for more effort to get non-salmon fish, marine invertebrates, and wild plants. Most households (63.6%) responding to the large land mammal question on effort thought they expended the same amount of effort, and this was due to decreased abundance and having to travel farther than usual. For harvesting birds and eggs, there was an equal split (40%) between more and the same amounts of effort required due to traveling farther, lower abundance, and more competition. Marine mammal hunters generally thought it took either more or the same amount of effort to harvest seals and sea lions mainly because of having to go farther from home and increased competition. Exactly what aspect of competition was involved was not indicated. In Kachemak Bay however, Nanwalek and Port Graham hunters have experienced competition from other hunters out of Anchorage, as well as recreational kayakers who have become more numerous in traditional hunting areas. There have also been attempts by kayakers to interrupt hunting efforts in some locations.

Comparisons of Uses and Harvests with Other Years

Changes in resource harvest and use occur over time and in this study Nanwalek residents were asked to assess changes in their use levels of eight different resource groups. Perceptions of change are provided in a comparison of 2003 use levels with levels prior to the spill and five years ago.

Overall, 45.0% of Nanwalek households thought their use levels decreased since before the spill. However, one-quarter thought levels were the same, while nearly a third (30.0%) expressed an increase in use levels. Most households (50 to 61%) thought that use of marine invertebrates, marine mammals, and birds and eggs had decreased. Slightly fewer households (42.9%) thought non-salmon fish and wild plant use had declined. A fair number of households, 33.3% and 28.6% respectively, thought that large mammals and salmon had decreased. A very similar pattern emerged in responses comparing 2003 with five years previous, although a higher percentage of households had thought salmon use had increased over the past five years (see Tables A-1 to A-52).

As to the reasons for decreases over time, the vast majority of households were unable to account for why there was less harvest and use. A very small number of households thought that oil spill-related reasons were the cause of any declines (see Tables A-1 to A-57).

NATURAL RESOURCE CONDITIONS

Food Safety

The safety of eating wild resources affected by the oil spill was a major concern of residents living in the area of the spill. For this reason people were asked to give their assessment of the safety of eating wild foods harvested from waters where oil may have been present. Wild food samples were collected after the spill occurred and tested for hydrocarbon levels (Field and Fall 1996). Complete confidence in food safety was never restored despite the tests and advisements that foods in most areas except Windy Bay were safe for consumption. Nanwalek and Port Graham residents worked on oil spill clean-up efforts along the outer coast of the Kenai Peninsula and had first-hand experience with the impacts of the oil. Not only did some workers become ill and receive medical treatment for the effects of the oil, but they witnessed the total destruction of intertidal resources covered by the spill (Anahonak 1997).

With time, perceptions of food safety are likely to change. Fifteen years following the spill, Nanwalek residents still do not consider herring, seal, chiton, and clams safe to eat. However, rather than an overwhelming expression of distrust, residents were by majority unsure of the safety of eating these resources (see Tables A-458 to A-465). A few people (5 -9%) did express some feeling of safety toward eating herring, however about half as many thought it might not be safe. With seals, just 33.3% thought this food was safe to eat, and again the majority (57.1%) was unsure. In Nanwalek, where chitons are one of the most highly-prized subsistence foods, and large quantities are taken annually, only one-third of respondents (36.4%) thought bidarkies were safe for consumption, while the remaining 63.6% were either unsure or thought them unsafe. The same results were indicative of responses to questions about clams.

As to the reasons for certain subsistence foods not being safe, those people who thought herring and seal unsafe attributed their fears to the oil spill and “not being sure.” Clams and bidarkies on the other hand were thought to be “unsafe” due to “PSP” (paralytic shellfish poisoning), “contamination” from the oil spill, and a “lack of information.”

<u>Status of Resource Populations</u>

The final aspect of natural resource conditions assessed in this study was whether respondents perceived any recovery of subsistence resources since the time of the oil spill (see Tables A-82 and A-83). In Nanwalek, 63.6% said they had not, 4.5% said they had, and 31.8% thought there had never been any change. As to what could be done to help resources recover, the majority of respondents (92.9%) had no recovery suggestion to offer, while the remaining 7.1% who had originally noticed no recovery suggested “reducing or eliminating oil pollution sources” as the way to help resources recover.

The relative availability of wild resources over time, as perceived by spill-affected communities, was another assessment made by the study. Those households interviewed were asked to give their assessment of the availability of resources comparing 2003 with five years previous. Seven groups of resources were subject to the evaluation including: salmon, non-salmon fish, marine invertebrates, large land mammals, marine mammals, birds and eggs, and wild plants (see Tables A-84 to A-455).

For all salmon species, except sockeye and King salmon, respondents thought availability had remained the same with around 40 to 50% of households expressing this perception. For sockeye, almost two-thirds of households (63.6%) were of the opinion there was an increase. Chinook salmon on the other hand were perceived to have declined. As to the reasons for the increase in sockeyes, one-fourth (28.6%) of households attributed it to management practices. This is indeed the case in the English Bay River where active red salmon enhancement efforts take place. However, the majority of household respondents (57.1%) provided no explanation for why the increase had occurred.

For Chinook salmon, reasons for the perceived decrease were “unknown” as expressed by 77.8% of respondents. Indeed there are only a very few Kings that run into the local stream by Nanwalek, and fishermen there have limited experience with the fish, unlike sockeyes that spawn in large numbers and are present in the stream and lake system for periods of time when people can observe them.

Although only about a third of the households interviewed responded to the assessment of non-salmon fish, everyone thought that herring were less available. Just half (50.0%) thought that halibut were about the same, but among the rest, one-fifth (20.0%) thought there were more and almost one-third (30.0%) thought there were fewer halibut. The majority of households (94.1%) thought rockfish were about the same as five years earlier. As to why one-third of the respondents thought halibut were fewer, equal numbers of responses (16.7%) listed "competition" and "contamination." The herring decline was given no explanation whatsoever. As for oil spill-related reasons for fewer non-salmon fish, although the oil-spill reason was listed, there were no underlying detailed responses given.

Marine invertebrates were thought to have declined by the majority of interviewees with over 50% indicating less clams, chitons, crab, and sea urchin available. While the majority of respondents gave no particular reason for the declines, the approximately one-fourth that did thought that non-contaminants and competition were the causes, and a few households felt that contamination might have been the reason.

Harbor seals were thought to have decreased by 80.0% of respondents, mostly because of non-contaminant environmental reasons. Most respondents (62.5%) gave no reason. For the most part, sea lions by in large were thought to have remained about the same over the past five-year period.

Sea ducks were perceived to have decreased as indicated by 58.8% of responses. The reason given by one-fifth of respondents was "non-contaminant environmental", however 80.0% had no reason in mind. Although 36.4% of respondents indicated there might be some oil spill-related reason for the decline in sea ducks, 75.0% gave no specific, likely reason, and one-fourth thought non-contaminant environmental reasons were the cause.

Consistent among the above descriptions were the high levels of non-response or no reason given to specify reasons for perceived declines in resource availability. Respondents often indicated they had no information on which to make judgments about resource abundance.

Habitat Changes

The last question with regard to natural resources condition assessment had to do with perceived changes in the habitat of subsistence resources (see Tables A-456 and A-457). Households were asked to indicate whether they saw any changes in the environment and whether these changes might have affected the condition of subsistence resources. In Nanwalek, the majority of respondents (63.6%) indicated seeing some changes while the remaining 36.4% had witnessed no changes. As to what the changes were that the majority of households reported having seen, the most common observation was "less resources" (28.6%). The next most common response was "more resources" by 21.4%. Another 21.4% of responses listed "habitat protection or improvement" changes. "Other natural changes" were noticed by 14.3% of respondents, while equal percentages of responses were for "logging and economic development" and "predation", at 7.1% each. Specific incidents and conditions were not provided in the analysis.

SOCIAL AND ECONOMIC CONDITIONS

Food Purchases

Nanwalek households, almost unanimously (81.8%), said they needed to purchase subsistence foods in 2003 because they were unable to obtain these foods by harvesting them or through sharing networks (see Table A-475). The remaining 18.2% reported they had no need to purchase subsistence foods.

The reasons given by those having to purchase subsistence foods included: some “resource condition”, which apparently had to do with the unusual condition of the wild resource, expressed by 44.4%; “contamination” of those wild resources or a perceived contamination was the reason given by 11.1%; and no specific reason was the response of 33.3% of respondents (see Table A-476).

Having to purchase non-subsistence foods such as beef or chicken to replace subsistence foods was another assessment applied to evaluate economic conditions in Nanwalek since the oil spill. This question and the preceding one of purchasing subsistence foods were very similar and probably caused some confusion. The intent of this question was to determine whether people purchased foods other than subsistence foods to replace subsistence foods, however that intent was not clearly communicated by interviewers. Consequently, respondents answered this question in the same way as the previous one, with 81.8% affirming the purchase of food replacements, and 18.2% indicating no need to purchase replacements (see Table A-477).

The reasons cited by interviews for having to make substitute food purchases were similar to the reasons for having to purchase subsistence foods (see Table A-478). Respondents indicated “resource condition” in 44.4% of their answers, contamination in 5.6% of responses, economic in 16.7%, and “personal”, “competition”, and no reason for their purchases each at 11.1%.

Sharing of Subsistence Resources

Sharing of wild resources in Nanwalek is a key part of living in that community. Every household participating in the survey reported giving and receiving resources during 2003 (see Table V-7). To determine any potential oil spill impact on this aspect of society, respondents were asked to give their assessment of whether sharing had changed over time (see Table A-472). Nanwalek households responded with 40.9% indicating less sharing, 31.8% the same, and 27.3% feeling there was more sharing in the community over the past five years.

For the slight majority of households that reported sharing had decreased (see Table A-474), most (44.4%) thought it had something to do with the environment, 22.2% related the decrease to economic reasons, 11.1% held personal reasons accountable, and another 11.1% were unspecific about the reasons. For those households that reported sharing had increased (see Table A-473), 33.3% indicated personal reasons, 16.7% were unspecific, and the remaining majority gave no response.

Young Adults' Involvement in Subsistence Activities

Another measure of whether life in the oil spill communities had returned to normal was an assessment of youth involvement in subsistence activities and whether they were learning enough about it (see Table A-466). For the 90.9% of Nanwalek households responding to this question, most (55.0%) said no, youth were not learning enough about subsistence, and 45.0% said they were. The remaining 9.1% did not know whether or not youth were learning enough.

"No Interest" was the reason given by 63.6% of respondents who felt youth were not learning enough about subsistence. Also, "no time" was the response of 9.1%, and "no teachers" was the reason given by 9.1% (see Table A-467).

As to how youth were learning subsistence skills, most (44.4%) thought that just being "involved in activities" was how kids were learning, while equal percentages of responses (22.2%) thought that "family members", "elders", and "other community members" were teaching kids what they knew about subsistence (see Table A-468).

Elders' Influence

Elders play an important role in village life as leaders and teachers of traditional knowledge to younger generations. The influence of elders is recognized as a measure of whether traditional practices and ways of life persist. In this study households were asked to provide their impression of whether elders' influence has changed over time (see Table A-469). Nanwalek residents, by over half the responses (52.6%) thought the influence of elders had decreased over the five years prior to 2003. Slightly over one-fourth (26.3%) thought elders' influence had increased, while just under a quarter (21.1%) thought it had remained the same.

Reasons for the decline in elders' influence ranged widely from "elders being less active" and "cultural" as thought by 30.0% each, to "elders being more active" and "demographic" as reasons given by 10.0% each. Another 30.0% of responses included no reason (see Table A-471).

Status of the Traditional Way of Life

The final assessment of social and economic conditions attempted in this study included an evaluation of the traditional way of life. As mentioned above, the traditional way of life included the role of elders in passing on knowledge and leading the community. Other aspects of the traditional way of life include subsistence activities, sharing, and helping others. The concept of traditional life and whether it was affected by the oil spill and subsequently recovered was assessed by Nanwalek households, and 90.9% thought it was affected (see Table A-479). Key to the recovery of subsistence and the traditional way of life was whether or not the latter had recovered, and 75.0% of respondents thought the traditional way of life had not recovered (see Table A-480).

EVALUATION OF THE GEM PROGRAM

The Gulf Ecosystem Monitoring Program (GEM) funded a variety of projects to measure environmental changes in the Gulf of Alaska that might have resulted from the oil spill. How effectively information about this program was disseminated to the public was attempted to be measured with several questions. First, households were asked if they were informed about the Trustee Council and GEM projects (see Table A-482). Nanwalek residents almost unanimously (90.0%) said they had “not been informed.”

When asked how communications about the program could be improved (see Table A-483), a little over one-third (38.9%) of respondents gave no suggestions. However, of the remaining respondents, one-third (33.3%) felt that newsletters would help, 16.7% thought meetings would be of value, and 5.6% each were all for “structural” and “staffing changes.”

DISCUSSION AND CONCLUSIONS

The fishing economy, including commercial fishing and cannery work, have all but disappeared from Nanwalek, and therewith a way of life that sustained the community for nearly 90 years. Several generations of families had based a substantial part of their annual incomes on the knowledge and ability to harvest fish. The mixed cash and subsistence economy of Nanwalek functioned well on the complementary activities based on resource harvest.

Results of this study found subsistence harvests of wild resources and participation levels in these activities had reached pre- and post-spill levels despite apprehension about the safety of eating some subsistence foods. Residents had little choice when faced with paying high prices for store-bought foods, but to get what they needed to survive by their traditional means. What was done also in spite of what Nanwalek residents see as a lack of continuing information from authoritative sources about the safety of consuming wild “Native” foods.

Residents were accurate in their assessments and perceptions of which resources increased in their harvest totals, which had remained the same, and which ones had decreased. Additionally, they had to put forth an increasing amount of effort since the last study year in 1997 to acquire what resources they needed.

Perceptions are all that matter when it comes to restoring confidence in the safety of consuming resources from an oil-spill-impacted environment. Nanwalek residents consistently expressed a lack of confidence in the safety of wild foods. Their assessments of the conditions of resources and their habitats were largely reflective of their ability to observe and, over time, develop an overall sense of change. They accurately evaluated returns of salmon to local streams and seals, to which they pay close attention, and attributed their assessments to logical and reasonable causes. For resources that they were unable to make in-depth and close personal observation, they were non-committal in their assessments instead of posting blame on the oil spill. Perhaps because of the lack of information and inability to make closer observations of some key resources, recovery of subsistence resources was thought not to have occurred, and correspondingly, no suggestions were made as to how recovery could be brought about.

In evaluating aspects of everyday life and whether things had returned to “normal”, Nanwalek residents overall expressed feelings of lacking normalcy and the way life was prior to the spill. They felt they had to purchase subsistence foods in order to get enough to meet their needs, that sharing wasn’t what it was in the past, and that children were not learning the skills necessary for involvement in subsistence activities. They felt that kids just weren’t interested, but the reason for that was not assessed in this study. However, it is worth considering whether children exposed to conditions during and after the spill, when parents warned of staying away from the beach and not eating certain favored wild foods, are today affected by those memories and learned behaviors.

Correspondingly, it is worthy of question whether the influence of parents who are today the elders of the spill era, has decreased as a result of the warnings of contamination and the lack of knowledge and doubt caused by a lack of information and more in-depth communication.

Table V-1. Nanwalek Historic Population Levels

Pre-1880	1880	1890	1900	1910	1920	1929	1939	1950	1960	1970	1980	1990	2003
20	88	107	*	*	*	107	48	75	78	58	124	158	230

* Data not available
SOURCE: Stanek 2000.

Table V-2. Demographic Characteristics of Nanwalek, 2003

Sampled Households	22
Number of Households in the Community	51
Percentage of Households Sampled	43.1%
Household Size	
Mean	4.5
Minimum	1.0
Maximum	10.0
Sample Population	99
Estimated Community Population	230
Age	
Mean	23.8
Minimum	2.0
Maximum	70.0
Median	19.0
Length of Residency - Population	
Mean	20.6
Minimum	2.0
Maximum	65.0
Length of Residency - Household Heads	
Mean	33.1
Minimum	4.0
Maximum	65.0
Sex	
Male	
Number	121
Percentage	52.5%
Female	
Number	109
Percentage	47.5%
Alaska Native	
Households (Either Head)	
Number	49
Percentage	95.5%
Estimated Population	
Number	220
Percentage	96.0%

SOURCE: Alaska Department of Fish and Game,
Division of Subsistence, Household Surveys, 2004.

Table V-3 . Resource Harvest and Use Characteristics, Nanwalek, 2003.

Mean Number of Resources Used Per Household	24.8
Minimum	8
Maximum	49
95% Confidence Limit(+/-)	13.8%
Median	26
Mean Number of Resources Attempted to Harvest Per Household	18
Minimum	8
Maximum	47
95% Confidence Limit(+/-)	16.7%
Median	17
Mean Number of Resources Harvested Per Household	17.3
Minimum	7
Maximum	43
95% Confidence Limit(+/-)	15.9%
Median	16.5
Mean Number of Resources Received Per Household	15.9
Minimum	1
Maximum	34
95% Confidence Limit(+/-)	18.9%
Median	14.5
Mean Number of Resources Given Away Per Household	14.0
Minimum	3
Maximum	30
95% Confidence Limit(+/-)	19.3%
Median	12
Mean Household Harvest, Pounds	1,787.3
Minimum	277.4
Maximum	21,725.4
Total Pounds Harvested	91,154.6
Community Per Capita Harvest, Pounds	393.2
Percent Using Any Resource	100.0%
Percent Attempting To Harvest Any Resource	100.0%
Percent Harvesting Any Resource	100.0%
Percent Receiving Any Resource	100.0%
Percent Giving Away Any Resource	100.0%

Source: ADF&G Division of Subsistence Household Survey 2004

Table V-4. Participation in the Harvest and Processing of Wild Resources, Nanwalek, 2003

Total Number of People			229.5
GAME	Hunt	Number	71.9
		Percentage	31.3%
		Missing	9.3
		Missing %	4.0%
	Process	Number	90.4
		Percentage	39.4%
		Missing	9.3
		Missing %	0.0%
FISH	Fish	Number	187.8
		Percentage	81.8%
		Missing	2.3
		Missing %	1.0%
	Process	Number	187.8
		Percentage	81.8%
		Missing	2.3
		Missing %	1.0%
FURBEARERS	Hunt or Trap	Number	9.3
		Percentage	4.0%
		Missing	0.0
		Missing %	0.0%
	Process	Number	13.9
		Percentage	6.1%
		Missing	0.0
		Missing %	0.0%
PLANTS	Gather	Number	190.1
		Percentage	82.8%
		Missing	0.0
		Missing %	0.0%
	Process	Number	192.4
		Percentage	83.8%
		Missing	0.0
		Missing %	0.0%
ANY RESOURCE	Attempt	Number	215.6
		Percentage	93.9%
	Process	Number	215.6
		Percentage	93.9%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Survey, 2004

Table V-5. Subsistence Harvests in Pounds Usable Weight per Person by Resource Category, Nanwalek

	1987	1989	1990/91	1991/92	1992/93	1993/94	1997/98	2003
Salmon	113.3	60.2	91.5	125.6	121.6	149.4	157.8	292.6
Other Fish	107.2	30.2	56.4	82.7	88.4	90.1	41.6	58.1
Land Mammals	9.0	14.8	1.8	3.1	14.5	8.9	12.1	1.6
Marine Mammals	22.0	13.0	5.4	6.4	16.8	18.6	24.0	8.7
Birds & Eggs	4.1	2.5	2.2	3.8	1.7	2.3	3.6	2.2
Marine Invertebrates	18.5	16.0	16.7	24.4	24.8	23.3	9.0	15.4
Wild Plants	14.7	4.4	7.3	12.9	11.3	12.2	5.8	14.6
All Resources	288.8	141.1	181.3	258.9	279.1	304.8	253.9	393.2

Source: Scott et al. 2001; Alaska Department of Fish and Game, Division of Subsistence Household Survey 2004

Table V-6. Composition of Resource Harvests by Resource Category, Nanwalek

	1987	1989	1990/91	1991/92	1992/93	1993/94	1997/98	2003
Salmon	39.2%	42.7%	50.5%	48.5%	43.6%	49.0%	62.2%	74.4%
Other Fish	37.1%	21.4%	31.1%	31.9%	31.7%	29.6%	16.4%	14.8%
Land Mammals	3.1%	10.5%	1.0%	1.2%	5.2%	2.9%	4.8%	0.4%
Marine Mammals	7.6%	9.2%	3.0%	2.5%	6.0%	6.1%	9.5%	2.2%
Birds and Eggs	1.4%	1.8%	1.2%	1.5%	0.6%	0.8%	1.4%	0.6%
Marine Invertebrates	6.4%	11.3%	9.2%	9.4%	8.9%	7.6%	3.5%	3.9%
Wild Plants	5.1%	3.1%	4.0%	5.0%	4.0%	4.0%	2.3%	3.7%

Source: Scott et al. 2001; Alaska Department of Fish and Game, Division of Subsistence Household Survey 2004

Table V-7. Estimated Harvest and Use of Fish, Game, and Plant Resources, Nanwalek, 2003

	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
Resource Name	Use	Att	Harv	Recv	Give	total	Mean HH	Percapita	Total	Units	Mean HH	Harvest
All Resources	100.0	100.0	100.0	100.0	100.0	91,154.63	1,787.35	393.22				135.86%
Fish	100.0	100.0	100.0	90.9	95.5	81,290.34	1,593.93	350.66				88.08%
Salmon	100.0	100.0	100.0	77.3	95.5	67,823.74	1,329.88	292.57	17,959.53		352.15	59.38%
Chum Salmon	72.7	50.0	50.0	36.4	36.4	3,039.55	59.60	13.11	570.27		11.18	44.77%
Coho Salmon	86.4	81.8	81.8	63.6	72.7	14,660.18	287.45	63.24	2,874.55		56.36	53.96%
Chinook Salmon	81.8	54.5	54.5	63.6	54.5	4,694.03	92.04	20.25	517.53		10.15	52.50%
Pink Salmon	95.5	95.5	95.5	45.5	63.6	12,009.94	235.49	51.81	5,132.45		100.64	33.98%
Sockeye Salmon	95.5	95.5	95.5	63.6	90.9	33,420.02	655.29	144.16	8,864.73		173.82	58.98%
Landlocked Salmon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Salmon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Non-Salmon Fish	90.9	81.8	81.8	86.4	90.9	13,466.61	264.05	58.09				61.70%
Herring	22.7	0.0	0.0	22.7	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Herring Roe	18.2	0.0	0.0	18.2	9.1	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Herring Roe/Unspecified	18.2	0.0	0.0	18.2	9.1	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Herring Sac Roe	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Herring Spawn on Kelp	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Smelt	40.9	9.1	9.1	36.4	22.7	376.70	7.39	1.63	115.91	GAL	2.27	105.65%
Eulachon (hooligan, candlefish)	40.9	9.1	9.1	36.4	22.7	376.70	7.39	1.63	115.91	GAL	2.27	105.65%
Unknown Smelt	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Bass	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sea Bass	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Cod	86.4	54.5	54.5	77.3	63.6	2,120.67	41.58	9.15	2,683.88		52.63	61.47%
Pacific Cod (gray)	63.6	40.9	40.9	40.9	31.8	873.49	17.13	3.77	272.97		5.35	67.96%
Pacific Tom Cod	72.7	36.4	36.4	68.2	50.0	1,182.27	23.18	5.10	2,364.55		46.36	105.25%
Walleye Pollock (whiting)	4.5	4.5	4.5	0.0	0.0	64.91	1.27	0.28	46.36		0.91	153.21%
Eel	9.1	9.1	9.1	0.0	4.5	108.49	2.13	0.47	30.14		0.59	106.45%
Flounder	18.2	13.6	13.6	9.1	9.1	264.27	5.18	1.14	88.09		1.73	153.21%
Starry Flounder	18.2	13.6	13.6	9.1	9.1	97.36	1.91	0.42	32.45		0.64	83.78%
Unknown Flounder	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Greenling	50.0	40.9	40.9	27.3	36.4	435.82	8.55	1.88	380.18		7.45	50.03%
Lingcod	22.7	9.1	9.1	13.6	4.5	74.18	1.45	0.32	18.55		0.36	133.76%
Unknown Greenling	45.5	40.9	40.9	18.2	31.8	361.64	7.09	1.56	361.64		7.09	58.96%
Halibut	90.9	59.1	59.1	68.2	59.1	4,906.72	96.21	21.17	4,906.72	LBS	96.21	48.85%
Rockfish	59.1	31.8	27.3	45.5	31.8	1,485.95	29.14	6.41	990.64		19.42	125.49%
Black Rockfish	59.1	31.8	27.3	45.5	31.8	1,468.57	28.80	6.34	979.05		19.20	126.93%
Red Rockfish	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Rockfish	4.5	4.5	4.5	0.0	0.0	17.39	0.34	0.08	11.59		0.23	153.21%
Sablefish (black cod)	18.2	0.0	0.0	18.2	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sculpin	4.5	4.5	4.5	0.0	4.5	39.41	0.77	0.17	78.82		1.55	153.21%
Irish Lord	4.5	4.5	4.5	0.0	4.5	39.41	0.77	0.17	78.82		1.55	153.21%
Unknown Irish Lord	4.5	4.5	4.5	0.0	4.5	39.41	0.77	0.17	78.82		1.55	153.21%
Unknown Sculpin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Shark	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Shark	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Skates	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sole	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Sole	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%

(Continued)

Table V-7. Estimated Harvest and Use of Fish, Game, and Plant Resources, Nanwalek, 2003

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	total	Mean HH	Percapita	Total	Units	Mean HH	Harvest
Wolffish	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Char	72.7	59.1	59.1	45.5	54.5	3,233.40	63.40	13.95	2,309.57		45.29	95.08%
Dolly Varden	72.7	59.1	59.1	40.9	54.5	3,136.04	61.49	13.53	2,240.03		43.92	98.15%
Lake Trout	9.1	4.5	4.5	4.5	4.5	97.36	1.91	0.42	69.55		1.36	153.21%
Grayling	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Pike	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Pike	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sturgeon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Sturgeon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Trout	50.0	40.9	40.9	27.3	36.4	495.16	9.71	2.14	353.69		6.94	46.75%
Cutthroat Trout	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Rainbow Trout	50.0	40.9	40.9	27.3	31.8	449.73	8.82	1.94	321.23		6.30	51.45%
Steelhead	22.7	22.7	22.7	0.0	9.1	45.44	0.89	0.20	32.45		0.64	72.70%
Unknown Trout	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Whitefish	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Whitefish	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Land Mammals	68.2	9.8	9.8	63.6	22.7	364.18	7.14	1.57	14.27		0.28	117.76%
Large Land Mammals	68.2	9.8	9.8	63.6	22.7	290.00	5.69	1.25	5.00		0.10	0.00%
Black Bear	63.6	9.8	9.8	59.1	13.6	290.00	5.69	1.25	5.00		0.10	0.00%
Caribou	4.5	0.0	0.0	4.5	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Deer	9.1	0.0	0.0	9.1	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Goat	4.5	4.5	0.0	4.5	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Moose	27.3	9.1	0.0	27.3	9.1	0.00	0.00	0.00	0.00		0.00	0.00%
Dall Sheep	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Small Land Mammals	9.1	9.1	9.1	0.0	4.5	74.18	1.45	0.32	9.27		0.18	117.76%
Beaver	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Coyote	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Fox	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Red Fox	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Hare	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Snowshoe Hare	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Land Otter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Lynx	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Marten	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Mink	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Muskrat	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Porcupine	9.1	9.1	9.1	0.0	4.5	74.18	1.45	0.32	9.27		0.18	117.76%
Squirrel	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Parka Squirrel (ground)	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tree Squirrel	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Weasel	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Wolf	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Wolverine	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Marine Mammals	77.3	27.3	18.2	72.7	31.8	2,021.45	39.64	8.72	32.45		0.64	63.73%
Seal	77.3	27.3	18.2	72.7	31.8	1,557.82	30.55	6.72	27.82		0.55	76.48%
Harbor Seal	77.3	27.3	18.2	72.7	31.8	1,557.82	30.55	6.72	27.82		0.55	76.48%
Harbor Seal (saltwater)	77.3	27.3	18.2	72.7	31.8	1,557.82	30.55	6.72	27.82		0.55	76.48%

(Continued)

Table V-7. Estimated Harvest and Use of Fish, Game, and Plant Resources, Nanwalek, 2003

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	total	Mean HH	Percapita	Total	Units	Mean HH	Harvest
Sea Otter	9.1	4.5	4.5	4.5	0.0	0.00	0.00	0.00	2.32		0.05	153.21%
Steller Sea Lion	45.5	4.5	4.5	45.5	13.6	463.64	9.09	2.00	2.32		0.05	153.21%
Whale	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Belukha	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Birds and Eggs	77.3	50.0	50.0	63.6	40.9	514.61	10.09	2.22				37.32%
Migratory Birds	40.9	22.7	22.7	31.8	22.7	266.57	5.23	1.15	285.14		5.59	51.55%
Ducks	36.4	18.2	18.2	31.8	13.6	162.25	3.18	0.70	180.82		3.55	48.08%
Bufflehead	4.5	4.5	0.0	4.5	4.5	0.00	0.00	0.00	0.00		0.00	0.00%
Gadwall	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Goldeneye	4.5	9.1	4.5	4.5	0.0	3.71	0.07	0.02	4.64		0.09	153.39%
Unknown Goldeneye	4.5	9.1	4.5	4.5	0.0	3.71	0.07	0.02	4.64		0.09	153.39%
Harlequin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Mallard	27.3	13.6	13.6	27.3	9.1	70.94	1.39	0.31	78.82		1.55	110.32%
Merganser	22.7	9.1	9.1	18.2	4.5	16.69	0.33	0.07	18.55		0.36	117.76%
Common Merganser	18.2	9.1	9.1	13.6	4.5	16.69	0.33	0.07	18.55		0.36	117.76%
Red-Breasted Merganser	9.1	0.0	0.0	9.1	4.5	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Merganser	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Long-tailed Duck (Oldsquaw)	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Northern Pintail	4.5	0.0	0.0	4.5	4.5	0.00	0.00	0.00	0.00		0.00	0.00%
Scaup	4.5	9.1	4.5	0.0	4.5	18.78	0.37	0.08	20.86		0.41	153.39%
Unknown Scaup	4.5	9.1	4.5	0.0	4.5	18.78	0.37	0.08	20.86		0.41	153.39%
Scoter	22.7	13.6	13.6	22.7	9.1	43.81	0.86	0.19	48.68		0.95	70.28%
Black Scoter	13.6	9.1	9.1	9.1	4.5	18.78	0.37	0.08	20.86		0.41	103.95%
Surf Scoter	4.5	4.5	4.5	4.5	4.5	16.69	0.33	0.07	18.55		0.36	153.21%
White-winged Scoter	13.6	4.5	4.5	13.6	4.5	8.35	0.16	0.04	9.27		0.18	153.21%
Unknown Scoter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Northern Shoveler	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Teal	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Green Winged Teal	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Wigeon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
American Wigeon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Ducks	9.1	4.5	4.5	9.1	4.5	8.32	0.16	0.04	9.27		0.18	153.21%
Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Brant	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Canada Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Lesser Canada Geese (taverner/par	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Canada Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
White-fronted Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Swan	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tundra Swan (whistling)	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Crane	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sandhill Crane	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Shorebirds	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Common Snipe	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%

(Continued)

Table V-7. Estimated Harvest and Use of Fish, Game, and Plant Resources, Nanwalek, 2003

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	total	Mean HH	Percapita	Total	Units	Mean HH	Harvest
Seabirds & Loons	22.7	13.6	13.6	13.6	13.6	104.32	2.05	0.45	104.32		2.05	121.98%
Cormorants	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Double-Crested Cormorant	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Pelagic Cormorant	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Cormorant	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Gulls	18.2	13.6	13.6	9.1	9.1	104.32	2.05	0.45	104.32		2.05	121.98%
Unknown Gull	18.2	13.6	13.6	9.1	9.1	104.32	2.05	0.45	104.32		2.05	121.98%
Loons	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Loon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Murre	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Common Murre	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Puffins	4.5	0.0	0.0	4.5	4.5	0.00	0.00	0.00	0.00		0.00	0.00%
Horned Puffin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tufted Puffin	4.5	0.0	0.0	4.5	4.5	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Puffin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Other Birds	13.6	18.2	13.6	9.1	9.1	47.06	0.92	0.20	67.23		1.32	104.61%
Upland Game Birds	13.6	18.2	13.6	9.1	9.1	47.06	0.92	0.20	67.23		1.32	104.61%
Grouse	13.6	18.2	13.6	9.1	9.1	47.06	0.92	0.20	67.23		1.32	104.36%
Ptarmigan	0.0	4.5	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Bird Eggs	68.2	36.4	31.8	54.5	36.4	200.99	3.94	0.87	669.95		13.14	62.66%
Duck Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Duck Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Geese Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Geese Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Seabird & Loon Eggs	68.2	36.4	31.8	54.5	36.4	200.99	3.94	0.87	669.95		13.14	62.66%
Gull Eggs	68.2	36.4	31.8	54.5	36.4	200.99	3.94	0.87	669.95		13.14	62.66%
Unknown Gull Eggs	68.2	36.4	31.8	54.5	36.4	200.99	3.94	0.87	669.95		13.14	62.66%
Puffin Eggs	4.5	0.0	0.0	4.5	4.5	0.00	0.00	0.00	0.00		0.00	0.00%
Tern Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Seabird Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Marine Invertebrates	100.0	100.0	100.0	95.5	90.9	3,579.49	70.19	15.44				68.13%
Chitons (bidarkis, gumboots)	100.0	100.0	100.0	68.2	90.9	1414.09	27.73	6.10	373.23	GAL	7.32	28.46%
Red (large) Chitons	63.6	68.2	63.6	22.7	36.4	236.45	4.64	1.02	78.82	GAL	1.55	27.82%
Black (small) Chitons	100.0	95.5	95.5	59.1	90.9	1177.64	23.09	5.08	294.41	GAL	5.77	21.54%
Clams	81.8	50.0	50.0	77.3	50.0	1258.77	24.68	5.43	419.59	GAL	8.23	84.10%
Butter Clams	72.7	40.9	40.9	59.1	40.9	973.64	19.09	4.20	324.55	GAL	6.36	107.96%
Horse Clams (Gaper)	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Pacific Littleneck Clams (Steamers)	40.9	22.7	18.2	22.7	9.1	90.41	1.77	0.39	30.14	GAL	0.59	116.73%
Pinkneck Clams	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Razor Clams	45.5	13.6	13.6	40.9	13.6	194.73	3.82	0.84	64.91	GAL	1.27	109.91%
Unknown Clams	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Cockles	4.5	0.0	0.0	4.5	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Unknown Cockles	4.5	0.0	0.0	4.5	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Crabs	22.7	13.6	13.6	9.1	13.6	17.62	0.35	0.08	20.56		0.40	66.81%
Dungeness Crab	18.2	13.6	13.6	4.5	13.6	12.98	0.25	0.06	18.55		0.36	81.69%
King Crab	13.6	4.5	4.5	9.1	4.5	4.64	0.09	0.02	2.02		0.04	153.21%
Unknown King Crab	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%

(Continued)

Table V-7. Estimated Harvest and Use of Fish, Game, and Plant Resources, Nanwalek, 2003

	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
Resource Name	Use	Att	Harv	Recv	Give	total	Mean HH	Percapita	Total	Units	Mean HH	Harvest
Tanner Crab	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tanner Crab, Bairdi	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Tanner Crab	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Crab	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Limpets	27.3	27.3	27.3	4.5	9.1	15.06	0.30	0.06	10.04	GAL	0.20	59.74%
Mussels	40.9	36.4	36.4	9.1	4.5	107.80	2.11	0.47	71.86	GAL	1.41	54.19%
Unknown Mussels	40.9	36.4	36.4	9.1	4.5	107.80	2.11	0.47	71.86	GAL	1.41	54.19%
Octopus	90.9	63.6	63.6	68.2	63.6	593.45	11.64	2.56	148.36		2.91	37.71%
Scallops	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Weathervane Scallops	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Sea Cucumber	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Sea Urchin	13.6	13.6	13.6	4.5	9.1	5.80	0.11	0.03	11.59	GAL	0.23	95.67%
Shrimp	4.5	4.5	4.5	0.0	0.0	34.77	0.68	0.15	34.77	LBS	0.68	153.21%
Snails	68.2	68.2	63.6	27.3	36.4	125.18	2.45	0.54	83.45	GAL	1.64	62.48%
Whelk	9.1	9.1	9.1	0.0	0.0	6.95	0.14	0.03	4.64	GAL	0.09	103.18%
Vegetation	100.0	100.0	100.0	77.3	86.4	3,384.55	66.36	14.60				66.82%
Berries	90.9	90.9	90.9	27.3	45.5	1,075.64	21.09	4.64	268.91	GAL	5.27	39.11%
Plants/Greens/Mushrooms	59.1	59.1	59.1	18.2	40.9	1,530.00	30.00	6.60	382.50	GAL	7.50	123.44%
Seaweed/Kelp	100.0	86.4	86.4	45.5	40.9	778.91	15.27	3.36	194.73	GAL	3.82	66.46%
Unknown Seaweed	100.0	86.4	86.4	45.5	40.9	778.91	15.27	3.36	194.73	GAL	3.82	66.46%
Wood	90.9	90.9	90.9	50.0	68.2	0.00	0.00	0.00	680.85	CORD	13.35	62.19%

Note: Harvest amount in individual units unless otherwise specified

Source: Alaska Departement of Fish and Game, Division of Subsistence, Household Surveys 2004

Table V-8. Estimated Percentages of Salmon Harvest by Gear Type and Total Salmon Harvest, Nanwalek, 2003 Study Year

		Removed From Commercial Catch		Subsistence Methods: Setnet		Subsistence Methods: Other		Subsistence Methods: Any Method		Rod & Reel		Any Method	
Resource	Percent Base	No	Pounds	No	Pounds	No	Pounds	No	Pounds	No	Pounds	No	Pounds
Salmon	geartype	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	resource	14.5	14.8	29.8	32.0	9.1	9.5	39.0	41.5	46.5	43.7	100.0	100.0
	total	14.5	14.8	29.8	32.0	9.1	9.5	39.0	41.5	46.5	43.7	100.0	100.0
Chum Salmon	geartype	7.1	9.8	0.4	0.6	0.0	0.0	0.3	0.4	4.3	6.5	3.2	4.5
	resource	32.5	32.5	4.1	4.1	0.0	0.0	4.1	4.1	63.4	63.4	100.0	100.0
	total	1.0	1.5	0.1	0.2	0.0	0.0	0.1	0.2	2.0	2.8	3.2	4.5
Coho Salmon	geartype	29.9	39.4	10.0	12.5	0.0	0.0	7.6	9.7	18.7	26.9	16.0	21.6
	resource	27.0	27.0	18.5	18.5	0.0	0.0	18.5	18.5	54.4	54.4	100.0	100.0
	total	4.3	5.8	3.0	4.0	0.0	0.0	3.0	4.0	8.7	11.8	16.0	21.6
Chinook Salmon	geartype	3.5	8.2	6.2	14.0	4.5	10.4	5.8	13.1	0.2	0.6	2.9	6.9
	resource	17.6	17.6	64.5	64.5	14.3	14.3	78.8	78.8	3.6	3.6	100.0	100.0
	total	0.5	1.2	1.9	4.5	0.4	1.0	2.3	5.5	0.1	0.2	2.9	6.9
Pink Salmon	geartype	41.6	25.2	13.5	7.8	4.9	2.9	11.5	6.7	38.8	25.6	28.6	17.7
	resource	21.1	21.1	14.1	14.1	1.6	1.6	15.7	15.7	63.2	63.2	100.0	100.0
	total	6.0	3.7	4.0	2.5	0.5	0.3	4.5	2.8	18.1	11.2	28.6	17.7
Sockeye Salmon	geartype	17.9	17.5	69.9	65.1	90.5	86.7	74.7	70.1	37.9	40.3	49.4	49.3
	resource	5.3	5.3	42.2	42.2	16.8	16.8	59.0	59.0	35.7	35.7	100.0	100.0
	total	2.6	2.6	20.8	20.8	8.3	8.3	29.1	29.1	17.6	17.6	49.4	49.3

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table V-9. Estimated Non-Salmon Fish Harvest by Gear Type, Nanwalek, 2003 Study Year

Resource	Commercial Gear		Subsistence Gear		Rod & Reel		Ice Fish		Any Method	
	Pounds	HH Mean	Pounds	HH Mean	Pounds	HH Mean	Pounds	HH Mean	Pounds	HH Mean
Non-Salmon Fish	208.6	4.1	7,092.1	139.1	6,101.0	119.6	64.9	1.3	13,466.6	264.1
Eulachon (hooligan, candlefis	0.0	0.0	376.7	7.4	0.0	0.0	0.0	0.0	376.7	7.4
Pacific Cod (gray)	0.0	0.0	148.4	2.9	725.1	14.2	0.0	0.0	873.5	17.1
Pacific Tom Cod	0.0	0.0	1,153.3	22.6	29.0	0.6	0.0	0.0	1,182.3	23.2
Walleye Pollock (whiting)	0.0	0.0	0.0	0.0	0.0	0.0	64.9	1.3	64.9	1.3
Eel	0.0	0.0	108.5	2.1	0.0	0.0	0.0	0.0	108.5	2.1
Flounder	166.9	3.3	0.0	0.0	0.0	0.0	0.0	0.0	166.9	3.3
Starry Flounder	41.7	0.8	0.0	0.0	55.6	1.1	0.0	0.0	97.4	1.9
Lingcod	0.0	0.0	9.3	0.2	64.9	1.3	0.0	0.0	74.2	1.5
Unknown Greenling	0.0	0.0	132.1	2.6	229.5	4.5	0.0	0.0	361.6	7.1
Halibut	0.0	0.0	2,651.1	52.0	2,255.6	44.2	0.0	0.0	4,906.7	96.2
Black Rockfish	0.0	0.0	608.5	11.9	860.0	16.9	0.0	0.0	1,468.6	28.8
Unknown Rockfish	0.0	0.0	0.0	0.0	17.4	0.3	0.0	0.0	17.4	0.3
Unknown Irish Lord	0.0	0.0	11.6	0.2	27.8	0.5	0.0	0.0	39.4	0.8
Dolly Varden	0.0	0.0	1,715.5	33.6	1,420.6	27.9	0.0	0.0	3,136.0	61.5
Lake Trout	0.0	0.0	48.7	1.0	48.7	1.0	0.0	0.0	97.4	1.9
Rainbow Trout	0.0	0.0	128.4	2.5	321.3	6.3	0.0	0.0	449.7	8.8
Steelhead	0.0	0.0	0.0	0.0	45.4	0.9	0.0	0.0	45.4	0.9

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table V-10. Estimated Percentages of Non-Salmon Fish Harvest by Gear Type and Species, Nanwalek, 2003

Resource	Percent Base	Commercial Harvest	Subsistence Methods	Rod & Reel	Ice Fish	Any Method
Non-Salmon Fish	geartype	100.0	100.0	100.0	100.0	100.0
	resource	1.5	52.7	45.3	0.5	100.0
	total	1.5	52.7	45.3	0.5	100.0
Eulachon (hooligan, candle	geartype	0.0	5.3	0.0	0.0	2.8
	resource	0.0	100.0	0.0	0.0	100.0
	total	0.0	2.8	0.0	0.0	2.8
Pacific Cod (gray)	geartype	0.0	2.1	11.9	0.0	6.5
	resource	0.0	17.0	83.0	0.0	100.0
	total	0.0	1.1	5.4	0.0	6.5
Pacific Tom Cod	geartype	0.0	16.3	0.5	0.0	8.8
	resource	0.0	97.5	2.5	0.0	100.0
	total	0.0	8.6	0.2	0.0	8.8
Walleye Pollock (whiting)	geartype	0.0	0.0	0.0	100.0	0.5
	resource	0.0	0.0	0.0	100.0	100.0
	total	0.0	0.0	0.0	0.5	0.5
Eel	geartype	0.0	1.5	0.0	0.0	0.8
	resource	0.0	100.0	0.0	0.0	100.0
	total	0.0	0.8	0.0	0.0	0.8
Flounder	geartype	80.0	0.0	0.0	0.0	1.2
	resource	100.0	0.0	0.0	0.0	100.0
	total	1.2	0.0	0.0	0.0	1.2
Starry Flounder	geartype	20.0	0.0	0.9	0.0	0.7
	resource	42.9	0.0	57.1	0.0	100.0
	total	0.3	0.0	0.4	0.0	0.7
Lingcod	geartype	0.0	0.1	1.1	0.0	0.6
	resource	0.0	12.5	87.5	0.0	100.0
	total	0.0	0.1	0.5	0.0	0.6
Unknown Greenling	geartype	0.0	1.9	3.8	0.0	2.7
	resource	0.0	36.5	63.5	0.0	100.0
	total	0.0	1.0	1.7	0.0	2.7
Halibut	geartype	0.0	37.4	37.0	0.0	36.4
	resource	0.0	54.0	46.0	0.0	100.0
	total	0.0	19.7	16.7	0.0	36.4
Black Rockfish	geartype	0.0	8.6	14.1	0.0	10.9
	resource	0.0	41.4	58.6	0.0	100.0
	total	0.0	4.5	6.4	0.0	10.9
Unknown Rockfish	geartype	0.0	0.0	0.3	0.0	0.1
	resource	0.0	0.0	100.0	0.0	100.0
	total	0.0	0.0	0.1	0.0	0.1
Unknown Irish Lord	geartype	0.0	0.2	0.5	0.0	0.3
	resource	0.0	29.4	70.6	0.0	100.0
	total	0.0	0.1	0.2	0.0	0.3
Dolly Varden	geartype	0.0	24.2	23.3	0.0	23.3
	resource	0.0	54.7	45.3	0.0	100.0
	total	0.0	12.7	10.5	0.0	23.3
Lake Trout	geartype	0.0	0.7	0.8	0.0	0.7
	resource	0.0	50.0	50.0	0.0	100.0
	total	0.0	0.4	0.4	0.0	0.7
Rainbow Trout	geartype	0.0	1.8	5.3	0.0	3.3
	resource	0.0	28.6	71.4	0.0	100.0
	total	0.0	1.0	2.4	0.0	3.3
Steelhead	geartype	0.0	0.0	0.7	0.0	0.3
	resource	0.0	0.0	100.0	0.0	100.0
	total	0.0	0.0	0.3	0.0	0.3

Source: Alaska Department of Fish and Game, Division of Subsistence Household Survey 2004

Table V-11. Percentage of Households Harvesting Non-Salmon Fish by Gear Type and Species, Nanwalek 2003

RESOURCE	Removed From Commercial Catch	Subsistence Methods	Rod & Reel	Ice Fish	Any Method
Non-Salmon Fish	4.55%	54.55%	77.27%	4.55%	81.82%
Eulachon (hooligan, candle	0.00%	9.09%	0.00%	0.00%	9.09%
Pacific Cod (gray)	0.00%	13.64%	31.82%	0.00%	40.91%
Pacific Tom Cod	0.00%	31.82%	4.55%	0.00%	36.36%
Walleye Pollock (whiting)	0.00%	0.00%	0.00%	4.55%	0.00%
Eel	0.00%	9.09%	0.00%	0.00%	9.09%
Flounder	4.55%	0.00%	0.00%	0.00%	4.55%
Starry Flounder	4.55%	0.00%	9.09%	0.00%	13.64%
Lingcod	0.00%	4.55%	4.55%	0.00%	9.09%
Unknown Greenling	0.00%	9.09%	36.36%	0.00%	40.91%
Halibut	0.00%	27.27%	50.00%	0.00%	59.09%
Black Rockfish	0.00%	4.55%	27.27%	0.00%	27.27%
Unknown Rockfish	0.00%	0.00%	4.55%	0.00%	4.55%
Unknown Irish Lord	0.00%	4.55%	4.55%	0.00%	4.55%
Dolly Varden	0.00%	22.73%	45.45%	0.00%	59.09%
Lake Trout	0.00%	4.55%	4.55%	0.00%	4.55%
Rainbow Trout	0.00%	13.64%	31.82%	0.00%	40.91%
Steelhead	0.00%	0.00%	22.73%	0.00%	22.73%

Source: Alaska Department of Fish and Game, Division of Subsistence Household Surveys 2004

Figure V-1. Harvests of Wild Resources, Pounds Usable Weight per Person, Nanwalek

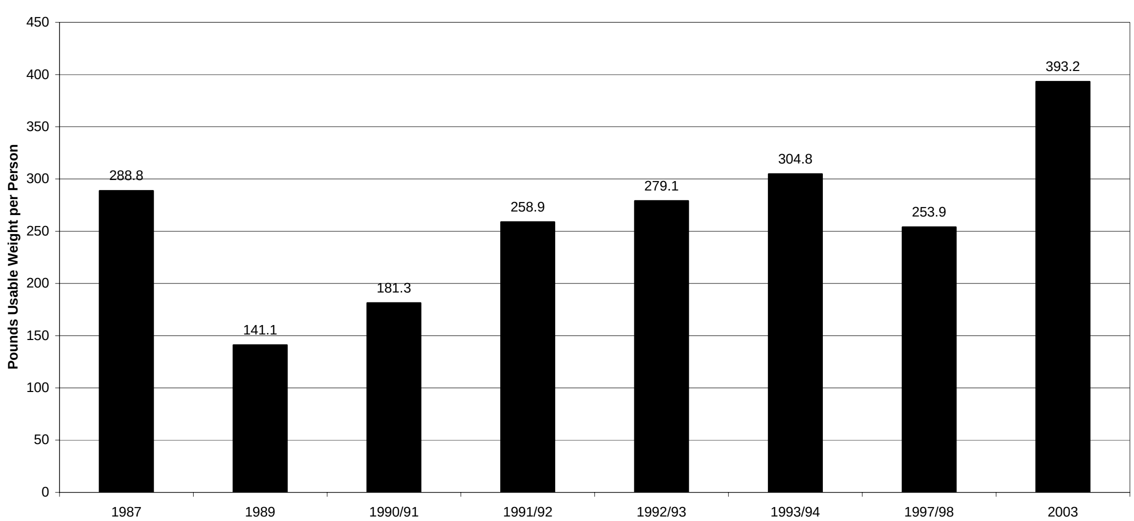
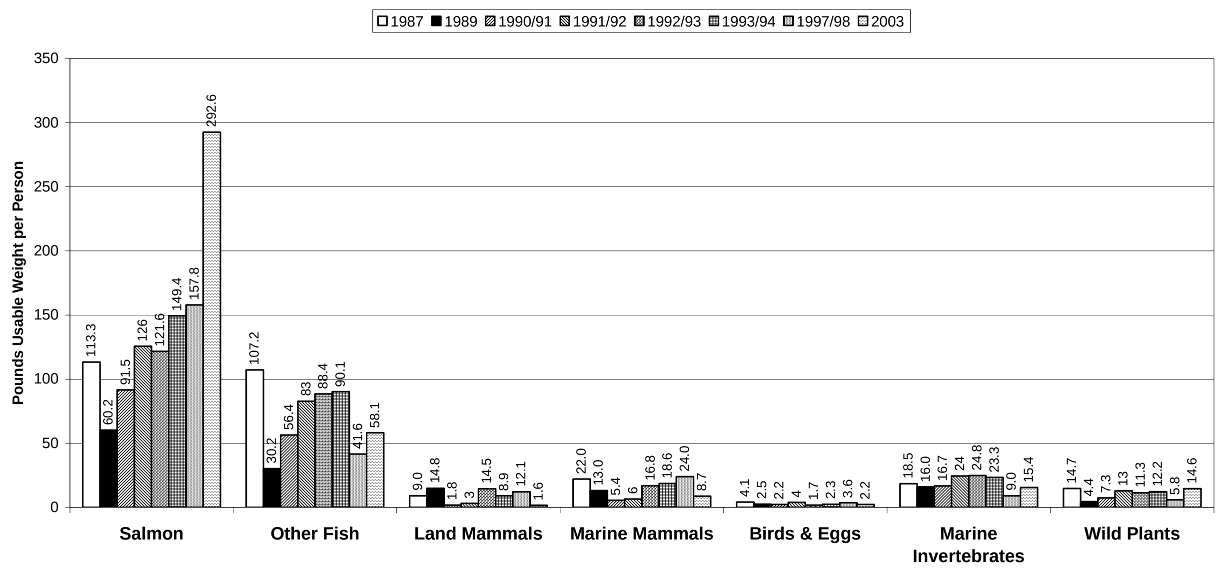


Figure V-2. Harvests of Wild Resources by Resource Category, Pounds Usable Weight per Person, Nanwalek



CHAPTER VI: PORT GRAHAM

by

Ronald T. Stanek

COMMUNITY BACKGROUND

Community History

The community of Port Graham was established as a permanent settlement from 1910 to 1912 when the Fidalgo Island Packing Company opened a processing plant on the gravel spit about half way up the south shoreline of Port Graham Bay. Prior to the building of a dock and fish-processing facilities, Alutiiq, or Sugpiat, people had lived in the area for centuries. Archaeological excavations found Kachemak tradition artifacts dating back 3,500 years (Workman and Workman 1988). Alutiiq semi-subterranean dwellings, or barabaras, were located at several sites along the bay including Paluviq (present-day Port Graham). In 1786, Russian fur traders with the Shelikof-Golikof Company established a fort and trade center at nearby Alexandrovsk, later renamed English Bay and today known as Nanwalek.

Because the Native people had become economically enmeshed with the fur trade and the fishing industry, their formerly-dispersed populations settled in the vicinity of trading posts and canneries. One such person was Antone Meganack who settled his family near Alexandrovsk and built a barabara just above the spit on the south shore of Port Graham. In the early 1900s, other people settled there from other settlements and seasonal habitations such as Nanwalek and Koyuktolik, Yalik, and Aialek bays. Ancestors of many current residents were originally from Prince William Sound communities, while others trace their origins to outer Kenai Peninsula settlements, the Upper Kenai Peninsula, Seldovia, the Kodiak Archipelago, and Alaska Peninsula communities. Because Russian traders often married Native women, many families are of mixed ethnic backgrounds. When the cannery opened in 1912, a shortage of cannery workers attracted people from many ethnic backgrounds including Caucasian, Japanese, Filipino, and Chinese to the workforce. At the same time, Dena'ina Athabascans from nearby Seldovia and the Upper Kenai Peninsula also moved to the community to work in the fishing industry (Stanek 2000).

Demography

Although little information is available, the population of Port Graham grew in the early 1900s when cannery-associated housing was constructed. It remained stable until the 1960s when government housing provided new homes. Another government housing project in the early 1980s allowed the population to grow again, attracting many people from nearby Nanwalek, where housing was in short supply. The population has remained relatively stable since that time. Although births, deaths, in-migration, and out-migration all have occurred over the past five years, these factors along with a steady amount of housing, have stabilized the population (see Table VI-1).

In the later 1970s and early 1980s, Port Graham developed a health-care facility, more accessible airport, and improved housing to address the needs of the elderly. As a consequence, Port Graham has an older population compared to neighboring Nanwalek. This situation began to change in the 1990s and early 2000s when Nanwalek greatly expanded its housing and health-care services. In the late 1990s, Port Graham constructed multi-unit low income housing facilities and expanded its clinic, adding to its desirability as a residence for elders (Stanek 1995).

Currently, Port Graham has a population that stays in the range of 150 to 165 people, although its population has decreased by about 10% since 1990 (see Table I-8). Household size averages 2.4 people. There is some fluctuation in these numbers as individuals and families move in and out of the community to seek employment, attend school, and enter elderly care facilities. Port Graham does not have a full secondary education facility, and in recent years, a number of families have chosen to temporarily move to Anchorage, Homer, or Kenai/Soldotna while their children finish their secondary education. In the past, secondary school students usually lived outside the community with sponsor families or relatives.

While its population is predominately male (52.6%), gender numbers in Port Graham are fairly evenly matched. Almost half the population (46.1%) is over the age of 40 years. A large segment of the population (25.2%) is in the 40 to 49 year age bracket. Consequently, Port Graham has had a fairly low birthrate when compared to its neighbor, Nanwalek. Overall, the total population and number of active households have decreased slightly, while the percentages of people in different age categories have changed to reflect the progression of individuals from one age class to another.

One final demographic characteristic to note in Port Graham's 2003 population is its ethnic composition. Although the population was largely of Alaska Native ancestry, a few households had members of other ethnicities such as Caucasian, Southeast Asian, American Indian, and African American. About 10% of the households had members of non-Alaska Native ancestry.

Economic Overview

Although no data on jobs, income levels or sources were collected during this study, researchers made general observations of the Port Graham cash economy. Port Graham has for nearly one-hundred years been a commercial fishing community. After the *Exxon Valdez* oil spill in 1989, the commercial salmon industry in Alaska lost considerable value (Loy 2002, 2004). Consequently, the importance of commercial salmon fishing as a source of cash income in Port Graham declined. Commercial permit holders sold many of their assets in boats, gear, and permits and the newly built cannery failed to operate profitably. It is not clear how current average household incomes compare with those of 15 years ago when adjusted for inflation. Sources of income include local government, of which the Tribal Council is the primary entity, providing both full- and part-time employment in village operations. The Kenai Peninsula School District employs several teachers and teacher's assistants, as well as school maintenance staff. The non-profit Port Graham hatchery has a manager and several staff to run the year-round operation of pink salmon egg collection and rearing, and cost recovery. The regional Native non profit services agency, Chugachmiut, and the regional housing authority, the North Pacific Rim Housing Authority, also provide permanent health care service jobs and part-time housing-maintenance jobs, respectively. Funds for a number of other state, federal, and regional government entities provide jobs in health care, road and airport maintenance, and operations of other public facilities. Each year a number of people leave Port Graham for part-time employment in other southcentral Alaska communities.

SUBSISTENCE RESOURCE HARVEST AND USE

Participation in Hunting, Fishing, and Gathering Activities

Community residents use a wide variety of wild resources that they obtain either by direct harvest or through receipt from other households. Port Graham households used on average 18 different resources in 2003 (see Table VI-2); the most resources reported used by any household was 47 while the least was 4 different kinds. Between 1987 and 2003, the number of resources reported used varied from a low of 11.2 in 1989 to a high of 22.1 in 1992 (Fall et al. 2001:212).

Household and individual participation in resource harvest activities is highly variable and changes based on the type of resource. While some households or individuals may be very active fishermen or plant gatherers, others may be more involved in hunting or trapping. Specialization is a very typical characteristic whereby some individuals may hunt for moose or black bear while others are skillful at hunting seals. Table VI-3 shows the levels of participation in harvest and processing of wild resources by Port Graham residents. What is indicated is that most Port Graham residents (90.1%) are involved in some way in subsistence activities. Fishing involves the highest percentage of the population (83.8%) while trapping involves the least (11.7%). The low percentages of trapping and hunting (11.7% and 25.2% of individuals, respectively) are an indication of the specialization required for these activities. Fishing in its various forms, including gathering shellfish, involved a larger portion of the population, because older people and children could participate.

Resource Harvest Quantities and Harvest Composition

Wild resources harvested by Port Graham residents fell into seven categories and are expressed in percentage of pounds of total harvest (see Table VI-6 and Fig. VI-2) and estimated pounds (Table VI-5). The categories are salmon, which made up 55.8% of the total harvest; other fish such as halibut, Dolly Varden, and cod made up 31.7%; land mammals including moose and black bear made up 4.1%; marine mammals made up 3.7%; birds and eggs at 0.3%; marine invertebrates including chitons (bidarkies), snails, and clams composed 2.5%; and lastly, the wide variety of plants at 1.9%, with berries being the largest component.

Over time, salmon have made up the largest portion of the total harvest, although other non-salmon fish are usually very close to the amount contributed by salmon. In the other-fish category, halibut contributes the largest amount. In recent years, the sockeye salmon run in the English Bay River and the hatchery and enhancement project at Port Graham have increased the total amount of salmon available to local residents, accounting for the notable increases in the overall contribution of salmon to the total harvest. Access to salmon and intertidal invertebrates has increased with the logging road from Port Graham to Windy Bay, which allows residents to harvest salmon in the middle reaches of the Port Graham River, Rocky River, and Windy River, and shellfish from the tidal flats.

Another notable feature is the decrease of birds and eggs in the overall harvest composition. The decrease in sea ducks in the harvest, particularly scoters (black ducks) and goldeneye (copper-heads) immediately after and since the oil spill is evident in the survey data. The absence of these two important waterfowl species was also observed and commented on by hunters in Port Graham and Nanwalek.

Harvests and uses of all wild resources are provided in Table VI-6 by general category and species. Estimated quantities are expanded to the community level, and are shown in pounds edible weight, numbers of individuals, or other relevant units. No commercially-purchased foods are included, however, resources removed from commercial-fishing harvests and used for personal use are included in the overall estimates.

During the study year, Port Graham residents harvested an estimated 72,879 pounds of wild resources. If this total were evenly distributed among all individuals and households in the community, it would have provided an average 1,121.2 pounds per household and 466.4 pounds for each person. Looking back to 1997/98, by comparison the 2003 total community harvest almost doubled, increasing from 39,548 pounds in the previous study year, 1997/98.

In Port Graham, as in most rural coastal communities in the oil-spill region, fish are the most commonly sought-after resource. Nearly every household (97.9%) used fish while almost everyone tried to catch fish (95.7%). Likewise, fish made up the largest quantity of all resource categories with 64,823.2 pounds (88.9%). This is more than 20 times higher than any other resource category harvested with marine mammals being the closest at 2,720 total pounds (3.7%). The fish total does not include marine invertebrates (shellfish), which totaled 1,874.8 pounds or 2.6%. Considering that these three categories are primarily marine resources, it shows the importance of the ocean to the livelihood of this community. Furthermore, land mammals played a modest role in the overall harvest with 1,838 pounds (2.5%), while plants and berries netted another 1,427.2 pounds (2%), and birds contributed 195.7 pounds (0.3%). Overall, the cumulative harvest makes a significant contribution to the total annual food supply for the community.

Individual categories of wild resources vary in their contribution to the overall harvest. This proportional standing is not necessarily an indication of the relative importance to the provision of wild foods to the community, as this may change annually depending on availability and accessibility of particular resources. Also, cultural and nutritional demands may place higher social value on a particular resource like harbor seal or chitons, even though these resources aren't harvested in the largest relative quantities.

Fish, as indicated above, provided the largest quantity to the 2003 wild-resource harvest in Port Graham. Fish were harvested for personal use by several means including subsistence setnet, rod and reel, and removal from commercial gear. Between the two major groups of fish resources, salmon and non-salmon, salmon taken by subsistence nets and rod and reel contributed almost twice as much (41,325.1 pounds; 635.8 pounds per household) as non-salmon fish (23,498.1 pounds; 361.5 pounds per household). Typically, salmon are harvested in equal or larger quantities than non-salmon fish. The only exception occurred in the year of the oil spill.

Among the salmon species, sockeye salmon provided over twice as many pounds as any other salmon to the total harvest (18,999.2 pounds or 292.3 pounds per household). Sockeyes also were taken in the largest numbers, with 5,039.6 fish in the harvest. Chinook salmon (King), provided the second largest poundage (8,968.3 pounds) to the harvest owing to their large body size, but were harvested in the lowest quantities (977.8 fish). Kings are highest valued for the rich oil content and delicious flavor when made into smoked strips. Coho (Silvers) provided the third largest poundage to the harvest (5,141.8 pounds) with 1,008.2 fish caught. Silvers are taken in the late summer setnet fishery, but more commonly with rod and reel in the Port Graham and Windy Bay river systems. Ranking fourth in contribution to the overall salmon harvest was chum salmon (4,710.3 pounds or 883.7 fish). Chums are valued for their roe, which is lightly salted and eaten as salmon caviar. In most years, pink salmon contribute the largest quantities to the subsistence salmon harvest, but their numbers were fairly low and fishermen were able to meet their salmon requirements with the other species. Pink salmon provided 3,584.8 pounds to the total harvest with 1,532 fish caught. Although an enhanced stock of pinks returns to the Port Graham hatchery every other year, and over a million fish are not uncommon in the hatchery's cost recovery harvest, subsistence users prefer the native wild fish from the local Port Graham River. The taste and quality of the flesh in the wild fish is better than the enhanced fish. Salmon taken from commercial gear provided 1,349.8 pounds to the personal use harvest (see Table VI-7). In summary, the 2003 subsistence/personal use salmon harvest by Port Graham residents was just short of twice the amount harvested five years earlier during the 1997/1998 study year (Fig. VI-2), and six times the amount harvested in 1989, the year of the oil spill.

Methods of harvesting salmon are reported in Tables VI-8, VI-9, and VI-10. The majority of salmon (71.4%; 29,517.4 pounds; 6,408.7 salmon) were taken in the subsistence setnet fishery by 48.9% of the households using set gillnets. Rod and reel harvests accounted for 25% of the harvest (10,328.5 pounds; 2,667.4 salmon), with 74.5% of the households using this method. The remaining 3.3% of the salmon harvest was taken from commercial catches, which totaled 1,349.8 pounds or 323.6 fish. Just 4.3% of Port Graham households removed salmon from their commercial harvests. One household harvested 55.3 pink salmon (129.5 pounds) by an undefined method. These were most likely pink salmon returning to the enhancement project and taken on the beach at Port Graham.

Non-salmon fish provided the second largest quantity to Port Graham's 2003 wild resource harvest with an estimated 23,498.1 pounds total and 361.5 pounds per household. Among these fish were twelve saltwater species and three freshwater species. Halibut were by far the single largest contributor to the non-salmon harvest with 15,922.8 pounds or 245 pounds per household. Herring were the second largest provider to the harvest with 3,543.2 pounds (54.5 pounds per household), which is high for Port Graham since the herring run in the bay had been depressed for many years. Cod, both Pacific (gray) cod and Pacific tomcod added 744.6 pounds to the total harvest, and flounder provided another 638.9 pounds. Other species of saltwater fish contributing varying amounts to the harvest were greenling, black and red rockfish, sablefish, and sculpin. The three freshwater species rounding out the non-salmon fish harvest were Dolly Varden with 1,148.1 pounds (17.7 pounds per household), rainbow trout, and steelhead (see Table VI-11). For fish other than salmon, the harvest was double the 1997–1998 level.

Methods of harvesting non-salmon fish are shown in Tables VI-11, VI-12, and VI-13. Most of the non-salmon fish harvest (64%; 15,039.2 pounds) was taken on rod and reel gear by 72.3of Port Graham households. Another 35.6% of the harvest (8,362.1 pounds) was taken by 36.2% of households using subsistence methods like long-lines, beach seines, and hand-lines. A very small amount (0.4% or 96.8 pounds) was removed from the commercial harvest of 2.1% of the reporting households. The majority of the harvest was halibut, taken by rod and reel, and long-line (skates) in the subsistence halibut fishery.[1]

Marine mammals, including harbor seal and Stellar sea lion, were important contributors to the wild food harvest of Port Graham residents, owing to both cultural and nutritional factors. These two species require a special skill by hunters who know how and where to hunt them. Harbor seal accounted for 2,520 pounds (38.8 pounds per household) of the overall wild resource

[1] Further documentation of this fishery can be found in Division of Subsistence Technical Paper 288, "Subsistence Harvests of Pacific Halibut in Alaska, 2003" (Fall et al. 2004).

harvest, while the single sea lion harvested provided 200 pounds. In 2003, marine mammal harvest levels were at their highest in four of the eight previous study years.

Marine invertebrates, although small in their individual size, were harvested in large enough quantities to account for 1,874.8 pounds of the total resource harvest or 28.8 pounds per household. Although somewhat difficult to harvest, chitons (804.9 pounds), octopus (514.5 pounds) and snails (109.4 pounds) were the three largest contributors. Though their total poundage in the harvest may seem small, these three resources are important for Port Graham's food and social values. For example, snails and chitons (bidarkies) are frequently harvested by parents with their children, and provide a critical opportunity for teaching subsistence skills. During this study year, marine invertebrates were only slightly below the average, but one-half the highest study year of 1992–1993.

Land mammals, birds, and vegetation are the last categories of wild resources discussed in this section of the report dealing with quantities harvested. The largest land mammal was moose. Two were taken in 2003 and they contributed 1,080 pounds of edible weight to the harvest. Moose are uncommon in the vicinity of Port Graham and only a few Tier II permits are issued for that section of GMU 15C. Black bears, on the other hand, are fairly common in the area, but like moose, hunting them is a specialized skill. Unlike moose, which 70.2% of the households used, black bear meat was used by around one-fourth (23.4%) of the households. Mountain goat is another large land mammal in the area, but generally difficult to get. A few are taken by hunters in the mountains while others are sometimes taken near the village as they pass between mountainsides. In 2003, no goats were reported taken in by Port Graham hunters, although one household did receive goat meat. Deer, on the other hand, are not resident to the area, but several hunters traveled to either Kodiak Island or islands in Prince William Sound and took 4.2 deer. Last among the land mammals taken was porcupine. In recent years, these forest animals have increased in abundance around Port Graham and harvesters took 31.8 animals translating into 254.5 pounds edible weight. Just one-fourth of the households (25.5%) enjoyed porcupine meat. Land mammal harvests were up dramatically in 2003 compared to previous study years, but this was due to the harvest of two moose, each of which produced an average of 500 pounds edible meat.

Birds and eggs including migratory waterfowl, marine birds, and grouse were harvested by Port Graham residents. Ducks including goldeneye, mallard, merganser, and scoter are hunted in the late fall and winter in the bays along the lower Kenai Peninsula. The only other bird taken was spruce grouse of which 45.5 were harvested. Usually, some households harvest gull eggs from gull rookeries in Kachemak Bay, but this was not done in 2003. Instead, a few households (10.6%) received gull eggs in 2003. Relatives from Nanwalek often share gulls they take with relatives in Port Graham. Bird and egg harvests were on par with previous years' harvests.

The final category of wild resources discussed in this report is vegetation, which included only wild plants and berries. In 2003, berries dominated the harvest with 1,056.6 pounds harvested. These include primarily salmon berries, but there are several kinds of berries picked including currents, watermelon berries, and high-bush cranberries. The other category of plants reported harvested was seaweed of which 121.7 pounds or 30.4 gallons was gathered in 2003. Just over one-third (36.2%) of Port Graham residents used seaweed for flavoring cooked fish or eating it dried (see Table VI-6).

Harvest Effort

In this study, as in previous oil spill assessments, Port Graham residents were asked to give their assessment of the effort it took to harvest each of eight different categories of wild resources in the study year as compared to five years previous. They were then asked to indicate which of three harvest-related variables changed. A similar estimate of change in effort compares the study year with 1988, the year before the oil spill.

At the end of each series of interview questions pertaining to quantities of resources harvested, respondents were asked to give an assessment of effort, and whether they put out more, the same, or less effort than five years ago to harvest a resource (see Tables A-58 to A-81). Subsequent questions asked reasons for the changes. A comparison of relative levels of responses indicated extreme variability in numbers of responses among resource categories. For example, while 77.8% of respondents gave answers regarding effort to harvest salmon, only 21.6% responded to questions about effort to get birds and eggs. Nevertheless, among those who did respond, some sense of changing effort levels can be ascertained. For salmon, just over three-fourths of the households interviewed responded to the question, and exactly half (50%) indicated less effort required to harvest salmon during the study year compared to five years earlier. Among these 25.3 households indicating less effort, just over half said that less effort was due to there being more competition for the resource. Similarly, 27.8% of respondents indicated more effort, of which over half of those (60%) said more competition was the reason. So, greater competition caused some households to put forth less effort, while it caused others to invest more effort. A few households, 22.2% or 11.2 households, thought that they had not required any more effort to harvest salmon during the study year compared to five years previous.

Households' effort to harvest non-salmon fish and marine invertebrates drew a similar response to that of salmon. Half indicated less effort extended for non-salmon fish and slightly over half for marine invertebrates. Less effort was most frequently attributed to lower abundance of the resource in both these categories. For those households that said more effort was required to harvest these two categories of resources, half or more indicated traveling farther and lower abundance were the reasons with non-salmon fish, and 100% that traveling farther and less abundance were the main reasons of the increased effort required to gather marine invertebrates.

Marine mammal hunters, of whom 22.5 households responded, were evenly split among the three directions of effort change. For the one-third that thought they expended more effort, the majority, 60%, indicated traveling farther and lower abundance as their primary reasons. The remaining 40% thought that greater competition resulted in more effort being extended on their part to harvest harbor seals.

For the few households attempting to harvest birds and eggs (none harvested eggs) the majority (60%) said they expended less effort, and the reason given by half of these households was "less abundance." Equal numbers said that more competition and traveling farther were reasons for decreased effort (33.3%).

Comparisons of Wild Resource Uses and Harvests with Other Years

In this study, households were asked to assess whether their overall uses and harvests changed in the study year, relative to five years earlier, and relative to before the oil spill, and whether uses of individual resource categories changed within the same timeframes. The majority of Port Graham households (58.1%) indicated that overall their harvests and uses were less in the study year compared to five years earlier. Another one-fourth (23.3%) said their uses remained the same, while about one-fifth (18.6%) thought their uses had increased. When asked the reasons for any changes in uses and harvest, of those 34.6 households indicating a decrease, 32% felt economic reasons were responsible, 20% thought resource abundance was the reason, and 16% indicated their health and age as the reasons. Equal numbers of households, 2.8 (8%),thought that the condition of the resource and food safety contributed to their decreased uses, while the smallest group, 1.4 households (4%),were constrained by a shortage of time (see Tables A-1 to A-57).

The oil spill was the cause of another set of reasons for decreased overall uses indicated by 16.5% of Port Graham households. While 28.6% of these respondents gave no oil spill-related reasons, another 28.6% gave their health and age and lower resource abundance as oil spill-related reasons for the decrease. Equal percentages (14.3%) gave resource condition/food safety and time constraints as their oil spill-related reasons for lower use and harvest levels.

With regard to individual categories of resources and changes in uses and harvests, salmon, non-salmon, marine invertebrates, and plants drew the highest levels (51.2%, 55.8%, 61.9%, and 52.4% respectively) of respondents saying they used less in 2003 compared to five years earlier. Equal percentages (24.4%) reported their use as the same or more for salmon. Slightly more than one-third (34.9%) thought their non-salmon fish uses were the same, however 9.3% thought they used more. For another four categories of resources including large land mammals, small game, marine mammals, and birds and eggs, between 54.8% and 73% of respondents thought their uses of these resources had remained the same during the last five years (see Tables A-1 to A-22).

When asked to make a comparison of their resource uses and harvest between 2003 and the year before the oil spill (1988), 74.5% of Port Graham households interviewed responded with the majority, 74.3% (46.3 households), saying that their harvests were lower overall than 15 years earlier. The majority of respondents (80%) reported using less marine invertebrates, while an almost equal percentage (78.8%) said they harvested and used less non-salmon fish. Just over half the households reported using less salmon, birds and eggs, and wild plants. Land mammal use appeared to stay the same, as reported by over half the households. Marine mammal users were evenly spilt between less (38.2%) and the same (41.2%) (see Tables A-28 to A-57). Clearly, respondents' perceptions of their overall uses differ greatly from study estimates for 2003 when compared to the earlier estimates. Overall estimates for 2003 were more than double the one pre-spill estimate from 1987. There are no clear reasons for this difference other than respondents were asked to give their perception of the relative amounts for the two years. A similar pattern in responses occurred in the comparison of 2003 with five years earlier. Most respondents felt their harvests were less or the same, when actually harvests were dramatically higher. It was not within the design of this study to determine why respondents' perceptions of the relative quantities between years were so different, although age and participation likely play key roles.

NATURAL RESOURCE CONDITIONS

Food Safety

A primary reason for conducting impact studies of the oil spill was to assess the perception people have of the safety of eating the wild foods they harvest from within the area of the spilled oil. Port Graham households were asked to indicate whether they thought herring, harbor seal, chiton (bidarkies), and clams were safe to eat and if not safe, what reasons or information led them to this conclusion. For all resource groups, the majority of respondents fell into two categories, "safe" or "unsure" (see Tables A-458 to A-465). The majority of households (63%) felt that most resources were safe to eat, however, 5.5 (the highest number of responses) felt that clams were unsafe. As to why they thought clams were unsafe, four respondents were unsure, while one thought oil spill contamination was the problem. Most notable in this assessment is the level of uncertainty among Port Graham households as to the safety of certain groups of resources. Households indicating the other three resources as unsafe were uncertain as to why.

An example of how so much uncertainty could prevail among respondents is the experience related to researchers by one Port Graham household while clamming in Windy Bay along the outer coast of the Kenai Peninsula. In the summer of 2002, several families had driven to the Windy Bay area via the logging road from Port Graham. They set out to gather clams during a large minus tide. The day was unusually hot and the sun beat down rather intensely. While on the tidal flats the smell of oil became apparent as the exposed mud and rocks heated up. As the mother of this household expressed their experience, "we were soon choking and our eyes were burning, and we had to get out of there." Consequently, they did not return with the clams and mussels they had collected for fear that they might be contaminated.

Status of Resource Populations

The last resource-condition assessment presented to respondents asked whether they had seen, or perceived any recovery of subsistence resources (see Tables A-82 and A-83). Port Graham respondents by majority (59.5%) said "no", they had not seen any recovery. However, 21.6% said they had seen a recovery, and 18.9% thought there had been no change in resources. Concerning just how recovery might be initiated, the majority (90.9%) of respondents gave "no recovery suggestion", while a small number of respondents thought that reducing or eliminating oil pollution (4.5%) and "restoration and enhancement projects" (4.5%) would help the situation.

Perceived availability of wild resources is another measure of oil spill impacts assessed in this study. Port Graham residents' observations of resource abundance through their harvest activities provided the opportunity to measure perceived changes over time. Study households were asked to give their assessment of changes in the availability over a five year period for salmon, non-salmon fish, marine invertebrates, large land mammals, marine mammals, birds and eggs, and wild plants (see Tables A-84 to A-455).

For salmon, the majority of respondents gave no specific reason for the perceived decrease. Respondents who felt that sockeye and pink salmon increased in availability, attributed the increase to management practices. This perception is likely due to the hatchery and enhancement programs in Port Graham. While chum are not an enhanced species, they were thought to have remained the same over the past five years, whereas coho and Chinook salmon, also enhanced within the Lower Cook Inlet area, were perceived to have decreased because of contamination and management practices. The specific type of contamination was not indicated. Less than 15% of responses indicated that some type of oil spill-related reason was the cause of salmon decline. The vast majority of these answers gave no specific type of oil spill reason.

For non-salmon fish species including herring, smelt, and black rockfish, the majority of households had no response to this question for all species except halibut. Apparently, because halibut is fished by so many households, more people did have an opinion on the availability of this fish. Most households (40.5%) felt that halibut availability had remained about the same, while 45.9% thought it less available. In equal numbers of responses, the later group indicated competition, non-contaminant environmental factors, and non-specific reasons most frequently. Equal numbers of responses were given for “contamination”, “management”, and “no reason.”

Marine invertebrates were harvested by large numbers of households. For chitons, clams, and octopus more than half the household responses indicated fewer of these resources. On the other hand, Dungeness crab and sea urchins were thought to have remained stable. The primary reasons for the perceived declining availability of the above three resources were given as undefined environmental problems and competition from other users. A few households thought contamination and mismanagement were tied to the declines. A modest number of households gave no reason for the perceived declines.

Within the category of birds and eggs, sea ducks were the main group of birds targeted for the availability assessment. Sea ducks were extremely vulnerable to the effects of the oil spill owing to their preferred coastal habitat and timing of their presence in relation to the spill. Equal percentages, 48.1%, of responses indicated sea ducks were of the same or less abundance as five years previous, while only one response indicated there were more sea ducks. As to the reasons for decreased availability, most respondents gave no reason, while the remaining responses indicated unspecified reasons, environmental non-contamination, and contamination. Households that reported oil spill-related reasons for declining availability of sea ducks, attributed the decline to contamination, management, and environmental non-contamination.

In the last two categories of resources assessed in this study, large land mammals and plants, respondents thought moose in the area had increased largely because of some undefined environmental condition or, similarly, a “change in the area.” With wild plants and berries, respondents were almost equally divided between the same and less amounts available in the area. For the 50% of responses indicating lesser amounts of plants and berries, the decrease was perceived to be due to undefined environmental conditions.

In summary, the reader should keep in mind that there are two measures of responses given in the above assessments; the household in the case of “more”, “less”, and “same” responses, and single responses in all other categories. This means that one household could give several responses to a single question with multiple responses to those questions asking for reasons for declines or increases in resource availability.

One notable point in the above results is that large numbers of responses were “no reason” or undefined conditions under a broader category such as “environmental.” It is difficult for respondents to accurately assess changes to resource availability as related to particular conditions unless these are fairly dramatic situations such as dewatering of streams, closing of fisheries by regulation due to decreased run strength, or enhancement efforts which result in a dramatic increase in a particular resource like pink salmon at Port Graham. Respondents are also frequently at a loss to provide responses for conditions of resources with which they have little interaction. So, for fish such as halibut or salmon that are fished by large numbers of households, correspondingly large numbers of households have opinions about availability. Conversely, questions about resources such as birds, marine mammals, and large land mammals have fewer households responding, fewer responses, and higher levels of responses that originate from shared knowledge rather than direct personal experiences.

Habitat Changes

This element of natural resource condition assessment related to changes occurring in the natural environment and the habitat of subsistence resources. Survey respondents were asked whether they observed any changes in the environment and whether these changes might have affected the condition of resources. With 91.5% of surveyed households responding to this question, the majority (65.1%) said they had seen no changes (see Tables A-456 and 457). Among the 34.9% of respondents that said they had seen changes, 33.8% of the responses given indicated "other natural changes", an unspecific response among eleven possible choices. "Habitat protection/improvement" and "contamination/pollution/PSP" each made up 27.1% of the responses, while equal percentages (4.2% households or 20.3%) of responses gave "reduced quality," "climate/weather," and "more resources" as answers. As with other questions and corresponding response categories, the grouping aspect of analysis doesn't permit the identification of specific types of environmental conditions such as dirty water, oil slicks, spilled fuel, or shoreline erosion.

SOCIAL AND ECONOMIC CONDITIONS

Food Purchases

The need to purchase subsistence foods was expressed frequently among Port Graham households in 2003. Residents were asked if they purchased subsistence foods to replace lost harvest opportunities (see Table A-475) and 69.6% reported doing so. The majority of those who responded positively to this question, 59.4%, indicated some condition of the resource as the reason for their purchases. Another 18.8% did not give a reason, while 6.3% were unspecific about the reason, and 3.1% (2 households) said contamination was why they bought subsistence foods (see Table A-476).

In a second part to the question of having to purchase foods related to subsistence use, households were asked whether they needed to buy foods such as beef or chicken to replace subsistence foods. Of those who responded positively to this question (67.4%), the most frequent response was "resource condition" as the reason for making their purchases. A few other people, 12.9%, were unspecific about why they had to make purchases, 6.5% gave "personal" reasons, 9.7% gave "economic" reasons, and 6.4% (2 households) indicated "population factors" and "contamination" as reasons for buying substitutes for subsistence foods (see Table A-478).

Sharing of Subsistence Resources

Port Graham households shared wild resources extensively, with 93.6% giving and 97.9% receiving resources in 2003 (see Table VI-6). When asked to give an assessment of sharing in their community during 2003 as compared to five years earlier, 46.3% of Port Graham households reported less sharing, while equal numbers reported sharing as being either the same or increasing (26.8%) (See Table A-472). For the group that thought sharing had decreased, most households (31.6%) thought it was due to environmental issues, 21.1% expressed economic concerns, 26.3% had personal concerns, 5.3% were unspecific, and 21.1% gave non-relevant reasons.

For the 15.2 (26.8%) households that thought sharing had increased over the previous five years, they most often expressed "economic" reasons (45.5%) for the increase, then "personal" reasons (36.4%), and lastly were "unspecific" (9.1%) or gave "non-relevant" reasons (27.3%) (see Tables A-473 and A-474).

Young Adults' Involvement in Subsistence Activities

When asked about whether young adults are learning enough subsistence skills, the majority of Port Graham respondents (64.3%) said "no." Just over one-third (35.7%), however, thought young adults were learning enough, and another 17% did not know (see Table A-466). Over the past five years, the number of households that thought young people did not learn enough increased by 12.2%. In 2003, one-third (33.3%) of Port Graham households gave "no interest" and one-third "lack of teachers" as reasons why subsistence skills were not being learned. These are similar results to the 1998 *Exxon Valdez* oil spill study (Fall et al. 1999:L-6 to L-8). Some other households (11.1%) thought that there was a change in "community way of life" that affected young people, while a few households felt young people "had no time" (7.4%), "had too much else to do" (7.4%), or "no reason given" (7.4%) (see Table A-467).

Of those who thought youth were learning enough skills, most thought that youth learned from their elders (20%), while 20% had no response, and one household responded with each of the three following answers: "family members," "involvement in activities," and "other community members and friends" (see Table A-468).

Elders' Influence

While one half (51.6%) of respondents said that elders' influence was less, nearly equal percentages, 22.6 and 25.8% respectively, said elders' influence was either more or the same (see Table A-469). As to why the decrease in elder influence, almost a third, 31.3% of responses, indicated "elders less active" and another one-third indicated "demographic" changes (see Table A-471). Although this is nondescript, there were a large number of elders who passed away during the last 10 years. Equal numbers of responses said "cultural" reasons and "no reason given" to this question, and again it is not clear what aspect of culture was intended. Finally, socio-political and economic reasons were given by one household each as their reason for the loss of influence from elders.

Status of the Traditional Way of Life

Closely tied to the later three aspects of culture is the traditional way of life, which is especially important among Alaska Native households. Sharing, youth involvement in subsistence activities, and elder influence, are essential components of traditional life. As reported above, all three of these characteristics have diminished since the oil spill according to respondents, and this is again expressed in the assessment of the condition of the "Traditional

Way of Life." Port Graham residents were largely in agreement (78.3%) in their opinion that traditional ways were affected by the spill (see Table A-479). Correspondingly, when asked whether the traditional way of life had recovered, the majority of respondents (77.8%) indicated there had not been a recovery (see Table A-480).

EVALUATION OF THE GEM PROGRAM

The Gulf Ecosystem Monitoring Program (GEM) has funded a variety of projects to measure environmental changes in the Gulf of Alaska that might have resulted from effects of the oil spill. Measuring just how extensively information about this program has been disseminated and digested by the public was attempted by several questions in this study. Households were asked if they were informed about the *Exxon Valdez* Oil Spill Trustee Council and GEM programs and in Port Graham the majority (71.1%) said they were not (see Table A-482). Interestingly, at least one GEM-supported research project on intertidal invertebrates was centered in Port Graham and neighboring Nanwalek. In addition, meetings to assess the GEM program and receive ideas for potential future environmental studies took place in Port Graham.

As to how communications to convey GEM program information might be improved, the majority (40.7%) of responses gave no suggestions (see Table A-483). Otherwise, the two most favored means of improving the process included "newsletters" (29.6%) and "community meetings" (25.9%) (see Table A-483).

A lack of understanding about ongoing research projects and their association with *Exxon Valdez* Oil Spill Trustee Council sponsorship and funding appeared to exist among Port Graham respondents. This is not unusual however, as only a few people in the community are active in dealing with detailed issues of such events, while the larger public tends to focus on matters more directly affecting them such as Exxon settlements and daily life.

DISCUSSION AND CONCLUSIONS

From the time of its founding as a cannery town in 1910, Port Graham has had a commercial fishing component in its economy like many other communities in the Gulf of Alaska. The annual influx of cash through commercial fishing and cannery work was a stabilizing factor for the community. Since the oil spill, Port Graham has struggled with a floundering fishing economy. In spite of a new state-of-the-art fish processing facility and abundant fish stocks in Cook Inlet, fish prices did not support a viable operation. Without reliable jobs and education opportunities, many people moved out of the community. Additionally, the overall population was aging and a number of elders had past away or moved to assisted care facilities in other communities.

Port Graham residents have always relied heavily on subsistence harvests of wild resources to provide food and materials too costly or unattainable through local stores and neighboring communities. Results of this study show total estimated harvests of wild resources in 2003 that surpassed previous estimates. Largely, this high level of harvest was attributable to a large return of salmon to local streams and the harvest of several moose, black bears, and harbor seals.

Results in this study that relate to the impact of the oil spill on subsistence resources indicate that Port Graham residents were fairly confident that most resources were safe to eat. However, over a third of households were still uncertain as to the condition of natural resources potentially impacted by the spill. In almost all categories of assessment, whether it was food safety, availability of resources, or habitat changes, there was persistent high-level of uncertainty in responses as to the causes of resource declines and food safety.

Despite the prevalence of uncertainty, Port Graham residents harvested certain groups of wild resources such as salmon and halibut in large quantities. These relatively large quantities of harvest were a function of availability and accessibility. Even though harvest estimates in this study showed an increased level of take, Port Graham residents assessed their overall take as lower for both the 15-year and 5-year assessment periods. This response phenomenon was likely due to the perception of a larger, older segment of the population actually harvesting less, and a small segment of younger households taking the majority of the total harvest. Those households harvesting less were also less likely to have had recent experiences with the resources and thereby uncertain as to causes of any perceived declines or safety concerns. The older population issue may also be reflected in responses to habitat change questions where most people had not witnessed any changes in the habitat.

Results from questions on the social and economic conditions in Port Graham during 2003 indicate most households had to purchase subsistence foods because of some aspect of the resources' condition. Most households were unclear about exactly what concerned them, but for those households that did indicate their concerns, responses included economic, personal, lower numbers of resources, and contamination as their reasons.

Aspects of traditional life in Port Graham were generally assessed as staying the same or slightly increasing. Usually, about half the respondents felt that things like sharing, youth involvement, and elder's influence were decreasing. But when asked about traditional life overall, the vast majority of respondents felt that it was declining and not recovering.

Port Graham residents generally felt uninformed about *Exxon Valdez* Oil Spill Trustee Council sponsored programs. It may be a matter of how the information was conveyed from agencies to the public, or simply that most people did not read the newspaper articles or receive reports from community representatives who attended meetings outside the community. Most people felt that newsletters and more meetings would improve communications. Indeed, community gatherings where information was delivered through informal and personal ways, seemed to be the most effective means for conveying information.

Table VI-1. Port Graham Historic Population Levels

1910	1920	1929	1939	1950	1960	1970	1980	1990	2003
Established in 1912		*	93	92	139	107	161	166	153

* Data not available.
SOURCE: Stanek 2000.

TableVI-2. Resource Harvest and Use Characteristics, Port Graham, 2003 Study Year

Mean Number of Resources Used per Household	18.0
Minimum	0
Maximum	47
95% Confidence Limit(+/-)	7.4%
Median	18
Mean Number of Resources Attempted to Harvest per Household	11.4
Minimum	0
Maximum	34
95% Confidence Limit(+/-)	10.4%
Median	11
Mean Number of Resources Harvested per Household	10.9
Minimum	0
Maximum	33
95% Confidence Limit(+/-)	10.5%
Median	10
Mean Number of Resources Received per Household	11.2
Minimum	0
Maximum	39
95% Confidence Limit(+/-)	10.0%
Median	11
Mean Number of Resources Given Away per Household	9.3
Minimum	0
Maximum	40
95% Confidence Limit(+/-)	14.2%
Median	7
Mean Household Harvest, Pounds	1,121.2
Minimum	5.5
Maximum	7,952.8
Total Pounds Harvested	72,878.9
Community per Capita Harvest, Pounds	466.3
Percent Using Any Resource	97.9%
Percent Attempting to Harvest Any Resource	95.7%
Percent Harvesting Any Resource	95.7%
Percent Receiving Any Resource	97.9%
Percent Giving Away Any Resource	93.6%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004

Table VI-3. Participation in the Harvest and Processing of Wild Resources, Port Graham, 2003 Study Year

Total Number of People			155.9
GAME	Hunt	Number	40.7
		Percentage	26.1%
		Missing	0.0
		Missing %	0.0%
	Process	Number	95.5
		Percentage	61.3%
		Missing	0.0
		Missing %	0.0%
FISH	Fish	Number	130.6
		Percentage	83.8%
		Missing	0.0
		Missing %	0.0%
	Process	Number	139.0
		Percentage	89.2%
		Missing	0.0
		Missing %	0.0%
FURBEARERS	Hunt or Trap	Number	18.3
		Percentage	11.7%
		Missing	0.0
		Missing %	0.0%
	Process	Number	22.5
		Percentage	14.4%
		Missing	0.0
		Missing %	0.0%
PLANTS	Gather	Number	119.4
		Percentage	76.6%
		Missing	0.0
		Missing %	0.0%
	Process	Number	109.5
		Percentage	70.3%
		Missing	0.0
		Missing %	0.0%
ANY RESOURCE	Attempt	Number	140.4
		Percentage	90.1%
	Process	Number	144.6
		Percentage	92.8%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Survey, 2004

Table VI-5. Subsistence Harvests in Pounds Usable Weight per Person by Resource Category, Port Graham

	Pounds per Person							
	1987	1989	1990/91	1991/92	1992/93	1993/94	1997/98	2003
Salmon	96.2	39.9	95.0	132.6	106.8	97.4	144.2	264.4
Other Fish	77.9	59.7	92.8	99.7	108.6	72.7	75.5	150.4
Land Mammals	5.4	0.4	1.5	3.3	4.1	4.1	1.4	11.8
Marine Mammals	12.3	8.9	3.3	14.7	16.9	8.7	9.3	17.4
Birds & Eggs	3.2	2.0	1.1	1.8	1.7	0.7	1.2	1.3
Marine Invertebrates	16.6	8.6	14.5	21.6	23.9	16.0	12.8	12.0
Wild Plants	15.8	2.8	5.7	7.3	10.7	12.7	9.0	9.1
All Resources	227.4	122.3	213.9	281.0	272.7	212.3	253.4	466.4

SOURCE: Scott et al. 2001; Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table VI-4. Composition of Resource Harvests by Resource Category, Port Graham

	Percentage of Total Harvest							
	1987	1989	1990/91	1991/92	1992/93	1993/94	1997/98	2003
Salmon	42.3%	32.6%	44.4%	47.2%	39.2%	45.9%	56.9%	56.7%
Other Fish	34.3%	48.8%	43.4%	35.5%	39.8%	34.2%	29.8%	32.2%
Land Mammals	2.4%	0.3%	0.7%	1.2%	1.5%	1.9%	0.6%	2.5%
Marine Mammals	5.4%	7.3%	1.5%	5.2%	6.2%	4.1%	3.7%	3.7%
Birds and Eggs	1.4%	1.6%	0.5%	0.6%	0.6%	0.3%	0.5%	0.3%
Marine Invertebrates	7.3%	7.0%	6.8%	7.7%	8.8%	7.5%	5.1%	2.6%
Wild Plants	6.9%	2.3%	2.7%	2.6%	3.9%	6.0%	3.6%	2.0%

SOURCE: Scott et al. 2001; Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table VI-6. Estimated Harvest and Use of Fish, Game and Plant Resources, Port Graham, 2003 Study Year

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
All Resources	97.9	95.7	95.7	97.9	93.6	72,878.95	1,121.21	466.35				48.95%
Fish	97.9	91.5	91.5	93.6	87.2	64,823.21	997.28	414.80				34.42%
Salmon	95.7	87.2	85.1	85.1	78.7	41,325.10	635.77	264.44	9,455.05		145.46	26.00%
Chum Salmon	74.5	53.2	53.2	38.3	40.4	4,710.25	72.47	30.14	883.72		13.60	24.31%
Coho Salmon	89.4	66.0	63.8	63.8	53.2	5,141.78	79.10	32.90	1,008.19		15.51	14.56%
Chinook Salmon	87.2	46.8	42.6	70.2	55.3	8,868.34	136.44	56.75	977.77		15.04	33.88%
Pink Salmon	85.1	78.7	78.7	42.6	48.9	3,584.80	55.15	22.94	1,531.97		23.57	15.08%
Sockeye Salmon	85.1	59.6	57.4	63.8	51.1	18,999.20	292.30	121.57	5,039.57		77.53	34.62%
Landlocked Salmon	2.1	2.1	2.1	0.0	0.0	20.74	0.32	0.13	13.83		0.21	104.79%
Unknown Salmon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Non-Salmon Fish	97.9	76.6	76.6	83.0	72.3	23,498.11	361.51	150.36				26.92%
Herring	55.3	29.8	27.7	38.3	23.4	3,543.19	54.51	22.67	590.53	GAL	9.09	57.18%
Herring Roe	36.2	8.5	8.5	31.9	12.8	509.86	7.84	3.26	72.84	GAL	1.12	80.18%
Herring Roe/Unspecified	34.0	6.4	6.4	31.9	12.8	413.05	6.35	2.64	59.01	GAL	0.91	101.45%
Herring Sac Roe	2.1	2.1	2.1	0.0	0.0	96.81	1.49	0.62	13.83	GAL	0.21	104.79%
Herring Spawn on Kelp	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Smelt	25.5	2.1	2.1	23.4	10.6	53.94	0.83	0.35	16.60	GAL	0.26	104.79%
Eulachon (hooligan, candlefish)	25.5	2.1	2.1	23.4	10.6	53.94	0.83	0.35	16.60	GAL	0.26	104.79%
Unknown Smelt	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Bass	2.1	2.1	2.1	2.1	2.1	13.83	0.21	0.09	13.83		0.21	104.79%
Sea Bass	2.1	2.1	2.1	2.1	2.1	13.83	0.21	0.09	13.83		0.21	104.79%
Cod	42.6	31.9	31.9	25.5	27.7	744.60	11.46	4.76	690.11		10.62	20.63%
Pacific Cod (gray)	27.7	25.5	25.5	6.4	21.3	473.53	7.29	3.03	147.98		2.28	30.02%
Pacific Tom Cod	31.9	19.1	19.1	23.4	14.9	271.06	4.17	1.73	542.13		8.34	39.76%
Walleye Pollock (whiting)	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Eel	2.1	2.1	2.1	0.0	2.1	59.74	0.92	0.38	16.60		0.26	104.79%
Flounder	27.7	23.4	23.4	8.5	17.0	638.94	9.83	4.09	212.98		3.28	30.39%
Starry Flounder	27.7	23.4	23.4	8.5	17.0	638.94	9.83	4.09	212.98		3.28	30.39%
Unknown Flounder	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Greenling	12.8	10.6	10.6	4.3	8.5	142.45	2.19	0.91	117.55		1.81	56.31%
Lingcod	2.1	2.1	2.1	0.0	2.1	33.19	0.51	0.21	8.30		0.13	104.79%
Unknown Greenling	12.8	10.6	10.6	4.3	8.5	109.26	1.68	0.70	109.26		1.68	68.17%
Halibut	95.7	68.1	68.1	55.3	59.6	15,922.75	244.97	101.89	15,922.75	LBS	244.97	24.51%
Rockfish	31.9	25.5	23.4	17.0	21.3	403.14	6.20	2.58	236.49		3.64	33.56%
Black Rockfish	29.8	23.4	21.3	14.9	19.1	325.69	5.01	2.08	217.13		3.34	39.44%
Red Rockfish	6.4	4.3	4.3	4.3	6.4	77.45	1.19	0.50	19.36		0.30	79.42%
Unknown Rockfish	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sablefish (black cod)	6.4	2.1	2.1	4.3	4.3	235.80	3.63	1.51	76.06		1.17	104.79%
Sculpin	6.4	6.4	6.4	2.1	2.1	14.52	0.22	0.09	29.04		0.45	68.94%
Irish Lord	6.4	6.4	6.4	2.1	2.1	14.52	0.22	0.09	29.04		0.45	68.94%
Unknown Irish Lord	6.4	6.4	6.4	2.1	2.1	14.52	0.22	0.09	29.04		0.45	68.94%
Unknown Sculpin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Shark	2.1	2.1	2.1	0.0	0.0	12.45	0.19	0.08	1.38		0.02	104.79%
Unknown Shark	2.1	2.1	2.1	0.0	0.0	12.45	0.19	0.08	1.38		0.02	104.79%
Skates	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%

(Continued)

Table VI-6. Estimated Harvest and Use of Fish, Game and Plant Resources, Port Graham, 2003 Study Year

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Sole	2.1	2.1	2.1	0.0	2.1	27.66	0.43	0.18	27.66		0.43	104.79%
Unknown Sole	2.1	2.1	2.1	0.0	2.1	27.66	0.43	0.18	27.66		0.43	104.79%
Wolffish	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Char	46.8	44.7	42.6	12.8	27.7	1,148.15	17.66	7.35	820.11		12.62	38.63%
Dolly Varden	46.8	44.7	42.6	12.8	27.7	1,148.15	17.66	7.35	820.11		12.62	38.63%
Lake Trout	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Grayling	2.1	0.0	0.0	2.1	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Pike	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Pike	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sturgeon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Sturgeon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Trout	6.4	6.4	6.4	0.0	4.3	27.11	0.42	0.17	19.36		0.30	77.21%
Cutthroat Trout	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Rainbow Trout	2.1	2.1	2.1	0.0	2.1	19.36	0.30	0.12	13.83		0.21	104.79%
Steelhead	4.3	4.3	4.3	0.0	2.1	7.74	0.12	0.05	5.53		0.09	81.78%
Unknown Trout	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Whitefish	2.1	0.0	0.0	2.1	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Whitefish	2.1	0.0	0.0	2.1	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Land Mammals	76.6	25.5	21.3	72.3	29.8	1,838.01	28.28	11.76	53.17		0.82	48.67%
Large Land Mammals	76.6	19.1	10.6	72.3	23.4	1,580.09	24.31	10.11	11.68		0.18	55.07%
Black Bear	23.4	6.4	4.3	21.3	6.4	320.85	4.94	2.05	5.53		0.09	72.52%
Caribou	17.0	0.0	0.0	17.0	6.4	0.00	0.00	0.00	0.00		0.00	0.00%
Deer	8.5	2.1	2.1	6.4	6.4	179.23	2.76	1.15	4.15		0.06	104.79%
Goat	0.0	6.4	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Moose	70.2	10.6	3.1	68.1	19.1	1,080.00	16.62	6.91	2.00		0.03	0.00%
Dall Sheep	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Small Land Mammals	25.5	19.1	17.0	14.9	17.0	257.93	3.97	1.65	41.49		0.64	44.16%
Beaver	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Coyote	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Fox	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Red Fox	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Hare	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Snowshoe Hare	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Land Otter	2.1	0.0	0.0	2.1	2.1	0.00	0.00	0.00	0.00		0.00	0.00%
Lynx	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Marten	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Mink	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Muskrat	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Porcupine	25.5	19.1	17.0	12.8	17.0	254.47	3.91	1.63	31.81		0.49	44.81%
Squirrel	2.1	2.1	2.1	0.0	0.0	3.46	0.05	0.02	6.91		0.11	104.79%
Parka Squirrel (ground)	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tree Squirrel	2.1	2.1	2.1	0.0	0.0	3.46	0.05	0.02	6.91		0.11	104.79%
Weasel	2.1	2.1	2.1	2.1	0.0	0.00	0.00	0.00	2.77		0.04	104.79%
Wolf	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Wolverine	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%

(Continued)

Table VI-6. Estimated Harvest and Use of Fish, Game and Plant Resources, Port Graham, 2003 Study Year

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Marine Mammals	80.9	27.7	17.0	76.6	34.0	2,720.00	41.85	17.41	54.30		0.84	39.82%
Polar Bear	2.1	0.0	0.0	2.1	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Seal	74.5	25.5	14.9	72.3	31.9	2,520.00	38.77	16.13	45.00		0.69	42.82%
Harbor Seal	74.5	25.5	14.9	72.3	31.9	2,520.00	38.77	16.13	45.00		0.69	42.82%
Harbor Seal (saltwater)	74.5	25.5	14.9	72.3	31.9	2,520.00	38.77	16.13	45.00		0.69	42.82%
Sea Otter	6.4	4.3	4.3	4.3	6.4	0.00	0.00	0.00	8.30		0.13	88.33%
Steller Sea Lion	34.0	4.3	2.1	31.9	6.4	200.00	3.08	1.28	1.00		0.02	104.82%
Whale	4.3	0.0	0.0	4.3	4.3	0.00	0.00	0.00	0.00		0.00	0.00%
Belukha	2.1	0.0	0.0	2.1	2.1	0.00	0.00	0.00	0.00		0.00	0.00%
Bowhead	2.1	0.0	0.0	2.1	2.1	0.00	0.00	0.00	0.00		0.00	0.00%
Birds and Eggs	40.4	27.7	23.4	27.7	23.4	195.69	3.01	1.25				16.13%
Migratory Birds	25.5	12.8	12.8	17.0	12.8	150.19	2.31	0.96	171.49		2.64	18.72%
Ducks	25.5	12.8	12.8	17.0	12.8	141.89	2.18	0.91	168.72		2.60	19.87%
Bufflehead	2.1	2.1	2.1	0.0	0.0	2.77	0.04	0.02	6.91		0.11	104.79%
Gadwall	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Goldeneye	21.3	10.6	10.6	12.8	10.6	45.36	0.70	0.29	56.70		0.87	52.31%
Unknown Goldeneye	21.3	10.6	10.6	12.8	10.6	45.36	0.70	0.29	56.70		0.87	52.31%
Harlequin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Mallard	19.1	8.5	8.5	12.8	8.5	31.12	0.48	0.20	34.57		0.53	50.95%
Merganser	17.0	8.5	8.5	8.5	8.5	31.12	0.48	0.20	34.57		0.53	51.31%
Common Merganser	2.1	2.1	2.1	0.0	0.0	4.98	0.08	0.03	5.53		0.09	104.79%
Red-Breasted Merganser	14.9	6.4	6.4	8.5	8.5	26.14	0.40	0.17	29.04		0.45	59.20%
Unknown Merganser	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Long-tailed Duck (Oldsquaw)	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Northern Pintail	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Scaup	4.3	2.1	2.1	2.1	2.1	6.22	0.10	0.04	6.91		0.11	104.79%
Unknown Scaup	4.3	2.1	2.1	2.1	2.1	6.22	0.10	0.04	6.91		0.11	104.79%
Scoter	8.5	4.3	4.3	4.3	6.4	24.89	0.38	0.16	27.66		0.43	62.32%
Black Scoter	8.5	4.3	4.3	4.3	6.4	17.43	0.27	0.11	19.36		0.30	79.42%
Surf Scoter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
White-winged Scoter	4.3	2.1	2.1	2.1	0.0	7.47	0.11	0.05	8.30		0.13	104.79%
Unknown Scoter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Northern Shoveler	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Teal	2.1	2.1	2.1	0.0	2.1	0.41	0.01	0.00	1.38		0.02	104.79%
Green Winged Teal	2.1	2.1	2.1	0.0	2.1	0.41	0.01	0.00	1.38		0.02	104.79%
Wigeon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
American Wigeon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Ducks	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Brant	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Canada Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Lesser Canada Geese (taverner/p	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Canada Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
White-fronted Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%

(Continued)

Table VI-6. Estimated Harvest and Use of Fish, Game and Plant Resources, Port Graham, 2003 Study Year

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Swan	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tundra Swan (whistling)	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Crane	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sandhill Crane	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Shorebirds	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Common Snipe	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Seabirds & Loons	2.1	2.1	2.1	0.0	2.1	8.30	0.13	0.05	2.77		0.04	104.79%
Cormorants	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Double-Crested Cormorant	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Pelagic Cormorant	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Cormorant	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Gulls	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Gull	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Loons	2.1	2.1	2.1	0.0	2.1	8.30	0.13	0.05	2.77		0.04	104.79%
Unknown Loon	2.1	2.1	2.1	0.0	2.1	8.30	0.13	0.05	2.77		0.04	104.79%
Murre	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Common Murre	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Puffins	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Horned Puffin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tufted Puffin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Puffin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Other Birds	19.1	19.1	14.9	8.5	10.6	45.50	0.70	0.29	65.00		1.00	50.12%
Upland Game Birds	19.1	19.1	14.9	8.5	10.6	45.50	0.70	0.29	65.00		1.00	50.12%
Grouse	19.1	19.1	14.9	8.5	10.6	45.50	0.70	0.29	65.00		1.00	50.12%
Ptarmigan	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Bird Eggs	10.6	2.1	0.0	10.6	8.5	0.00	0.00	0.00	0.00		0.00	0.00%
Duck Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Duck Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Geese Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Geese Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Seabird & Loon Eggs	10.6	2.1	0.0	10.6	8.5	0.00	0.00	0.00	0.00		0.00	0.00%
Gull Eggs	10.6	2.1	0.0	10.6	8.5	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Gull Eggs	10.6	2.1	0.0	10.6	8.5	0.00	0.00	0.00	0.00		0.00	0.00%
Puffin Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tern Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Seabird Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Marine Invertebrates	89.4	74.5	74.5	78.7	72.3	1874.80	28.84	12.00				21.33%
Chitons (bidarkis, gumboots)	78.7	63.8	63.8	51.1	51.1	804.89	12.38	5.15	203.30	GAL	3.13	22.92%
Red (large) Chitons	14.9	10.6	10.6	4.3	4.3	24.89	0.38	0.16	8.30	GAL	0.13	45.67%
Black (small) Chitons	76.6	63.8	63.8	48.9	51.1	780.00	12.00	4.99	195.00	GAL	3.00	23.47%
Clams	61.7	23.4	21.3	51.1	19.1	286.28	4.40	1.83	95.43	GAL	1.47	43.13%
Butter Clams	59.6	23.4	21.3	46.8	19.1	261.38	4.02	1.67	87.13	GAL	1.34	47.22%
Horse Clams (Gaper)	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Pacific Littleneck Clams (Steamers)	12.8	4.3	4.3	8.5	2.1	24.89	0.38	0.16	8.30	GAL	0.13	88.33%
Pinkneck Clams	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%

(Continued)

Table VI-6. Estimated Harvest and Use of Fish, Game and Plant Resources, Port Graham, 2003 Study Year

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Razor Clams	10.6	0.0	0.0	10.6	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Unknown Clams	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Cockles	6.4	4.3	4.3	2.1	4.3	16.60	0.26	0.11	5.53	GAL	0.09	81.78%
Unknown Cockles	6.4	4.3	4.3	2.1	4.3	16.60	0.26	0.11	5.53	GAL	0.09	81.78%
Crabs	17.0	0.0	0.0	17.0	6.4	0.00	0.00	0.00	0.00		0.00	0.00%
Dungeness Crab	12.8	0.0	0.0	12.8	4.3	0.00	0.00	0.00	0.00		0.00	0.00%
King Crab	4.3	0.0	0.0	4.3	2.1	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown King Crab	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tanner Crab	8.5	0.0	0.0	8.5	4.3	0.00	0.00	0.00	0.00		0.00	0.00%
Tanner Crab, Bairdi	8.5	0.0	0.0	8.5	4.3	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Tanner Crab	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Crab	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Limpets	6.4	4.3	4.3	2.1	2.1	4.15	0.06	0.03	2.77	GAL	0.04	72.49%
Mussels	23.4	23.4	23.4	2.1	10.6	58.09	0.89	0.37	38.72	GAL	0.60	41.98%
Unknown Mussels	23.4	23.4	23.4	2.1	10.6	58.09	0.89	0.37	38.72	GAL	0.60	41.98%
Octopus	74.5	40.4	38.3	55.3	34.0	514.47	7.91	3.29	128.62		1.98	36.94%
Oyster	4.3	4.3	4.3	0.0	0.0	66.38	1.02	0.42	22.13	GAL	0.34	98.20%
Scallops	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Weathervane Scallops	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Sea Cucumber	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Sea Urchin	2.1	2.1	2.1	0.0	0.0	2.07	0.03	0.01	4.15	GAL	0.06	104.79%
Shrimp	8.5	6.4	6.4	4.3	4.3	8.30	0.13	0.05	8.30	LBS	0.13	72.52%
Snails	57.4	48.9	46.8	19.1	31.9	109.43	1.68	0.70	72.95	GAL	1.12	19.16%
Whelk	4.3	4.3	4.3	0.0	4.3	4.15	0.06	0.03	2.77	GAL	0.04	72.49%
Vegetation	80.9	80.9	80.9	42.6	57.4	1,427.23	21.96	9.13				16.20%
Berries	72.3	72.3	72.3	21.3	46.8	1,056.60	16.26	6.76	264.15	GAL	4.06	19.21%
Plants/Greens/Mushrooms	40.4	40.4	40.4	10.6	23.4	248.94	3.83	1.59	62.23	GAL	0.96	26.73%
Goose Tongue	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Seaweed/Kelp	36.2	21.3	21.3	23.4	21.3	121.70	1.87	0.78	30.43	GAL	0.47	34.27%
Unknown Seaweed	36.2	21.3	21.3	23.4	21.3	121.70	1.87	0.78	30.43	GAL	0.47	34.27%
Wood	38.3	31.9	29.8	12.8	6.4	0.00	0.00	0.00	76.06	CORDS	1.17	26.61%

Note: Harvest amount in individual units unless otherwise specified.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table VI-7. Estimated Amounts of Resources Removed from Commercial Harvests, Port Graham, 2003 Study Year

Resource	Removed From Catch		Percent of	
	Amount	Pounds	Species Harvest (lbs)	Community Harvest (lbs)
All Resources	337.4	1,446.6	2.0%	2.0%
Fish	337.4	1,446.6	2.2%	2.0%
Salmon	323.6	1,349.8	3.3%	1.8%
Chum Salmon	69.1	368.6	7.8%	0.5%
Coho Salmon	27.7	141.1	2.7%	0.2%
Chinook Salmon	16.6	150.5	1.7%	0.2%
Pink Salmon	71.9	168.3	4.7%	0.2%
Sockeye Salmon	138.3	521.4	2.7%	0.7%
Non-Salmon Fish	13.8	96.8	0.4%	0.1%
Herring Roe	13.8	96.8	19.0%	0.1%
Steelhead	2.4	3.4	50.0%	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table VI-8. Estimated Salmon Harvest by Gear Type, Port Graham, 2003 Study Year

Resource	Removed From Commercial Catch			Subsistence Methods								
				Setnet			Seine			Drift Gillnet		
	Amount	Pounds	HH Mean	Amount	Pounds	HH Mean	Amount	Pounds	HH Mean	Amount	Pounds	HH Mean
Salmon	323.6	1349.8	20.8	6408.7	29517.4	454.1	0.0	0.0	0.0	0.0	0.0	0.0
Chum Salmon	69.1	368.6	5.7	539.4	2874.8	44.2	0.0	0.0	0.0	0.0	0.0	0.0
Coho Salmon	27.7	141.1	2.2	6.9	35.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0
Chinook Salmon	16.6	150.5	2.3	921.1	8354.0	128.5	0.0	0.0	0.0	0.0	0.0	0.0
Pink Salmon	71.9	168.3	2.6	262.8	614.9	9.5	0.0	0.0	0.0	0.0	0.0	0.0
Sockeye Salmon	138.3	521.4	8.0	4678.6	17638.4	271.4	0.0	0.0	0.0	0.0	0.0	0.0
Landlocked Salmon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Resource	Subsistence Methods						Rod & Reel			Any Method		
	Other			Any Method								
	Amount	Pounds	HH Mean	Amount	Pounds	HH Mean	Amount	Pounds	HH Mean	Amount	Pounds	HH Mean
Salmon	55.3	129.4	2.0	6464.0	29646.8	456.1	2667.4	10328.5	158.9	9455.1	41325.1	635.8
Chum Salmon	0.0	0.0	0.0	539.4	2874.8	44.2	275.2	1466.9	22.6	883.7	4710.2	72.5
Coho Salmon	0.0	0.0	0.0	6.9	35.3	0.5	973.6	4965.4	76.4	1008.2	5141.8	79.1
Chinook Salmon	0.0	0.0	0.0	921.1	8354.0	128.5	40.1	363.8	5.6	977.8	8868.3	136.4
Pink Salmon	55.3	129.4	2.0	318.1	744.3	11.5	1142.0	2672.2	41.1	1532.0	3584.8	55.2
Sockeye Salmon	0.0	0.0	0.0	4678.6	17638.4	271.4	222.7	839.4	12.9	5039.6	18999.2	292.3
Landlocked Salmon	0.0	0.0	0.0	0.0	0.0	0.0	13.8	20.7	0.3	13.8	20.7	0.3

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table VI-9. Estimated Percentages of Salmon Harvest by Gear Type and Total Salmon Harvest, Port Graham, 2003 Study Year

		Removed From Commercial Catch		Subsistence Methods: Setnet		Subsistence Methods: Seine		Subsistence Methods: Drift Gillnet		Subsistence Methods: Other		Subsistence Methods: Any Method		Rod & Reel		Any Method	
Resource	Percent Base	No	Pounds	No	Pounds	No	Pounds	No	Pounds	No	Pounds	No	Pounds	No	Pounds	No	Pounds
Salmon	geartype	100.0	100.0	100.0	100.0	0.0	0.0	0.0	0.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	resource	3.4	3.3	67.8	71.4	0.0	0.0	0.0	0.0	0.6	0.3	68.4	71.7	28.2	25.0	100.0	100.0
	total	3.4	3.3	67.8	71.4	0.0	0.0	0.0	0.0	0.6	0.3	68.4	71.7	28.2	25.0	100.0	100.0
Chum Salmon	geartype	21.4	27.3	8.4	9.7	0.0	0.0	0.0	0.0	0.0	0.0	8.3	9.7	10.3	14.2	9.3	11.4
	resource	7.8	7.8	61.0	61.0	0.0	0.0	0.0	0.0	0.0	0.0	61.0	61.0	31.1	31.1	100.0	100.0
	total	0.7	0.9	5.7	7.0	0.0	0.0	0.0	0.0	0.0	0.0	5.7	7.0	2.9	3.5	9.3	11.4
Coho Salmon	geartype	8.5	10.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	36.5	48.1	10.7	12.4
	resource	2.7	2.7	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7	96.6	96.6	100.0	100.0
	total	0.3	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	10.3	12.0	10.7	12.4
Chinook Salmon	geartype	5.1	11.2	14.4	28.3	0.0	0.0	0.0	0.0	0.0	0.0	14.2	28.2	1.5	3.5	10.3	21.5
	resource	1.7	1.7	94.2	94.2	0.0	0.0	0.0	0.0	0.0	0.0	94.2	94.2	4.1	4.1	100.0	100.0
	total	0.2	0.4	9.7	20.2	0.0	0.0	0.0	0.0	0.0	0.0	9.7	20.2	0.4	0.9	10.3	21.5
Pink Salmon	geartype	22.2	12.5	4.1	2.1	0.0	0.0	0.0	0.0	100.0	100.0	4.9	2.5	42.8	25.9	16.2	8.7
	resource	4.7	4.7	17.2	17.2	0.0	0.0	0.0	0.0	3.6	3.6	20.8	20.8	74.5	74.5	100.0	100.0
	total	0.8	0.4	2.8	1.5	0.0	0.0	0.0	0.0	0.6	0.3	3.4	1.8	12.1	6.5	16.2	8.7
Sockeye Salmon	geartype	42.7	38.6	73.0	59.8	0.0	0.0	0.0	0.0	0.0	0.0	72.4	59.5	8.3	8.1	53.3	46.0
	resource	2.7	2.7	92.8	92.8	0.0	0.0	0.0	0.0	0.0	0.0	92.8	92.8	4.4	4.4	100.0	100.0
	total	1.5	1.3	49.5	42.7	0.0	0.0	0.0	0.0	0.0	0.0	49.5	42.7	2.4	2.0	53.3	46.0
Landlocked Salmon	geartype	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.2	0.1	0.1
	resource	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	100.0	100.0
	total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table VI-10. Percentage of Households Harvesting Salmon by Gear Type and Species, Port Graham, 2003 Study Year

RESOURCE	Removed From Commercial Catch	Subsistence Methods				Subsistence Gear Any Method	Rod & Reel	Any Method
		Setnet	Seine	Drift Gillnet	Other			
Salmon	4.3%	48.9%	0.0%	0.0%	2.1%	48.9%	74.5%	85.1%
Chum Salmon	2.1%	29.8%	0.0%	0.0%	0.0%	29.8%	29.8%	53.2%
Coho Salmon	2.1%	2.1%	0.0%	0.0%	0.0%	2.1%	59.6%	63.8%
Chinook Salmon	2.1%	38.3%	0.0%	0.0%	0.0%	38.3%	6.4%	42.6%
Pink Salmon	4.3%	17.0%	0.0%	0.0%	2.1%	19.1%	68.1%	78.7%
Sockeye Salmon	2.1%	40.4%	0.0%	0.0%	0.0%	40.4%	21.3%	57.4%
Landlocked Salmon	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.1%	2.1%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004

Table VI-11. Estimated Non-Salmon Fish Harvest by Gear Type, Port Graham, 2003 Study Year

Resource	Commercial Gear		Subsistence Gear		Rod & Reel		Ice Fish		Any Method	
	Pounds	HH Mean	Pounds	HH Mean	Pounds	HH Mean	Pounds	HH Mean	Pounds	HH Mean
Non-Salmon Fish	96.8	1.5	8,362.1	128.6	15,039.2	231.4	0.0	0.0	23,498.1	361.5
Herring	0.0	0.0	340.2	5.2	3,203.0	49.3	0.0	0.0	3,543.2	54.5
Herring Roe/Unspecified	0.0	0.0	112.9	1.7	300.1	4.6	0.0	0.0	413.0	6.4
Herring Sac Roe	96.8	1.5	0.0	0.0	0.0	0.0	0.0	0.0	96.8	1.5
Eulachon (hooligan, candlefis	0.0	0.0	53.9	0.8	0.0	0.0	0.0	0.0	53.9	0.8
Sea Bass	0.0	0.0	0.0	0.0	13.8	0.2	0.0	0.0	13.8	0.2
Pacific Cod (gray)	0.0	0.0	106.2	1.6	367.3	5.7	0.0	0.0	473.5	7.3
Pacific Tom Cod	0.0	0.0	84.4	1.3	186.7	2.9	0.0	0.0	271.1	4.2
Eel	0.0	0.0	59.7	0.9	0.0	0.0	0.0	0.0	59.7	0.9
Starry Flounder	0.0	0.0	58.1	0.9	580.9	8.9	0.0	0.0	638.9	9.8
Lingcod	0.0	0.0	0.0	0.0	33.2	0.5	0.0	0.0	33.2	0.5
Unknown Greenling	0.0	0.0	23.5	0.4	85.7	1.3	0.0	0.0	109.3	1.7
Halibut	0.0	0.0	7,426.6	114.3	8,496.2	130.7	0.0	0.0	15,922.8	245.0
Black Rockfish	0.0	0.0	53.9	0.8	271.8	4.2	0.0	0.0	325.7	5.0
Red Rockfish	0.0	0.0	0.0	0.0	77.4	1.2	0.0	0.0	77.4	1.2
Sablefish (black cod)	0.0	0.0	0.0	0.0	235.8	3.6	0.0	0.0	235.8	3.6
Unknown Irish Lord	0.0	0.0	0.0	0.0	14.5	0.2	0.0	0.0	14.5	0.2
Unknown Shark	0.0	0.0	0.0	0.0	12.4	0.2	0.0	0.0	12.4	0.2
Unknown Sole	0.0	0.0	0.0	0.0	27.7	0.4	0.0	0.0	27.7	0.4
Dolly Varden	0.0	0.0	42.6	0.7	1,105.6	17.0	0.0	0.0	1,148.1	17.7
Rainbow Trout	0.0	0.0	0.0	0.0	19.4	0.3	0.0	0.0	19.4	0.3
Steelhead	0.0	0.0	0.0	0.0	7.7	0.1	0.0	0.0	7.7	0.1

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table VI-12. Estimated Percentages of Non-Salmon Fish Harvest by Gear Type and Species, Port Graham, 2003 Study Year

Resource	Percent Base	Commercial Harvest	Subsistence Methods	Rod & Reel	Ice Fish	Any Method
Non-Salmon Fish	geartype	100.0	100.0	100.0	0.0	100.0
	resource	0.4	35.6	64.0	0.0	100.0
	total	0.4	35.6	64.0	0.0	100.0
Herring	geartype	0.0	4.1	21.3	0.0	15.1
	resource	0.0	9.6	90.4	0.0	100.0
	total	0.0	1.4	13.6	0.0	15.1
Herring Roe/Unspecified	geartype	0.0	1.4	2.0	0.0	1.8
	resource	0.0	27.3	72.7	0.0	100.0
	total	0.0	0.5	1.3	0.0	1.8
Herring Sac Roe	geartype	100.0	0.0	0.0	0.0	0.4
	resource	100.0	0.0	0.0	0.0	100.0
	total	0.4	0.0	0.0	0.0	0.4
Eulachon (hooligan, candlefis	geartype	0.0	0.6	0.0	0.0	0.2
	resource	0.0	100.0	0.0	0.0	100.0
	total	0.0	0.2	0.0	0.0	0.2
Sea Bass	geartype	0.0	0.0	0.1	0.0	0.1
	resource	0.0	0.0	100.0	0.0	100.0
	total	0.0	0.0	0.1	0.0	0.1
Pacific Cod (gray)	geartype	0.0	1.3	2.4	0.0	2.0
	resource	0.0	22.4	77.6	0.0	100.0
	total	0.0	0.5	1.6	0.0	2.0
Pacific Tom Cod	geartype	0.0	1.0	1.2	0.0	1.2
	resource	0.0	31.1	68.9	0.0	100.0
	total	0.0	0.4	0.8	0.0	1.2
Eel	geartype	0.0	0.7	0.0	0.0	0.3
	resource	0.0	100.0	0.0	0.0	100.0
	total	0.0	0.3	0.0	0.0	0.3
Starry Flounder	geartype	0.0	0.7	3.9	0.0	2.7
	resource	0.0	9.1	90.9	0.0	100.0
	total	0.0	0.2	2.5	0.0	2.7
Lingcod	geartype	0.0	0.0	0.2	0.0	0.1
	resource	0.0	0.0	100.0	0.0	100.0
	total	0.0	0.0	0.1	0.0	0.1
Unknown Greenling	geartype	0.0	0.3	0.6	0.0	0.5
	resource	0.0	21.5	78.5	0.0	100.0
	total	0.0	0.1	0.4	0.0	0.5
Halibut	geartype	0.0	88.8	56.5	0.0	67.8
	resource	0.0	46.6	53.4	0.0	100.0
	total	0.0	31.6	36.2	0.0	67.8
Black Rockfish	geartype	0.0	0.6	1.8	0.0	1.4
	resource	0.0	16.6	83.4	0.0	100.0
	total	0.0	0.2	1.2	0.0	1.4
Red Rockfish	geartype	0.0	0.0	0.5	0.0	0.3
	resource	0.0	0.0	100.0	0.0	100.0
	total	0.0	0.0	0.3	0.0	0.3
Sablefish (black cod)	geartype	0.0	0.0	1.6	0.0	1.0
	resource	0.0	0.0	100.0	0.0	100.0
	total	0.0	0.0	1.0	0.0	1.0
Unknown Irish Lord	geartype	0.0	0.0	0.1	0.0	0.1
	resource	0.0	0.0	100.0	0.0	100.0
	total	0.0	0.0	0.1	0.0	0.1
Unknown Shark	geartype	0.0	0.0	0.1	0.0	0.1
	resource	0.0	0.0	100.0	0.0	100.0
	total	0.0	0.0	0.1	0.0	0.1
Unknown Sole	geartype	0.0	0.0	0.2	0.0	0.1
	resource	0.0	0.0	100.0	0.0	100.0
	total	0.0	0.0	0.1	0.0	0.1
Dolly Varden	geartype	0.0	0.5	7.4	0.0	4.9
	resource	0.0	3.7	96.3	0.0	100.0
	total	0.0	0.2	4.7	0.0	4.9
Rainbow Trout	geartype	0.0	0.0	0.1	0.0	0.1
	resource	0.0	0.0	100.0	0.0	100.0
	total	0.0	0.0	0.1	0.0	0.1
Steelhead	geartype	0.0	0.0	0.1	0.0	0.0
	resource	0.0	0.0	100.0	0.0	100.0
	total	0.0	0.0	0.0	0.0	0.0

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table VI-13. Percentage of Households Harvesting Non-Salmon Fish by Gear Type and Species, Port Graham 2003

RESOURCE	Removed From Commercial Catch	Subsistence Methods	Rod & Reel	Ice Fish	Any Method
Non-Salmon Fish	2.1%	36.2%	72.3%	0.0%	76.6%
Herring	0.0%	8.5%	23.4%	0.0%	27.7%
Herring Roe/Unspecified	0.0%	4.3%	4.3%	0.0%	6.4%
Herring Sac Roe	2.1%	0.0%	0.0%	0.0%	2.1%
Eulachon (hooligan, candlefis	0.0%	2.1%	0.0%	0.0%	2.1%
Sea Bass	0.0%	0.0%	2.1%	0.0%	2.1%
Pacific Cod (gray)	0.0%	4.3%	23.4%	0.0%	25.5%
Pacific Tom Cod	0.0%	6.4%	12.8%	0.0%	19.1%
Eel	0.0%	2.1%	0.0%	0.0%	2.1%
Starry Flounder	0.0%	2.1%	21.3%	0.0%	23.4%
Lingcod	0.0%	0.0%	2.1%	0.0%	2.1%
Unknown Greenling	0.0%	6.4%	6.4%	0.0%	10.6%
Halibut	0.0%	27.7%	53.2%	0.0%	68.1%
Black Rockfish	0.0%	4.3%	17.0%	0.0%	21.3%
Red Rockfish	0.0%	0.0%	4.3%	0.0%	4.3%
Sablefish (black cod)	0.0%	0.0%	2.1%	0.0%	2.1%
Unknown Irish Lord	0.0%	0.0%	6.4%	0.0%	6.4%
Unknown Shark	0.0%	0.0%	2.1%	0.0%	2.1%
Unknown Sole	0.0%	0.0%	2.1%	0.0%	2.1%
Dolly Varden	0.0%	6.4%	38.3%	0.0%	42.6%
Rainbow Trout	0.0%	0.0%	2.1%	0.0%	2.1%
Steelhead	0.0%	0.0%	4.3%	0.0%	4.3%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

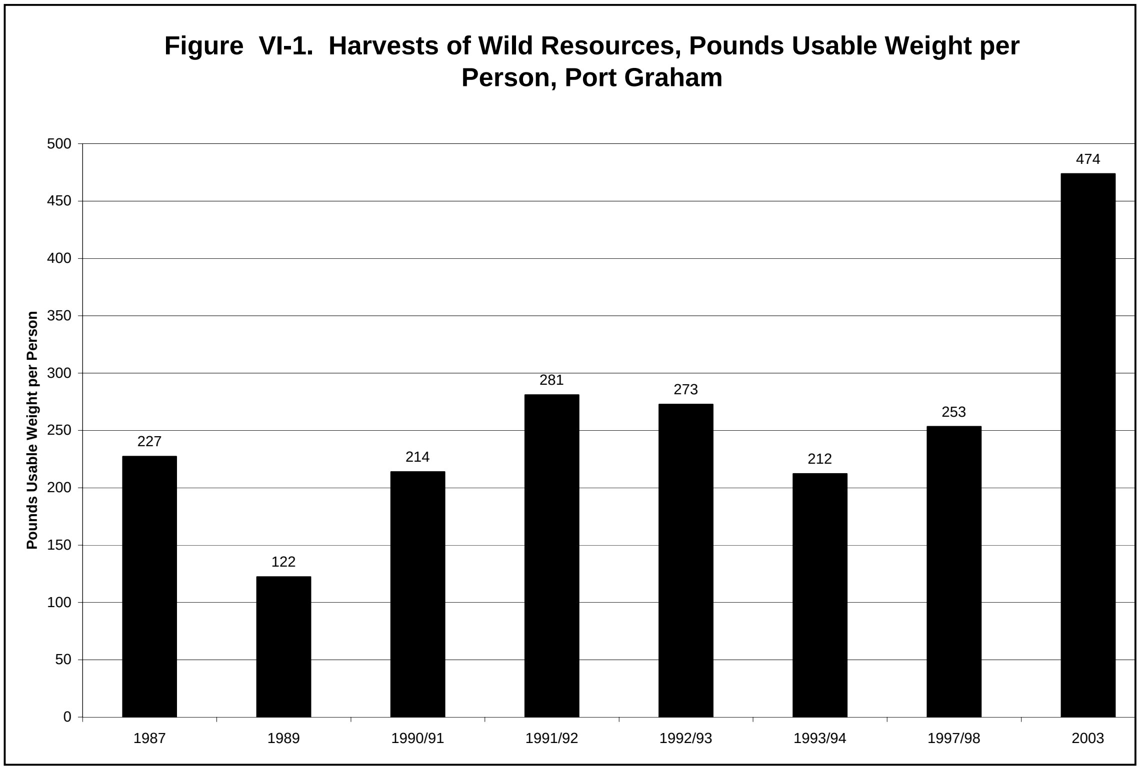


Figure VI-1. Harvests of Wild Resources, Pounds Usable Weight per Person, Port Graham
Pounds Usable Weight per Person
0
50
100
150
200
250
300
350
400
450
500
227
122
214
281
273
212
253
474
1987
1989
1990/91
1991/92
1992/93
1993/94
1997/98
2003

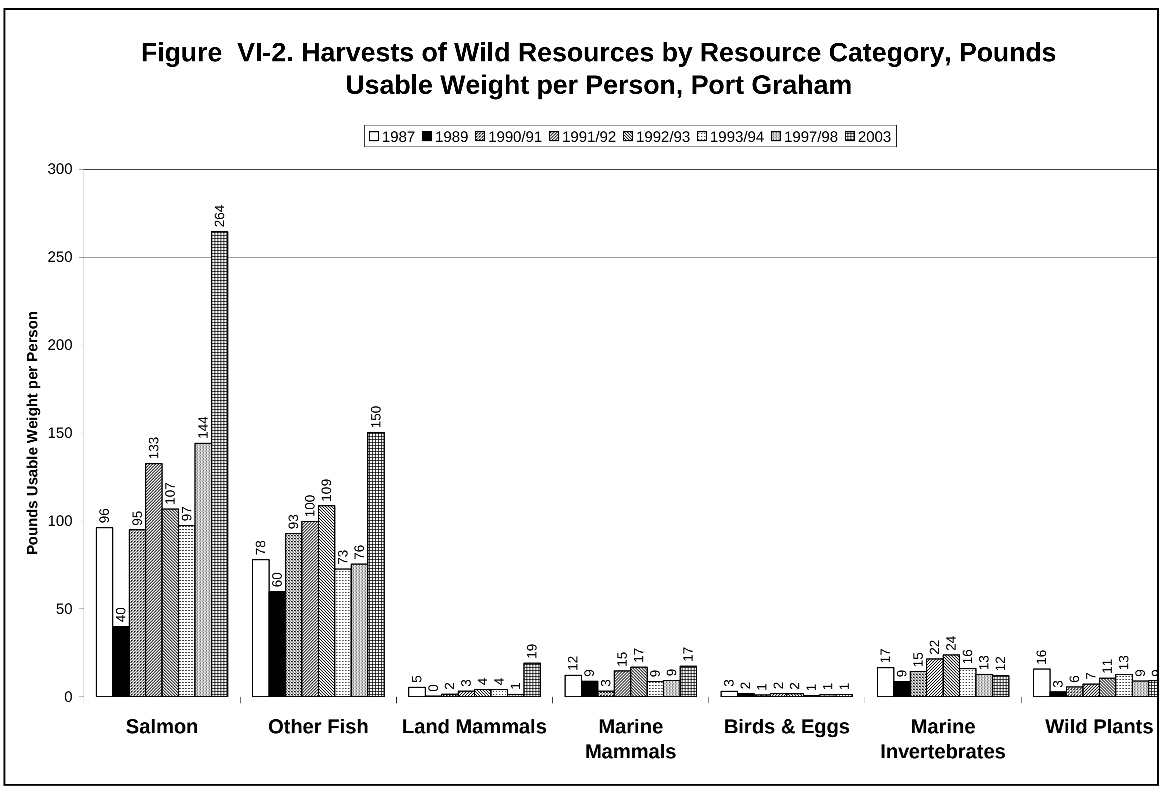


Figure VI-2. Harvests of Wild Resources by Resource Category, Pounds Usable Weight per Person, Port Graham
1987
1989
1990/91
1991/92
1992/93
1993/94
1997/98
2003
Pounds Usable Weight per Person
0
50
100
150
200
250
300
96
40
95
133
107
97
144
264
78
60
93
100
109
73
76
150
5
0
2
3
4
4
1
19
12
9
3
15
17
9
9
17
3
2
1
2
2
1
1
1
17
9
15
22
24
16
13
12
16
3
6
7
11
13
9
Salmon
Other Fish
Land Mammals
Marine Mammals
Birds & Eggs
Marine Invertebrates
Wild Plants

CHAPTER VII: AKHIOK

by

Brian Davis

COMMUNITY BACKGROUND

Community History

Akhiok is located on the south end of Kodiak Island, on the treeless, tundra-covered shoreline of Alitak Bay (Figure I-1). This bay leads north into Moser Bay and Olga Bay, and opens onto the Gulf of Alaska to the south. The residents of Akhiok are mostly Alutiiq, and many are members of the Russian Orthodox Church, as is the case with most villages on the Kodiak Archipelago.

Akhiok has one small building that serves as a post office, city office, tribal office, and social center. Fifteen new houses were built in the village in 1978, and little new construction has taken place since then. The grocery store in Akhiok closed in 1983, and today people get their groceries from Kodiak City via plane or boat. In the 1990s, Akhiok residents used to travel the five miles south to Lazy Bay, near Cape Alitak, to the Wards Cove cannery to buy groceries, gasoline, and heating oil, but that store is no longer operational.

Demography

Akhiok had 71 residents in 2003, according to the work done for this survey project (Table I-8). The number of households was estimated at 15, with 4.7 people per average household. The oldest person in the community was 66 years old, and only 5.8% of the population was aged 60 and over (see Table VII-1). Young people aged 14 and younger constituted 34.6% of the population. The average age overall in Akhiok was 24.4 years, and the average household head had lived in the community for 29.1 years. Over half the population were male, 55.8%, and 44.2% were female (see Table I-8).

Overall, Akhiok has a relatively young population. The small number of households contained a relatively high number of people, indicating that family size is relatively large (also judging by the high number of young people).

The population of Akhiok decreased significantly between the years 2000 and 2003. The U.S. Census estimated the 2000 population at 80 people in 25 households (see Table I-1). The Alaska State Demographer estimated the 2003 population at 51 people, while the result of this study is 71 people. The Division of Subsistence estimate showed a decrease of 11.3% from the 2000 U.S. Census, while the State Demographer's estimate shows a decrease of 36.3% (Alaska Department of Labor and Workforce Development 2005).

The Division of Subsistence estimate was made using a door-to-door survey of 73.3% of the households in the community, while the State Demographer uses a formula based on the number of Alaska Permanent Fund Dividend applications and the most recent U.S. Census. In keeping with the standard report format, the Division of Subsistence estimate represents Akhiok's actual population, which in this particular case is the more conservative of the two, in terms of population loss.

The highest recorded population for the community was 115 people, recorded in the 1970 Census. The population through the next 20 years remained at 100 people until around 1990 when it dropped to 77 people. The Division of Subsistence study, conducted for the year 1992, estimated the population at 80 individuals, living in 24 households. The U.S. Census estimate for 2000 was 80, and, as has been shown, it continued to drop through 2003.

The shift towards a younger population was evident in the proportion of young people to the rest of the people in the community. In the 2000 Census, 28.8% of the population was 14 years or younger, and in 2003 that age group had risen to 34.6% of the total population (Figure XVII-1 and XVII-2). In 2000, 6.4% of individuals were aged 60 or over, and in 2003 that age group accounted for only 5.8%. The average age in the 1992 study was 26.2, and in 2003 the average was 24.4 years (the lowest for any study community except for Nanwalek at 23.8).

These changes, in addition to the dramatic decrease in the number of total households (from 24 in 1993 to 15 in 2003), show Akhiok as a population in transition. While the average age of the population has decreased, the average household size has risen from 3.3 to 4.7 people. These shifts indicate that households are currently fewer in number, but that there are more children in each household, and fewer single-person households (as might be the case for elderly residents).

Economic Overview

Household harvest and economic surveys done in 1993 by the Division of Subsistence found that the average household's wage and employment income was $21,588, and the per capita income was $6,476. This estimate placed Akhiok, along with Karluk, as the lowest-income communities on the Kodiak Archipelago. People in Akhiok depend heavily on wild foods to supplement their cash incomes. The 2000 U.S. Census found that the average per capita income was $8,472, with a median household income of $33,438.

The village corporation of Akhiok-Kaguyak was involved in a land sale with the *Exxon Valdez* Oil Spill Trustee Council in 1996. The corporation sold 77,000 acres to the Trustee Council for over $30 million, with the purpose of protecting the lands from development. In 2002, the corporation members voted to liquidate $31 million of the trust and distribute it to shareholders. The first check of $100,000 came to each shareholder in August 2002, and the second, in the same amount, arrived in January of 2003. Community leaders and the general public were curious as to what the effects of a $200,000 distribution to each shareholder would be on the social, political, and economic fabric of the community (Dobbyn 2002). Some of the patterns observed in the data from this study (such as movement of elders out of the village and participation rates for subsistence activities) might well be viewed within the context of this financial windfall.

SUBSISTENCE RESOURCE HARVEST AND USE

Participation in Hunting, Fishing, and Gathering Activities

Levels of participation in subsistence activities for Akhiok in 2003 were high, demonstrating the continued dependence on wild foods, as well as the perseverance of traditional lifestyles and the harvest and sharing of subsistence resources. Every household reported harvesting at least four different kinds of resources in 2003, and every household used at least seven kinds of wild resources. The highest number used by one household in Akhiok was 22, and the maximum harvested was also 22. The average number of resources used was 14.6 (see Table I-10).

The figures that describe the “use” of a resource represent households that either harvested a resource themselves, or received some of that resource from another household. Exchange of resources is very common, and a hallmark of the traditional subsistence economy. In 2003, 90.9% of Akhiok households received at least one resource, and 81.8% of households gave away at least one resource.

The research also compiled participation figures by individuals as well as by households. In Akhiok, 90.4% of the population attempted to harvest at least one kind of resource (including children who helped with activities such as picking berries, carrying fish from the beach, etc.), and 90.4% helped process a resource (cutting up meat, helping to tend the smokehouse fire, plucking feathers, etc.). People engaged in hunting totaled 40.4% of the total population, and 71.2% fished, while 84.6% collected plants (see Table I-9).

Two specific resources were used by 100% of Akhiok households: sockeye salmon and halibut. Other commonly used resources were deer and chitons, each used by 90.9% of all households; berries and butter clams, each used by 81.8%; king crab and wood, by 72.7%; harbor seal, by 45.5%; and sea lion, ptarmigan, and mallards, each used by 36.4% (see Table VII-2).

Resource Harvest Quantities and Harvest Composition

The overall estimated harvest of wild resources by Akhiok households totaled 13,096.7 pounds of usable food (see Table VII-2). The average household harvested 873.1 pounds, and the average person harvested 184.7 pounds. Thirty individual resources were used by Akhiok households, and 29 in total were harvested (only Chinook salmon were used, but not harvested, by people in Akhiok). The average household used 14.6 different species, the most used by a household was 22, and the least used by a single household was 7.0 (see Table I-10).

By resource category, the bulk of the harvest was comprised of salmon; the total salmon harvest was 6,825.3 pounds, or 52.1% of the overall harvest of all resources (see Table VII-3). For the other resource categories, their estimated total harvest and the percentage of all resources are as follows: marine invertebrates, 1,793.7 (13.7%); non-salmon fish, 1,678.4 (12.8%); large land mammals, 1,531.6 (11.7%); marine mammals, 850.9 (6.5%); vegetation, 305.5 (2.3%); birds and eggs, 111.3 (0.9%) (see Table VII-2). Measured in pounds usable meat per capita, salmon harvest totaled 96.3 pounds, shellfish were 25.3 pounds, non-salmon fish were 23.7 pounds, large land mammals were 21.6 pounds, marine mammals were 12.0 pounds, wild plants were 4.3 pounds, and birds and eggs were 1.6 pounds (see Table VII-3 and Fig. VII-2). The five most harvested species, measured in usable pounds and percent of total pounds harvested, were: sockeye salmon, 4,293.0 (32.8%); deer, 1,531.6 (11.7%); coho salmon, 1,529.0 (11.7%); halibut, 1,527.3 (11.7%); and pink salmon, 678.1 (5.2%) (see Table VII-2).

Sockeye were the most important species of salmon harvested (and the most important species overall). An estimated 90.9% of Akhiok households harvested sockeye salmon in 2003 (see Table VII-2). The harvest of 4,293.0 pounds eclipsed the second most important salmon species, coho, of which 1,529.0 pounds were harvested.

Several types of gear were used to harvest salmon. “Subsistence” gear was one category, and included nets such as beach seines and set gillnets. Subsistence nets brought in 6,515.0

pounds of salmon (see Table VII-5), comprising 95.5% of the total salmon harvest and 49.7% of all resource harvests.

Rod and reel methods were used to harvest approximately 260.0 pounds of salmon (3.8% of the salmon harvest). Removing salmon from commercial catch was not an important method among Akhiok fishers, only contributing an estimated 50.4 pounds, or 0.7% of the total salmon harvest. The fish removed from commercial catches was mostly sockeye, with some pink salmon (see Table VII-5).

Table VII-6 shows the participation rates of Akhiok households in each method of salmon harvest. Every Akhiok household harvested salmon using at least one of these methods. The most popular method was subsistence net fishing, with 81.8% of households participating. This method also contributed the most pounds to the total salmon harvest. Rod and reel was used by 36.4% of the households, and removing salmon from commercial catch was practiced by 9.1%.

Deer were harvested by 72.7%, and used by 90.9%, of Akhiok households. The harvest estimate was 35.5 individual deer, for a total of 1,531.6 pounds of meat (21.6 pounds per capita). This represents 100% of the community's large land mammal harvest (Fig. VII-2), and 11.7% of the total community harvest.

In the non-salmon fish category, the most important species by far was halibut. Every household used at least some halibut in 2003, and 81.8% of households harvested halibut. The total halibut harvest for 2003 was 1,527.3 pounds, and the per capita harvest of halibut was 21.5 pounds. The only other fish harvested in this category were Dolly Varden (133.6 pounds total, or 1.9 pounds per capita) and gray cod (17.5 pounds, or 0.3 pounds per capita) (see Table VII-2).

Every Akhiok household harvested marine invertebrates in 2003, and the harvest (1,793.7 pounds) represented 13.7% of the total community harvest. Households focused mainly on chitons (both red and black) (8.5 pounds per capita), butter clams (5.4 pounds per capita), and octopus (2.8 pounds per capita). Other species of shellfish, and their per capita harvest, included King crab (2.3 pounds), and sea urchin (1.8 pounds) (see Table VII-2).

Eighteen percent of Akhiok households harvested marine mammals in 2003, and just over half the households reported using marine mammals. The harvest estimate included at 2.7 sea lions, a normal number for that community over the past 15 years (Wolfe 2004). This harvest totaled 545.5 pounds, or 7.7 pounds per capita. In addition, an estimated 5.5 individual harbor seals were harvested, providing 4.3 pounds of edible seal meat, organs, and fat per person. Combined, marine mammals constituted 6.5% of the total community harvest (see Table VII-2).

Just over half of Akhiok households harvested birds and eggs in 2003. Overall the category contributed 1.6 pounds of food per capita, with ducks being the most-harvested resource in that category; each person in Akhiok had about 0.7 pounds of duck meat in 2003.

Wild plants were harvested by 90.9% of Akhiok households, with approximately 4.3 pounds harvested per person. Almost all of the edible portion of this harvest was berries, with a small harvest of green plants (see Table VII-2).

Harvest Effort

The survey asked if there had been a change in the amount of effort households were expending to pursue, find, and harvest subsistence resources. The 5-year period between 1998 and 2003 was the frame of reference for changing effort. Overall, responses indicated that there was an increase in the amount of effort households expended to harvest subsistence resources, necessitated by diminished resource populations.

Between 1998 and 2003, the harvest of salmon generally required more effort. Of those people who answered the question, 60.0% said more effort was required (see Table A-58). The reasons for this mainly focused on diminished salmon populations (100% of "more effort" responses), and the need to travel further (50.0%). A large percentage (33.3%) also observed increased competition for salmon resources (see Table A-57). The remaining 40.0% said their effort had remained the same, and no one said salmon required less effort (see Table A-58).

Marine invertebrates, large land mammals, and marine mammals were all viewed by a large majority of the respondents to require more effort (over 70% of responses, see Tables A-64, A-67, and A-70). Harvesting deer required more effort, as reported by 77.8% of households that answered the question. Those people cited increased travel distance, less abundance, as well as increased competition as contributing factors (see Table A-68).

The winter of 1998-1999 took a tremendous toll on the deer population on Kodiak Island. Alaska Department of Fish and Game (ADF&G) Division of Wildlife Conservation estimated that half the deer on the island died during that winter. Some residents saw the gradual recovery in the Akhiok region being impeded by a slow, steady increase of outside hunters coming to their area. No respondents said that their efforts to harvest deer had decreased between 1998 and 2003.

Harvesting marine invertebrates was said to require more effort by 88.9% of responders, the most consensus on changing effort for any single resource category. These respondents cited all three reasons, but most (87.5%) pointed to diminished resource populations, and 62.5% said they have to now travel further (see Table A-65).

A decrease in the number of marine mammals is causing hunters to encounter fewer animals in areas close to the village, forcing them to go further and increase their efforts (see Table A-71). Greater effort was cited by 80.0% of those who answered the question (see Table A-70).

Among non-salmon fish, halibut was the lion's share of the harvest, and efforts to harvest halibut were split between "more" and "same" effort as five years before (see Table A-61). The 50.0% that said "more" pointed to decreased abundance, increased competition and increased travel distance as well (see Table A-62). (A few individual comments indicated that special halibut fishing spots in Moser Bay and Olga Bay are now depleted, and some blame the commercial set-netters, whom they believe are sport fishing and over harvesting in those spots.)

The effort required to harvest birds and eggs remained the same for over half of the respondents (57.1%), and increased for 42.9%; no respondents said effort had decreased (see Table A-76). Some people noted that bird populations have been steady in recent years, but that people are less interested in harvesting them since so many elders are moving away from the village. Wild plant harvests require the same amount of effort they did in 1998 according to 66.7% of respondents, while 33.3% said more effort is now required (see Table A-79).

Comparisons of Uses and Harvests with Other Years

In 2003, the total harvest estimate for Akhiok was 13,096.7 pounds of usable meat harvested. Most of this was salmon, marine invertebrates, halibut, and deer. Overall, the harvest, measured in pounds, was down 48.3% from 1993, when the estimate was 25,734.7 (see Table VII-4).

The range of resources used in the community also decreased between 1993 and 2003. The average household used 18.7 resources in 1993, but in 2003 the average was down to 14.6 (see Table I-10). The total number of resources harvested in 1993 was 39, while in 2003 it was only 29 different resources. Akhiok's overall per capita harvest and use of subsistence resources decreased significantly as well, from 321.7 to 184.7 pounds, a loss of 42.7%. Figure VII-1 shows the per capita harvest of all resources for all Akhiok study years.

Between 1993 and 2003 every resource category measured a decrease in per capita harvest: salmon, down 51.7% (the decrease with the most serious effect, as salmon constituted over 50% of harvest in 2003, and over 60% of harvest in 1993); non salmon, down 3.0%; marine invertebrates, down 40.9%; land mammals (for 2003, all deer), down 23.1%; marine mammals, down 38.1%; birds and eggs, down 55.0%; and wild plants, down 8.5% (Fig. VII-2).

Households were asked whether their overall 2003 subsistence harvest and use differed from their harvest and use in 1998: whether it was the same, greater, or less than five years before the study. Of those who answered the question, 70% said their overall use was lower than five years ago (see Table A-25). Considering the significant decreases measured over the 10-year period 1993-2003, the answers to this 5-year harvest evaluation question indicate that the general downward-trend was in effect during the period 1993-1998 as well as between the years 1998-2003.

Sixty percent said that their use of large land mammals (mostly, deer) was down between 1998 and 2003 (see Table A-10); the large weight of deer tips the combined totals for subsistence food use. The per capita deer harvest for 1992 was 28.1 pounds, while in 2003 it was 21.6 pounds, a decrease of 23.1% usable weight. In spite of the decreased harvest (or perhaps because of it) participation rates were up in 2003 compared to 1993; the percentage of households harvesting rose from 66.7% to 72.7%, and households using deer rose from 87.5% to 90.9%. Above, in the section on "Effort", people said they were trying harder to find deer but harvesting less. While deer harvests declined, participation rose, and those individuals who successfully hunted deer distributed them widely. Compared to ten years previous, in 2003, after a relatively small harvest was distributed, the average household was probably left with relatively little meat (see discussion below on Sharing).

Salmon harvest quantities were down, and the methods used to harvest salmon changed since 1993. Removing salmon from the commercial catch was a method used extensively in the 1993 study, although, research done in the 1980s in Akhiok showed that commercial catch had not been widely used in that decade. Regardless, in the 2003 study year, that practice was used very little, if at all. In 1993, salmon removed from commercial catch totaled 1,261.0 pounds, 7.9% of the total salmon harvest, where in 2003 this method produced only 50.4 pounds of salmon, which constitutes 0.7% of the total salmon harvest. Similar decreases occurred in the percentage of households that removed fish from their commercial catch: in 1993, that figure was 33.3%, and in 2003 it was only 9.0%.

In reaction to the decline of this practice, methods involving subsistence nets and rod and reel increased as did relative percentages of the total salmon harvest since 1993: the percentage of the salmon harvest contributed by subsistence methods was up from 89.6% to 95.45%, and the percentage from rod and reel up from 2.5% to 3.8%.

Many households said that both salmon and non-salmon fish were used/harvested more than they were five years before (see Tables A-1 and A-4). Of those that answered the question, 50.0% said they were using more salmon, and 40.0% said more non-salmon fish. Because the overall salmon harvest (and the per capita salmon harvest) diminished so much over the 10 years prior to this study (Fig. VII-2), the assumption could have been made that the answers to this use-and-harvest question would also reflect a decrease (similar to the overall use and harvest evaluation question, discussed above). However, for salmon, the data show that much of the decreases in salmon harvest over the 10-year period likely occurred between 1993 and 1998, and that the harvests leveled off in the latter years.

Correlating this observation with the results of the "Effort" questions discussed earlier, it can be inferred that the increased effort reported by 60.0% of respondents was returning a level of harvest that seems low (compared to other study years,) but which may have been sufficient for particular households. With so many new, young families just starting out in Akhiok, it is conceivable that the subjective answers to this use-and-harvest question reflect less about overall community subsistence salmon use and more about the development of young subsistence households.

The assessment changed when the respondents were asked to compare their use and harvest of salmon in 2003 to that of fifteen years previous in 1988. Looking at Table A-28, most of those who responded (71.4%) said that it had decreased. Also, a fair percentage of responses said same or more (each with 14.3%). These answers fit more closely the understanding of a long-term decline in salmon populations and salmon harvest levels.

Here, the impressions on use and harvest for a 15-year period differ (Appendix Table A-28) from those of the more recent 5-year period (see Table A-1), in which half the households said they were using more salmon. What underlies the 5-year assessment values is the increased number of new households and young heads-of-household with children. These families were just starting their subsistence careers, and they were indeed harvesting and using more resources, making greater efforts to bring more wild food home both for their household as well as for their neighbors in Akhiok. Also very telling are the assessments of salmon availability over the last five years; although households are using and harvesting more salmon, they believe that salmon are less available. Therefore, it should be inferred that the effort to harvest salmon has also gone up.

The story for deer use and harvest differs greatly from that of salmon. Table A-11 shows the reasons why individuals believed they were harvesting and using less than they were five years previous. Deer was the resource reported to be the most seriously under-harvested (60.0% of responses said they were using less deer in 2003 than five years before). People gave a number of reasons, including diminished resource abundance and resource access, changes in economics, and changes in interest and/or knowledge.

Individuals reported a growing number of outside hunters coming to the south end of Kodiak Island to hunt for deer. These hunters chartered boats in Kodiak to bring them to the Akhiok area, and many were guided by the charter boat operator in their deer hunts.

Economic situations were cited as affecting people's harvest of birds and eggs, marine invertebrates, as well as deer. People reported not having the boating equipment necessary to go out to get these resources (see Tables A-47, A-35, and A-39, respectively).

Table A-55 shows the response rates for questions about use-and-harvest changes since 1988. In general, this table shows significant decreases in the average household's subsistence uses for the 15 years after the *Exxon Valdez* oil spill. The most dramatic losses were for marine invertebrates and large land mammals (deer) (see Tables A-34, and A-37).[1]

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[1] Not everyone was asked this question, as there were several households in Akhiok whose heads were not old enough to be active harvesters in 1988.

Of those that did answer the question, a majority said that salmon, non salmon, marine invertebrates, large land mammals, and birds and eggs were all used more in 1988 than they were in 2003 (see Tables A-28, A-31, A-34, A-37, and A-46, respectively). Use of marine mammals was split between "less" and "same", and use of wild plants was mostly viewed as the same (see Tables A-43 and A-49). When comparing the subsistence use/harvest of 2003 with that of 1988, Akhiok households perceived a wide-ranging impact of the oil spill, affecting everything from shellfish to deer.

NATURAL RESOURCE CONDITIONS

Food Safety

Akhiok households were asked whether certain resources were safe to eat, and if not safe, why. The survey asked about several particular resources, and most of these were called "safe" by a large majority of respondents: clams, 80.0%; bidarkies, 90.0%; seals, 90.0% (see Tables A-458, A-460, and A-464). For herring, which is not commonly harvested in Akhiok, all the responses were "not sure" (see Table A-462).

Despite these findings, many people spoke of a personal, as well as a community-wide, fear of paralytic shellfish poisoning (PSP) in clams. People who did say that clams are "safe" did so with some hesitation, having started harvesting and eating clams not long before the survey in 2003. The small percentage of households that said that clams were unsafe did not attribute this condition to oil spill contamination directly, but rather to the threat of PSP contamination. What did emerge during the survey was the understanding that some people in Akhiok believed that frequent PSP outbreaks during the 1990s were related to environmental changes stemming from the spill.

Status of Resource Populations

Akhiok households definitely perceived a decline in salmon populations– all species are said to be "less available" than five years ago (see Table A-84). The abundance of salmon resources is down, partially attributed to the effects of the oil spill. Many respondents said they did not know if the spill was responsible for currently-depressed salmon populations, and many also did not answer these questions (see Tables A-85 and A-86).

Another main concern was the effect that commercial fishing boats, primarily the large-netted "draggers", or ocean "trawlers", were having on harvesting salmon, harming the habitat, and affecting the populations of small fish that salmon eat.

As discussed in earlier sections, there were households that reported using and harvesting more salmon in 2003, compared to 1998, and that the required effort to harvest salmon had increased. The observations of decreasing salmon populations create another frame of reference for understanding the 2003 subsistence salmon fishery in Akhiok; despite decreasing salmon populations, households were trying harder to get salmon, and were meeting with reasonable success in these efforts.

Respondents were evenly-split when assessing the availability of clams; "same" and "less available" both garnered 44.4% of the valid responses (see Table A-200). For chitons and sea urchins, most respondents found their populations to be about the same as they were in 1998. Only one household surveyed said that clams and chitons were more available in 2003. Of the

5.5 households that said that clams were less available, 4.4 said the oil spill was at least partly responsible (see Table A-203).

Seals and sea lions were both seen as "less available" than five years ago. Of the people that answered the question, 80.0% said harbor seals were less available, and 100% said that sea lion were less available (see Table A-307). Some of the residents of Akhiok believe that the effects of the spill have had a negative effect on seal and sea lion populations, either directly or indirectly through their food. One person said that incidence of sick seals, where the organs and fat of the animals are not right, has increased since the spill, and he suspects that toxic substances are making these animals sick. Some say that predation by orcas (killer whales) is also causing a drop in seal and sea lion populations. Some see a link between overall ecosystem depletion and increased orca predation, where orcas are suffering from shortages of their usual food species as much as seals and sea lions are, and orcas are forced to prey on other mammals. (This has been observed in other parts of southern, coastal Alaska, and reported on by scientists and journalists [Heise et al. 2003, Matkin et al. 2001].) Still, others said they believe that continued agitation by commercial fishing vessels, and indiscriminate shootings by commercial fishers, caused sea lion populations to diminish locally.

Sea ducks were not observed to be less available in 2003 (see Table A-364), but several respondents said that the new regulations requiring steel shot (instead of lead) makes it harder to kill the birds, and their populations are increasing because of it. One Akhiok resident noted that the population of Arctic terns has diminished significantly, and that the rookeries on the small islands near the village, where people used to collect their eggs, are depleted.

The deer decline, observed elsewhere in this chapter, was reconfirmed in the answers to this question. Every household surveyed in Akhiok said deer were "less available" in 2003 (see Table A-257). Many respondents pointed to increased competition (mostly from outside hunters coming to the south end of the island), and "environmental" reasons (mostly from the effects of winter kill) (see Table A-258).

The winter of 1998-1999 is known to have been exceedingly difficult on deer populations on Kodiak Island. The Division of Wildlife Conservation, ADF&G, estimated the mortality rate at around 50% for the entire island. However, in their report (Healy 2003), the Division has reported a fast rebound, with populations building back up at a rapid rate.

While some Akhiok residents said they have seen evidence of recovery, some said that deer numbers are still low on the south end of the island. Some people said they have seen an increasing number of hunters in their area, impeding the recovery of the local deer populations. One person said that, since the winter of 1998-1999, many more guided sport hunters have been coming to the south end of the island. Another person estimated that five or six charter boats and/or hunting guides visit their area during the 12-week deer hunting season, each harvesting about 18 deer a week.

Habitat Changes

Survey respondents were asked if they observed any changes in the habitats around their community (see Table A-456). The only response that described a change in soils, vegetation, landforms, or ecological composition was one mention of "bikes" or ATVs tearing up the tundra, as well as the foot traffic of many chartered deer hunters walking through Akhiok hunting areas.

Other responses to this question focused on weather and resource populations. In these responses, people said they had seen changes in winter weather patterns, which, as has been noted, led to a drastic reduction in the deer population in 1998-1999. For some (see Table A-457), the effects of that winter are still being felt in a reduced number of deer, while others have noticed that milder winters since 1998-1999 have allowed deer to come back ("Habitat Protection Improvement" in the table).

SOCIAL AND ECONOMIC CONDITIONS

Food Purchases

When subsistence needs are not met through a household's own harvesting, or sharing with other households, some people resort to purchasing store-bought meat to replace subsistence-harvested meat, or even purchasing subsistence foods from other subsistence harvesters. The survey wanted to know if Akhiok households had to purchase food in 2003 to compensate for any lack of subsistence foods.

Most of the respondents (80.0% of valid responses) did not purchase subsistence foods those who did purchased King crab (see Table A-475). A majority of households (60.0% of valid responses) did have to buy store-bought food to replace subsistence foods (see Table A-477). The subsistence foods most commonly replaced were clams, crab, fish species and deer.

Sharing of Subsistence Resources

Sharing wild resources is a fundamental part of a community's subsistence economy. While some households are able to harvest fish and game, others may not be, due to time constraints (work and family), lack of necessary equipment, or lack of funds to maintain their equipment or to pay for ammunition or gas. Some households may specialize within their community in certain types of subsistence harvests, and trade their harvests with others whose focus is different.

The average Akhiok household gave away eight different types of resources, and on average received four different types in 2003 (see Table I-10). Eighty-two percent of Akhiok households gave away at least one type of resource, and 90.9% reported receiving at least one resource in 2003 (see Table VII-2). There were several resources harvested by a subset of households, but used by the entire community, including sockeye salmon, halibut, and octopus (see Table VII-2).

When respondents were asked whether their sharing pattern had changed over the past five years, a majority (60.0% of responses) said it had not changed, 30.0% said they were sharing less, and 10% said they were sharing more (see Table A-472). The decreases in sharing were explained by environmental factors (resource-abundance issues), economic reasons (perhaps related to increased travel, predicated by thinning resource populations), and personal reasons (see Table A-474), while increased sharing was the result of personal changes (see Table A-473).

Longer-term patterns in sharing can be inferred by looking at the percentage of households that reported giving or receiving resources. Figure VII-3 compares the participation in sharing of key resources in 2003 with that of 1993. Most resources were shared less in 2003 than in 1993 (marine mammals, marine invertebrates, deer), and one, halibut, was shared by a greater percentage of households. Salmon were given by a greater percentage of households (72.7%), but received by a lesser percentage (45.5%).

The “All Resources” bars in Fig. VII-3 show that, overall, the percentage of households giving resources and those receiving resources are rather close for 1993 and 2003. However, because the 2003 harvests of all these resource categories were lower than the 1993 harvests, in some cases substantially (except halibut), the amount shared between households was likely significantly less in 2003 than in 1993.

For particular resource types, the changes in household sharing can be understood relative to the shrinking overall harvest of the community, and the resulting shifts in relative percentages of resources comprising the overall harvest. As mentioned, the quantity of subsistence food available to share was much lower in 2003 than 1993. The range of resources harvested declined from 39 different species to 29, and the average household used 14.6 different resources in 2003, where in 1993 the average was 18.7. The overall harvest decreased by 42.7%. Each individual in Akhiok went from harvesting an estimated 321 pounds of subsistence foods in 1993, to 185 pounds in 2003.

The average person, between 1993 and 2003, lost access to approximately 7 pounds of deer, 7 pounds of marine mammals, and 17 pounds of marine invertebrates. But the most significant change for the average person in Akhiok was a loss of approximately 100 pounds per person of salmon in the community’s harvest. Compared to salmon, people actually had relatively good access to these other resources; Figure VII-4 shows the contribution of several resources to the total community harvest. As the contribution of salmon fell, the relative contributions of the other resources rose, albeit in small increments. Additionally, it should be recalled that, except for halibut, all of these resources were harvested in lower amounts in 2003 than they were in 1993.

The chart (Fig. VII-3) shows that the inter-household sharing relationships for resources like marine invertebrates, marine mammals, and deer were depressed in 2003. (Halibut, which actually had a higher per capita harvest in 2003, was shared by more households in that year.) This is probably due, in part, to decreased harvest levels, as well as demographic changes, and the downward shift is a reaction to these changes. The shifts in sharing for these resources represent a uniform decrease, where the change in percent of households giving (the solid bars in the figure) is close to the change in percent of households receiving (the striped bars). The level of sharing decreased, but the general sharing patterns remained similar over the years.

For salmon, comparing the sharing participation rates indicates that a fairly serious adjustment was made. Sharing salmon became more difficult, as the average person lost half of their salmon harvest in 2003. That year saw a slightly higher rate of households giving salmon (72.7% of households, compared to 70.8% of households in 1993), but also saw a substantial decrease in the number of households receiving salmon (down from 62.5% to 45.5%). Here, it can be seen that the households that normally distribute salmon continued to do so, but restricted their giving to a smaller circle of households. Receiving households were probably given different priority by those responsible for distribution. Although the data does not indicate how this adjustment was made, it is conceivable that elders and close family members received higher priority during this time of scarcity than other households.

The constriction of sharing in the community can also be seen by comparing the number of resources the average household shared between numbers. Again, the act of giving was maintained over time, while receiving decreased. The average number of resources given by a household was 7.4 in 1993 and 6.3 in 2003, but the average number received by a household decreased from 9.3 to 4.1. This probably indicates that some households that normally used to receive resources, did not receive them, and those that did receive in 2003, did not receive them in the amounts of the past. Thus, the average was cut down significantly. Also, as mentioned before, it must be assumed that the amount (in pounds) of resources shared must have gone down significantly because the overall harvests were cut in half.

These numbers indicate that, when resources become scarce, the community was able to maintain its sharing patterns up to a point, and that when scarcity crosses a threshold, the community adjusts its sharing, with some households forced to go without.

Young Adults' Involvement in Subsistence Activities

Of those that answered the question, only a slight majority of Akhiok respondents said that young people are not learning enough subsistence skills (see Table A-466). It seems that people who noticed a decrease in the influence of elders, as well as a general decrease in subsistence activities overall, are aware that other individuals are making attempts to guide youth into the subsistence way of life. Alutiiq Week, parents, and other community members were all singled out as making a difference for young subsistence users (see Table A-468).

One person suggested that the charter operators were trying to get local youth to work with them, as assistant guides for deer, bear, and fishing, but that no one in Akhiok would accept these offers. This person said that learning to guide would be a good way to get meat for the community, and make money. This person appeared to be suggesting that local people have an opportunity to make the best of the current economic situation, and to learn to accommodate the desire of outsiders to hunt and fish in their area. This idea is not without precedent, as Alaska Native communities were able to adapt to the commercial fishing industry in the early 1900s, integrating many commercial and industrial elements into their subsistence pattern.

Another important observation several respondents made is that, with resource populations being depressed, young hunters seldom meet with success. Novices get frustrated from this lack of success in hunting and fishing, and they feel discouraged to pursue a traditional subsistence way of life. One person went further to say that youthful inexperience (and indiscretions) when they are "practicing" subsistence activities might do damage to the fragile ecosystem, threatening fish and animal populations, and this person has seen examples of this. The paradox, as this person sees it, is that the process by which young people would learn to hunt and fish is itself a liability to the future of subsistence.

Elders' Influence

The participation and influence of elders is an important factor in any community's subsistence way of life. Decades of experience give elders a far-sighted, long-term perspective on local ecology, biological resources, harvest technology, traditional values, and other components of the traditional subsistence system. They inspire young subsistence hunters and fishers to become providers for their community, as well as helping in the instruction and training of new subsistence harvesters.

Most Akhiok households agreed (60.0%) that the influence of elders was less than it was five years ago, although 20.0% each said it was more and the same (see Table A-469). Many households said that elders were leaving the community in recent years, which affected their influence, as well as having a direct impact on measures of sharing and resource diversity. Comments included: "Only the elders used to eat that stuff" and "The elders who used to like [eggs] are gone, so we don't get them anymore."

People also agreed that, regardless of how many elders there are in the village, there is a social and cultural divide between the youth and elders that is hurting the transmission of cultural subsistence knowledge. On the other hand, a number of households acknowledged the successes of Alutiiq Week and other efforts by individuals to bring elders and youth together, preserving traditions.

Some said that there are simply not enough elders in Akhiok to have the kind of impact that is needed to pass on subsistence traditions. Many have moved to Anchorage, or otherwise left the village (See Table A-471).

Status of the Traditional Way of Life

Many people in Akhiok believe that the oil spill affected the traditional way of life in their community, both through damage done to fish and animal habitats, as well as through social and economic changes impacting the people of the community. Of those that answered the survey question, 70.0% said that the traditional way of life was affected by the spill (see Table A-479). Among those who said it was affected, 71.4% said it had not yet recovered, and 28.6% said yes, it had recovered (see Table A-480). There were no suggestions as to how recovery of the traditional way of life may be supported (see Table A-481). Some said, “[there is] nothing mankind can do.” Others implied that the hope for recovery lies in the perseverance and dedication of those involved with young people, making direct efforts to try to reclaim the traditions that were strong before the oil spill.

Talking with individuals also showed that people still crave subsistence foods, are still willing to go out hunting and fishing, and are still sensitive to environmental and ecological changes that cause flux in biological populations, and can respond to them as responsible users and conservators (for example, the winter kill of deer in the late 1990s). Some people in Akhiok are looking ahead and planning ways to make subsistence a part of their future. These individuals are adjusting to the loss of their elders, continuing to try and teach youth subsistence skills, as well as seeing job opportunities in the guided-sport-harvesting industry.

The discussion above on sharing shows that, while a drastic decrease in salmon harvests had caused significant changes to the system of sharing subsistence resources in Akhiok, the overall sharing patterns have remained the same over the years. Non-catastrophic reductions in the harvest of resources like marine mammals, marine invertebrates, and even deer allowed Akhiok residents to continue the tradition of sharing subsistence harvests despite shortfalls. The resilience of the traditional social and economic system is evident in these findings. Also, the creation of young, new families is stimulating harvest activity, and these active households see the traditions as either persisting or recovering through their interest and involvement in subsistence. These examples show that, despite the threats to the resources, social changes, and community adjustments to an unusual economic windfall, Akhiok was committed to keeping its subsistence traditions alive.

EVALUATION OF THE GEM PROGRAM

The survey asked Akhiok respondents for their general understanding and assessment of the *Exxon Valdez* Oil Spill Trustee Council and its Gulf Ecosystem Monitoring Program (GEM). Some households are unfamiliar with either the Trustee Council and/or the GEM program, some feel well-informed of the work of these organizations, and some do not feel well-informed.

A high percentage of the households surveyed did not answer the question (18.2%), and the same percentage said they are not familiar with one or the other, or both, of these organizations (see Table A-482). Those that were familiar were mostly split on whether or not they feel adequately informed about the work being done by the Trustee Council or under the GEM program: 57.1% said they were not adequately informed, and 42.9% said that they were. When asked for recommendations for ways to improve the information level in the community, a majority of the respondents (75.0%) said that newsletters and mailings would be the preferred way of improving communication with Akhiok residents (see Table A-483).

A similar pattern was seen, when asked about the involvement of the Akhiok Tribal Council in the GEM program (see Table A-484). Eighteen percent gave no response, 36.0% of households said that they did not know enough about the GEM program to answer, and the remaining 45.5% gave valid responses. Every one who gave a valid response said they think their tribe is not adequately involved in the work of the GEM program (see Table A-484), and most of these (80.0%) said that methods to improve communication with the tribe and with local residents was the preferred way to make the tribe more involved (see Table A-485).

Overall, there were very few comments made by respondents in Akhiok to the questions regarding the Trustee Council and the GEM program. One respondent was surprised to hear the question about communications between his local tribe and the Trustee Council, because he sits on the council himself and had never heard of it. Among those who did recommend to improve the communication between Akhiok and the Trustee Council, several were very enthusiastic about receiving newsletters and updates on the organization's progress.

DISCUSSION AND CONCLUSTIONS

Compared to the last baseline survey done in Akhiok in 1993, declined resource populations led to declines in overall harvests, per capita harvest, the range of resources used, and the range of resources shared. Still, participation in subsistence harvests and sharing allowed most of the community to enjoy subsistence food despite there being less of it in the community.

The people in Akhiok did not express strong opinions about the direct effects of the oil spill on the availability of resources. Other concerns (fishing and hunting regulations, commercial fishing, the growth of the charter-fishing and hunting industry on Kodiak Island, and PSP) were more important than the idea that oil contaminants or ecosystem malfunction are affecting their subsistence livelihood.

The oil spill affected the traditional way of life in Akhiok, and some people there said that those traditions are still suffering the effects. If biological populations had recovered at all in the years after the spill, there is indication that those populations had also diminished in the years leading up to this study in 2003. Many respondents said that salmon, marine invertebrates, marine mammals, and deer were all less available in 2003 than they had been in 1998. Only some attributed these decreases to the effects of the spill, while other circumstances (like the winter conditions that killed off many Kodiak Island deer and the effects of over-harvesting by commercial fishers) were also offered as explanations.

The population of Akhiok decreased in the 1990s and in the early 2000s, and the age profile changed significantly as well, making it one of the youngest communities in the oil spill study area. Elders left the village and young families were getting established in their stead. Akhiok had relatively few people over the age of 60, and relatively high numbers of youth 14 or younger. The decreasing number of households, and the increasing number of households with young heads, created a situation where some survey questions meant to measure community-harvest trends became skewed.

For example, the questions related to harvests being more, less, or the same as five years previous, showed that young households were indeed using more subsistence resources (because their children were increasing and growing older) household heads became more skilled harvesters, and the simple fact that harvest and use had increased, relative to what their household was doing in 1998.

In 2003, Akhiok households were adjusting to diminishing resource populations and a shrinking of its own population. Young households were trying, and in some cases, succeeding, at harvesting subsistence food for the first time. Other households were suffering from an inability to get the subsistence food they were accustomed to. Sharing was still an important part of the community's subsistence pattern, but neighbors were not able to provide for each other the way they had in the past. Concern for PSP in the marine invertebrates on Akhiok beaches was high, but people were venturing onto the beaches to harvest clams, bidarkis, and cockles after a number of years of being afraid to eat those species. Subsistence salmon were extremely scarce, compared to the years of the previous decade, and the methods that households used to harvest salmon were changing, perhaps in reaction to their diminished availability.

Despite a dramatic reduction in the amount of resources harvested between 1993 and 2003, and despite a trend of depopulation in the community, in 2003 Akhiok was maintaining a level of subsistence activity that appeared acceptable to the people there. As a result of shrinking harvests over the years preceding 2003, the diversity of the harvest was restricted, as were some of the sharing patterns, but for good reason. Akhiok residents had to adjust to the dramatic changes in the quantity of subsistence resources available to them. This was carried out as the community became depopulated, with fewer elders and more young households starting up. Adjustments to biological, ecological, and social pressures influenced the shape of subsistence in Akhiok in 2003, and it is resilience and adaptation that will allow those traditions to live on in the future.

Table VII-1. Population Profile, Akhiok, 2003 Study Year

AGE	MALE			FEMALE			TOTAL		
	Number	Percent	Cum. Percent	Number	Percent	Cum. Percent	Number	Percent	Cum. Percent
0 - 4	1.36	3.45%	3.45%	5.45	17.39%	17.39%	6.82	9.62%	9.62%
5 - 9	6.82	17.24%	20.69%	2.73	8.70%	26.09%	9.55	13.46%	23.08%
10 - 14	4.09	10.34%	31.03%	4.09	13.04%	39.13%	8.18	11.54%	34.62%
15 - 19	6.82	17.24%	48.28%	2.73	8.70%	47.83%	9.55	13.46%	48.08%
20 - 24	4.09	10.34%	58.62%	2.73	8.70%	56.52%	6.82	9.62%	57.69%
25 - 29	4.09	10.34%	68.97%	4.09	13.04%	69.57%	8.18	11.54%	69.23%
30 - 34	1.36	3.45%	72.41%	1.36	4.35%	73.91%	2.73	3.85%	73.08%
35 - 39	1.36	3.45%	75.86%	0.00	0.00%	73.91%	1.36	1.92%	75.00%
40 - 44	0.00	0.00%	75.86%	5.45	17.39%	91.30%	5.45	7.69%	82.69%
45 - 49	2.73	6.90%	82.76%	1.36	4.35%	95.65%	4.09	5.77%	88.46%
50 - 54	1.36	3.45%	86.21%	1.36	4.35%	100.00%	2.73	3.85%	92.31%
55 - 59	1.36	3.45%	89.66%	0.00	0.00%	100.00%	1.36	1.92%	94.23%
60 - 64	2.73	6.90%	96.55%	0.00	0.00%	100.00%	2.73	3.85%	98.08%
65 - 69	1.36	3.45%	100.00%	0.00	0.00%	100.00%	1.36	1.92%	100.00%
70 - 74	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
75 - 79	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
80 - 84	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
85 - 89	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
90 - 94	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
95 - 99	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
100+	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
Missing	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
TOTAL	39.55	55.77%		31.36	44.23%		70.91		

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table VII-2. Estimated Harvest and Use of Fish, Game and Plant Resources, Akhiok, 2003 Study Year

	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
Resource Name	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
All Resources	100.0	100.0	100.0	90.9	81.8	13,096.69	873.11	184.70				124.86%
Fish	100.0	100.0	100.0	81.8	72.7	8,503.69	566.91	119.92				60.19%
Salmon	100.0	100.0	100.0	45.5	72.7	6,825.33	455.02	96.25	1,670.45		111.36	47.73%
Chum Salmon	54.5	45.5	45.5	9.1	9.1	325.23	21.68	4.59	61.36		4.09	37.01%
Coho Salmon	63.6	63.6	63.6	18.2	36.4	1,528.98	101.93	21.56	265.91		17.73	41.06%
Chinook Salmon	9.1	18.2	0.0	9.1	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Pink Salmon	72.7	63.6	63.6	9.1	36.4	678.11	45.21	9.56	261.82		17.45	42.55%
Sockeye Salmon	100.0	90.9	90.9	18.2	54.5	4,293.01	286.20	60.54	1,081.36		72.09	32.00%
Landlocked Salmon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Salmon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Non-Salmon Fish	100.0	90.9	81.8	54.5	36.4	1,678.36	111.89	23.67				34.99%
Herring	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Herring Roe	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Herring Roe/Unspecified	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Herring Sac Roe	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Herring Spawn on Kelp	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Smelt	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Eulachon (hooligan, candlefish)	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Unknown Smelt	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Bass	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sea Bass	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Cod	9.1	9.1	9.1	0.0	0.0	17.45	1.16	0.25	5.45		0.36	109.71%
Pacific Cod (gray)	9.1	9.1	9.1	0.0	0.0	17.45	1.16	0.25	5.45		0.36	109.71%
Pacific Tom Cod	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Walleye Pollock (whiting)	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Eel	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Flounder	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Starry Flounder	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Flounder	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Greenling	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Lingcod	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Greenling	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Halibut	100.0	90.9	81.8	54.5	36.4	1,527.27	101.82	21.54	1,527.27	LBS	101.82	34.00%
Rockfish	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Black Rockfish	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Red Rockfish	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Rockfish	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sablefish (black cod)	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sculpin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Irish Lord	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Irish Lord	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Sculpin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Shark	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Shark	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Skates	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sole	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Sole	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%

(Continued)

Table VII-2. Estimated Harvest and Use of Fish, Game and Plant Resources, Akhiok, 2003 Study Year

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Wolffish	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Char	27.3	27.3	27.3	0.0	9.1	133.64	8.91	1.88	95.45		6.36	52.59%
Dolly Varden	27.3	27.3	27.3	0.0	9.1	133.64	8.91	1.88	95.45		6.36	52.59%
Lake Trout	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sturgeon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Sturgeon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Trout	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Rainbow Trout	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Steelhead	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Trout	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Land Mammals	90.9	81.8	72.7	36.4	27.3	1,531.64	102.11	21.60	35.45		2.36	30.42%
Large Land Mammals	90.9	81.8	72.7	36.4	27.3	1,531.64	102.11	21.60	35.45		2.36	30.42%
Brown Bear	0.0	9.1	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Caribou	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Deer	90.9	81.8	72.7	36.4	27.3	1,531.64	102.11	21.60	35.45		2.36	28.37%
Elk	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Goat	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Moose	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Small Land Mammals	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Beaver	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Fox	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Red Fox	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Hare	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Snowshoe Hare	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Land Otter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Weasel	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Feral Animals	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Reindeer - Feral	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Marine Mammals	54.5	45.5	18.2	45.5	18.2	850.91	56.73	12.00	8.18		0.55	47.39%
Porpoise	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Seal	45.5	45.5	18.2	36.4	18.2	305.45	20.36	4.31	5.45		0.36	72.36%
Harbor Seal	45.5	45.5	18.2	36.4	18.2	305.45	20.36	4.31	5.45		0.36	72.36%
Harbor Seal (saltwater)	45.5	45.5	18.2	36.4	18.2	305.45	20.36	4.31	5.45		0.36	72.36%
Sea Otter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Steller Sea Lion	36.4	27.3	18.2	27.3	18.2	545.45	36.36	7.69	2.73		0.18	70.67%
Whale	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Whale	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Birds and Eggs	54.5	63.6	54.5	9.1	36.4	111.27	7.42	1.57				30.74%
Migratory Birds	36.4	45.5	36.4	0.0	27.3	53.86	3.59	0.76	64.09		4.27	37.43%
Ducks	36.4	45.5	36.4	0.0	27.3	50.45	3.36	0.71	62.73		4.18	40.36%
Bufflehead	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Gadwall	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Goldeneye	9.1	18.2	9.1	0.0	9.1	8.73	0.58	0.12	10.91		0.73	110.25%
Unknown Goldeneye	9.1	18.2	9.1	0.0	9.1	8.73	0.58	0.12	10.91		0.73	110.25%
Harlequin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Mallard	36.4	45.5	36.4	0.0	27.3	39.27	2.62	0.55	43.64		2.91	51.45%
Merganser	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%

(Continued)

Table VII-2. Estimated Harvest and Use of Fish, Game and Plant Resources, Akhiok, 2003 Study Year

	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
Resource Name	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Common Merganser	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Long-tailed Duck (Oldsquaw)	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Northern Pintail	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Scaup	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Scaup	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Scoter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Black Scoter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Surf Scoter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
White-winged Scoter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Scoter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Teal	9.1	9.1	9.1	0.0	9.1	2.45	0.16	0.03	8.18		0.55	109.71%
Green Winged Teal	9.1	9.1	9.1	0.0	9.1	2.45	0.16	0.03	8.18		0.55	109.71%
Wigeon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
American Wigeon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Ducks	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Geese	9.1	9.1	9.1	0.0	0.0	3.41	0.23	0.05	1.36		0.09	109.71%
Brant	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Canada Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Canada Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Emperor Geese	9.1	9.1	9.1	0.0	0.0	3.41	0.23	0.05	1.36		0.09	109.71%
White-fronted Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Shorebirds	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Common Snipe	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Seabirds & Loons	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Auklet	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Parakeet Auklet	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Gulls	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Gull	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Murre	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Common Murre	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Puffins	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Horned Puffin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tufted Puffin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Puffin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Other Birds	36.4	36.4	36.4	9.1	18.2	23.86	1.59	0.34	34.09		2.27	50.17%
Upland Game Birds	36.4	36.4	36.4	9.1	18.2	23.86	1.59	0.34	34.09		2.27	50.17%
Ptarmigan	36.4	36.4	36.4	9.1	18.2	23.86	1.59	0.34	34.09		2.27	50.17%
Bird Eggs	27.3	27.3	27.3	0.0	9.1	33.55	2.24	0.47	111.82		7.45	77.71%
Duck Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Duck Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Geese Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Geese Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Seabird & Loon Eggs	27.3	27.3	27.3	0.0	9.1	33.55	2.24	0.47	111.82		7.45	77.71%
Gull Eggs	27.3	27.3	27.3	0.0	9.1	33.55	2.24	0.47	111.82		7.45	77.71%
Unknown Gull Eggs	27.3	27.3	27.3	0.0	9.1	33.55	2.24	0.47	111.82		7.45	77.71%
Puffin Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%

(Continued)

Table VII-2. Estimated Harvest and Use of Fish, Game and Plant Resources, Akhiok, 2003 Study Year

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Tern Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Seabird Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Marine Invertebrates	100.0	100.0	100.0	72.7	45.5	1,793.73	119.58	25.30				72.65%
Chitons (bidarkis, gumboots)	90.9	90.9	90.9	18.2	45.5	600.00	40.00	8.46	150.00	GAL	10.00	53.43%
Red (large) Chitons	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Black (small) Chitons	90.9	90.9	90.9	18.2	45.5	600.00	40.00	8.46	150.00	GAL	10.00	53.43%
Clams	81.8	81.8	81.8	18.2	45.5	548.18	36.55	7.73	182.73	GAL	12.18	37.13%
Butter Clams	81.8	81.8	81.8	18.2	45.5	380.45	25.36	5.37	126.82	GAL	8.45	44.34%
Horse Clams (Gaper)	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Pacific Littleneck Clams (Steamers)	54.5	54.5	54.5	9.1	27.3	85.91	5.73	1.21	28.64	GAL	1.91	33.84%
Pinkneck Clams	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Razor Clams	9.1	9.1	9.1	0.0	0.0	81.82	5.45	1.15	27.27	GAL	1.82	109.71%
Unknown Clams	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Cockles	54.5	54.5	54.5	0.0	9.1	135.00	9.00	1.90	45.00	GAL	3.00	45.23%
Unknown Cockles	54.5	54.5	54.5	0.0	9.1	135.00	9.00	1.90	45.00	GAL	3.00	45.23%
Crabs	72.7	45.5	36.4	36.4	9.1	188.05	12.54	2.65	87.27		5.82	72.39%
Dungeness Crab	9.1	9.1	9.1	0.0	0.0	0.95	0.06	0.01	1.36		0.09	109.71%
King Crab	72.7	45.5	36.4	36.4	9.1	163.09	10.87	2.30	70.91		4.73	83.48%
Unknown King Crab	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tanner Crab	18.2	18.2	18.2	0.0	9.1	24.00	1.60	0.34	15.00		1.00	79.87%
Tanner Crab, Bairdi	18.2	18.2	18.2	0.0	9.1	24.00	1.60	0.34	15.00		1.00	79.87%
Unknown Tanner Crab	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Crab	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Geoducks	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Jingles	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Jingles	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Limpets	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Mussels	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Unknown Mussels	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Octopus	100.0	90.9	81.8	36.4	45.5	196.36	13.09	2.77	49.09		3.27	24.97%
Scallops	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Weathervane Scallops	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Sea Cucumber	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Sea Urchin	81.8	81.8	81.8	36.4	36.4	126.14	8.41	1.78	252.27	GAL	16.82	57.85%
Shrimp	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	LBS	0.00	0.00%
Snails	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Vegetation	90.9	90.9	90.9	27.3	54.5	305.45	20.36	4.31				23.31%
Berries	81.8	81.8	81.8	0.0	45.5	294.55	19.64	4.15	73.64	GAL	4.91	23.51%
Plants/Greens/Mushrooms	9.1	9.1	9.1	0.0	0.0	10.91	0.73	0.15	2.73	GAL	0.18	109.71%
Seaweed/Kelp	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Seaweed	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Wood	72.7	63.6	63.6	27.3	36.4	0.00	0.00	0.00	58.64	CORD	3.91	44.35%

Note: Harvest amount in individual units unless otherwise specified.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table VII-3. Subsistence Harvests in Pounds Usable Weight per Person by Resource Category, Akhiok

	Pounds per Person				
	1982	1986	1989	1992	2003
Salmon	237.9	111.3	110.0	199.5	96.3
Other Fish	29.5	7.1	59.4	24.4	23.7
Land Mammals	41.3	31.2	29.2	28.1	21.6
Marine Mammals	153.3	1.5	45.6	19.4	12.0
Birds & Eggs	13.4	0.4	7.8	3.5	1.6
Marine Invertebrates	44.1	10.0	44.5	42.1	25.3
Wild Plants	*	1.0	1.2	4.7	4.3
All Resources	519.5	162.4	297.7	321.7	184.7

* Data not collected for 1984.

SOURCE: Scott et al. 2001; Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table VII-4. Composition of Resource Harvests by Resource Category, Akhiok

	Percentage of Total Harvest				
	1984	1986	1989	1992	2003
Salmon	45.8%	68.5%	37.0%	62.0%	52.1%
Other Fish	5.7%	4.3%	20.0%	7.6%	12.8%
Land Mammals	7.9%	19.2%	9.8%	8.7%	11.7%
Marine Mammals	29.5%	0.9%	15.3%	6.0%	6.5%
Birds & Eggs	2.6%	0.2%	2.6%	1.1%	0.9%
Marine Invertebrates	8.5%	6.2%	15.0%	13.1%	13.7%
Wild Plants	*	0.6%	0.4%	1.5%	2.3%

* Data not collected for 1984.

SOURCE: Scott et al. 2001; Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

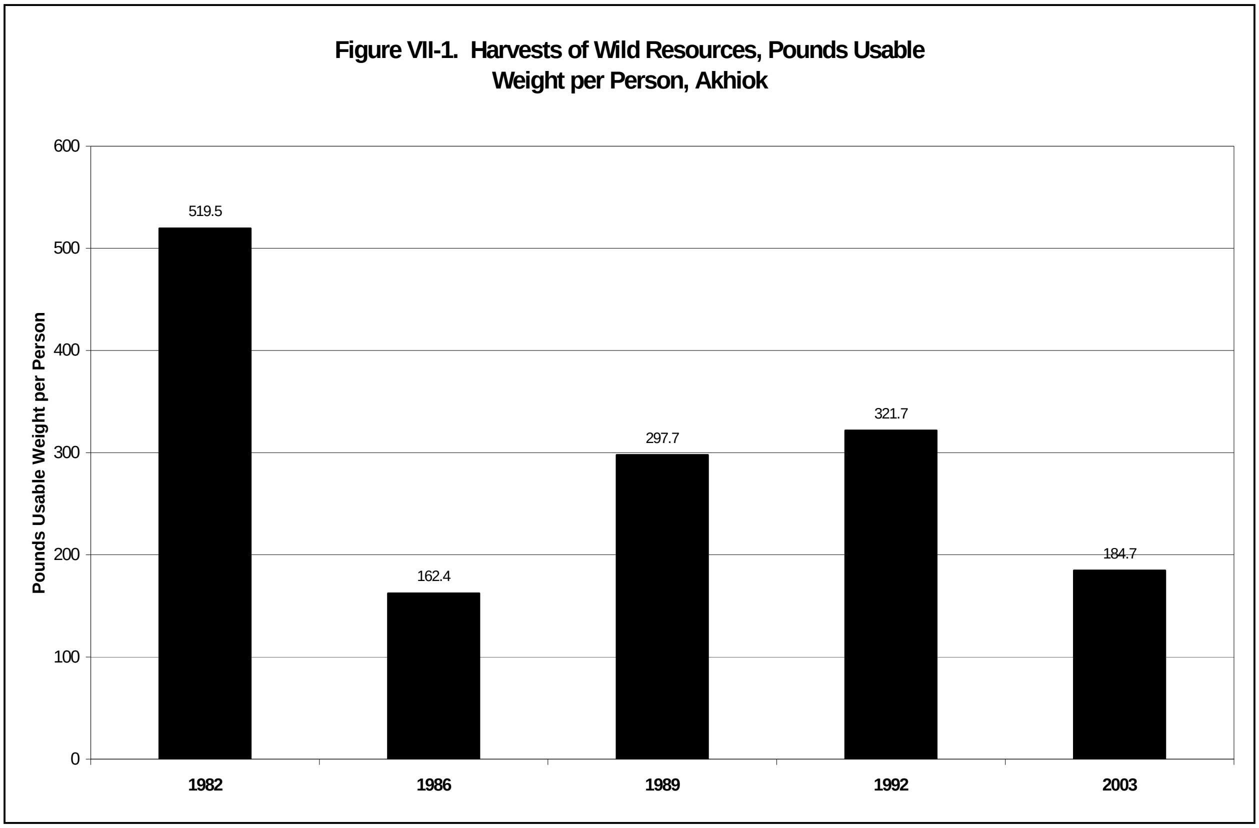


Figure VII-1. Harvests of Wild Resources, Pounds Usable Weight per Person, Akhiok
Pounds Usable Weight per Person
600
500
400
300
200
100
0
519.5
162.4
297.7
321.7
184.7
1982
1986
1989
1992
2003

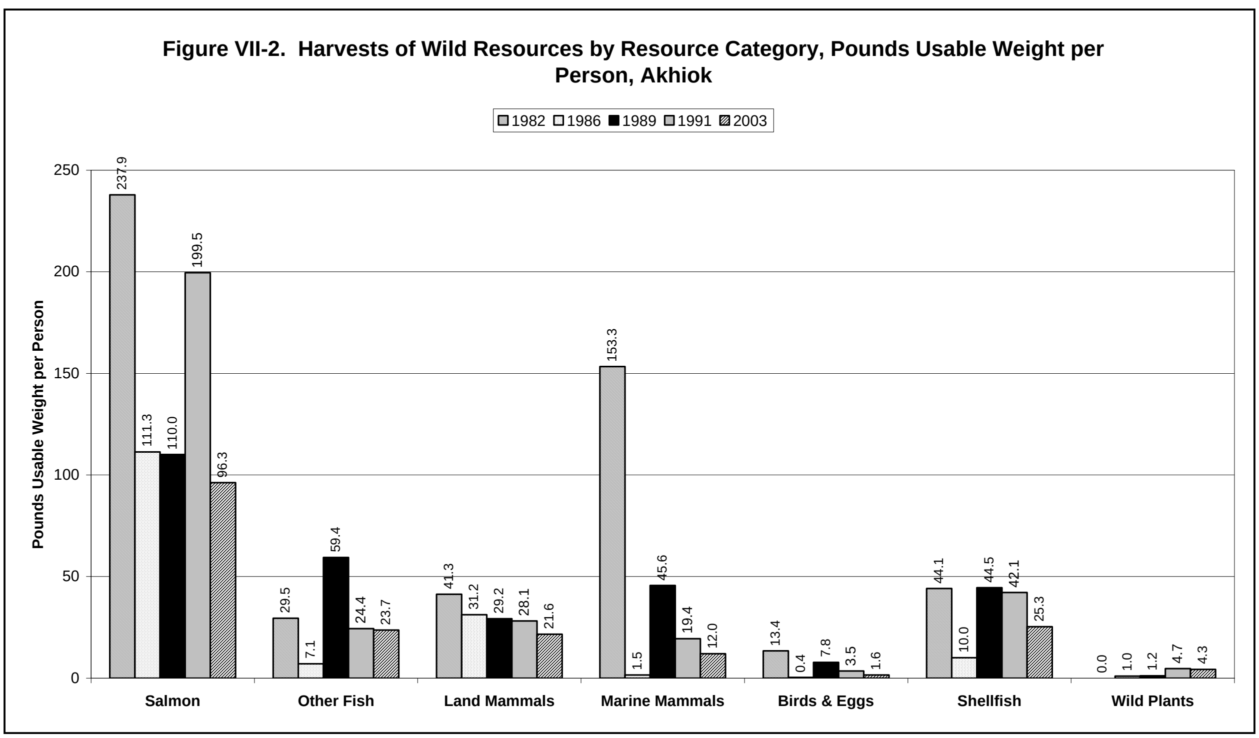


Figure VII-2. Harvests of Wild Resources by Resource Category, Pounds Usable Weight per Person, Akhiok
1982 1986 1989 1991 2003
Pounds Usable Weight per Person
250
200
150
100
50
0
237.9
111.3
110.0
199.5
96.3
29.5
7.1
59.4
24.4
23.7
41.3
31.2
29.2
28.1
21.6
153.3
1.5
45.6
19.4
12.0
13.4
0.4
7.8
3.5
1.6
44.1
10.0
44.5
42.1
25.3
0.0
1.0
1.2
4.7
4.3
Salmon
Other Fish
Land Mammals
Marine Mammals
Birds & Eggs
Shellfish
Wild Plants

Table VII-5. Estimated Salmon Harvest by Gear Type, Akhiok 2003 Study Year

Resource	Removed From Commercial Catch			Subsistence Methods								
				Setnet			Seine			Drift Gillnet		
	Amount	Pounds	HH Mean	Amount	Pounds	HH Mean	Amount	Pounds	HH Mean	Amount	Pounds	HH Mean
Salmon	13.6	50.4	3.4	1460.5	6088.7	405.9	115.9	355.6	23.7	0.0	0.0	0.0
Chum Salmon	0.0	0.0	0.0	40.9	216.8	14.5	20.5	108.4	7.2	0.0	0.0	0.0
Coho Salmon	0.0	0.0	0.0	233.2	1340.8	89.4	0.0	0.0	0.0	0.0	0.0	0.0
Chinook Salmon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pink Salmon	2.7	7.1	0.5	129.5	335.5	22.4	95.5	247.2	16.5	0.0	0.0	0.0
Sockeye Salmon	10.9	43.3	2.9	1056.8	4195.6	279.7	0.0	0.0	0.0	0.0	0.0	0.0

Resource	Subsistence Methods						Rod & Reel			Any Method		
	Other			Any Method								
	Amount	Pounds	HH Mean	Amount	Pounds	HH Mean	Amount	Pounds	HH Mean	Amount	Pounds	HH Mean
Salmon	27.3	70.6	4.7	1603.6	6515.0	434.3	53.2	260.0	17.3	1670.5	6825.3	455.0
Chum Salmon	0.0	0.0	0.0	61.4	325.2	21.7	0.0	0.0	0.0	61.4	325.2	21.7
Coho Salmon	0.0	0.0	0.0	233.2	1340.8	89.4	32.7	188.2	12.5	265.9	1529.0	101.9
Chinook Salmon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pink Salmon	27.3	70.6	4.7	252.3	653.4	43.6	6.8	17.7	1.2	261.8	678.1	45.2
Sockeye Salmon	0.0	0.0	0.0	1056.8	4195.6	279.7	13.6	54.1	3.6	1081.4	4293.0	286.2

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table VII-6. Percentage of Households Harvesting Salmon by Gear Type and Species, Akhiok, 2003

RESOURCE	Removed From Commercial Catch	Subsistence Methods				Subsistence Gear Any Method	Rod & Reel	Any Method
		Setnet	Seine	Drift Gillnet	Other			
Salmon	9.1%	81.8%	18.2%	0.0%	9.1%	81.8%	36.4%	100.0%
Chum Salmon	0.0%	36.4%	9.1%	0.0%	0.0%	45.5%	0.0%	45.5%
Coho Salmon	0.0%	45.5%	0.0%	0.0%	0.0%	45.5%	27.3%	63.6%
Chinook Salmon	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Pink Salmon	9.1%	27.3%	9.1%	0.0%	9.1%	45.5%	9.1%	63.6%
Sockeye Salmon	9.1%	81.8%	0.0%	0.0%	0.0%	81.8%	9.1%	90.9%

Source: Alaska Department of Fish and Game, Division of Subsistence Household Surveys 2004

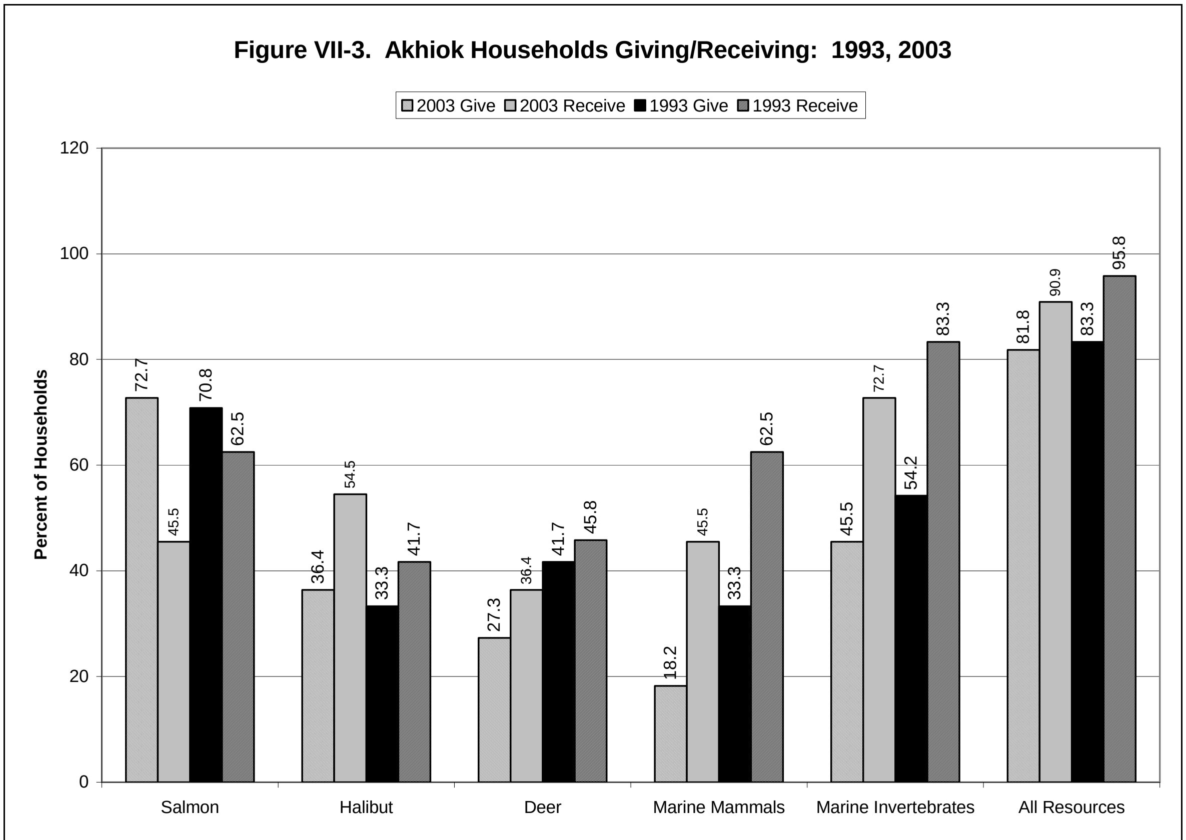


Figure VII-3. Akhiok Households Giving/Receiving: 1993, 2003
2003 Give
2003 Receive
1993 Give
1993 Receive
Percent of Households
0
20
40
60
80
100
120
72.7
45.5
70.8
62.5
36.4
54.5
33.3
41.7
27.3
36.4
41.7
45.8
18.2
45.5
33.3
62.5
45.5
72.7
54.2
83.3
81.8
90.9
83.3
95.8
Salmon
Halibut
Deer
Marine Mammals
Marine Invertebrates
All Resources

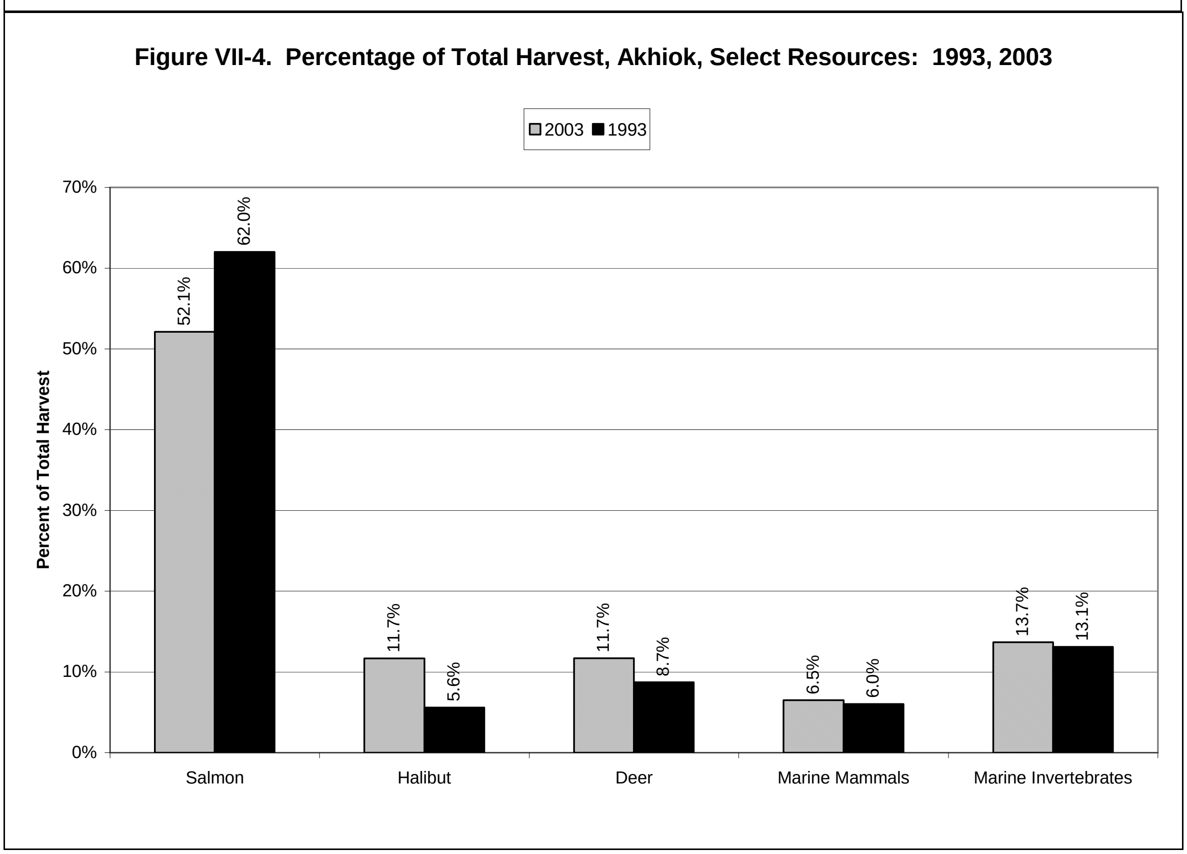


Figure VII-4. Percentage of Total Harvest, Akhiok, Select Resources: 1993, 2003
2003
1993
Percent of Total Harvest
0%
10%
20%
30%
40%
50%
60%
70%
52.1%
62.0%
11.7%
5.6%
11.7%
8.7%
6.5%
6.0%
13.7%
13.1%
Salmon
Halibut
Deer
Marine Mammals
Marine Invertebrates

CHAPTER VIII: KARLUK

By

James A. Fall

COMMUNITY BACKGROUND

Community History

Karluk is located along Shelikof Strait on the west side of Kodiak Island. Archaeological research has documented settlements around the mouth of the Karluk River that were occupied for thousands of years. During the Russian colonial period, Karluk was the site of a fort and trading post. Beginning in 1878, several canneries operated at Karluk and it became a seasonal center of commercial fishing and processing. By 1911, the salmon runs had declined and Karluk residents began moving to Larsen Bay. Karluk's population has been in steady decline since the 1930s (Mason and Fall 1995:1).

Demography

In early 2004, there were 15 Karluk households occupied year-round with an estimated population of 36 people (see Table I-8 and Table VIII-1). This is a decline from 71 people estimated for 1990, but slightly higher than the 27 people in 9 households reported by the federal census for 2000. There is currently no operational school in Karluk because the community does not have the state required minimum of 10 students.

SUBSISTENCE RESOURCE HARVESTS AND USES

Harvest data collected during the household interviews conducted for this project were too incomplete to use to develop harvest estimates for the community. Alaska Department of Fish and Game (ADF&G)S project personnel requested, but not did receive, a written explanation from the local research assistant for the reluctance on the part of virtually every interviewed person to provide harvest data. Survey comments suggested a perception by Karluk residents that in recent years, commercial fishery openings have interfered with subsistence fishing. This perception may be why Karluk residents were reluctant to discuss their harvest quantities. Table VIII-2 and Table VIII-3 (see also Fig. VIII-1 and Fig. VIII-2) summarize harvest data for Karluk for five study years between 1982 and 1991. Subsistence harvests dropped substantially in 1989, the year of the *Exxon Valdez* oil spill, compared to pre-spill averages, and rebounded somewhat in 1990 and 1991. In all study years, salmon has been by far the largest component of Karluk's subsistence harvests, as estimated in pounds usable weight, from about 66% of the total in 1986 to 77% of the total in 1989.

Although they provided little quantified data, all seven (of 15; 46.7%) Karluk households that were interviewed about 2003 subsistence harvests said that overall, their harvests in 2003 were lower than five years before. For 66.7% of Karluk respondents, harvests were down for salmon, but most (75% with lower uses) did not provide a reason for this decline. A quarter said access was the problem (see Tables A-1 to A-27). (Karluk was not part of the 1998 study, so comparisons with assessments or harvests from that year are not possible.)

Sixty percent of the interviewed Karluk households said that subsistence harvests in 2003 were lower than before the oil spill, and 40.0% said that harvests were about the same (see Tables A-28 to A-57). No households with lower uses provided explanations for the change. Also, 60.0% of Karluk households reported lower uses of at least one resource category in 2003 compared to before the spill. Of these, 82.9% linked the change to the oil spill, but the only specific explanations given were changes in resource condition (20.0% of those with oil spill-linked reasons for lower uses of any resource) and resource access issues (20.0%).

NATURAL RESOURCE CONDITIONS

Food Safety

Every interviewed household in Karluk said that clams are not safe to eat (see Table A-458). All of these households pointed to paralytic shellfish poisoning (PSP) as the reason clams are unsafe; no one mentioned oil spill contamination (see Table A-459). Most Karluk households expressed uncertainty about the safety of eating herring (see Table A-462) but this may have been due to their unfamiliarity with the resource: all those who expressed an opinion about herring said they are safe (33.0%). Most Karluk households said that chitons (see Table A-460) and seals (see Table A-464) are safe, 86% for each resource. All Karluk households commented on the problem of PSP and marine invertebrates. In 1997, Karluk lost an elder to PSP and undoubtedly this tragic event left a serious impression about the deadliness of PSP.

Status of Resource Populations

Karluk survey respondents were asked to assess the availability of 18 resources to harvest in 2003 compared to five years before. The responses are reported in Tables A- 84 to A-455 (see also Chapter XVII ,Table XVII-6.) All Karluk households that responded reported less clams, Dungeness crab, octopus, sea urchins, and sea ducks. A majority reported less coho salmon, Chinook salmon, sockeye salmon, halibut, harbor seal, chitons, deer, and plants and berries.

No interviewed Karluk respondent said that subsistence resources have recovered since the oil spill: 66.7% said that recovery has not taken place (see Table A-82). No respondents in Karluk offered any suggestions about how to aid in the recovery of subsistence resources (see Table A-83). One household suggested that there should have been more post-oil spill clean up work on Karluk beaches.

Habitat Changes

Sixty percent of Karluk respondents reported that they have observed or are aware of changes to the habitats of subsistence resources, and 40.0% said they have not (see Table A-456). All the reported changes were in the “Habitat Protection/Improvement” category (see Table A-457). Two households observed that there appeared to be too much sea grass in Karluk Lagoon.

Food Purchases

Two-thirds of Karluk respondents (66.7%) said they had to buy subsistence foods because they did not obtain them from their own harvests or from sharing (see Table A-475). Respondents said that management/regulations and competition prevented or limited these harvests (see Table A-476). Likewise, 83.3% of Karluk respondents said they purchased non-subsistence foods, such as beef or chicken, as substitutes for subsistence foods they could not obtain (see Table A-477). Management/regulations and competition were again the reasons cited for the need to buy substitute foods (see Table A-478). Several households said they had to buy meat and berries from stores to replace deer and wild berries because there was not enough to harvest in Karluk.

Sharing of Subsistence Resources

Two-thirds of the survey respondents in Karluk stated that sharing of subsistence resources has declined since 1998 (see Table A-472). This was the highest negative response to this question from any community. About 17% said sharing has increased and 17.0% said sharing has remained about the same. Environmental and personal reasons were offered for why sharing has declined (see Table A-474). Three Karluk households said there were not enough subsistence resources available to harvest, hence there was not enough to share.

Young Adults' Involvement in Subsistence Activities

Only 14.3% of survey respondents in Karluk expressed that youth in their community were learning adequate subsistence skills; 85.7% said they are not (see Table A-466). This was the highest negative response to this question from any community. "Lack of teachers" was the prevailing explanation for why youth are not learning about subsistence (66.7%) (see Table A-467). As noted earlier, there is no operational school in Karluk. Several Karluk residents said that subsistence skills were not being passed to youth because there are hardly any youth in Karluk and there are no elders to teach them.

Elders' Influence

Every interviewed Karluk respondent said that elders' influence in teaching subsistence skills has declined over the last five years (see Table A-469). This was the highest negative response to this question from any community. The reasons given by most (85.7%) of the respondents were "demographic," essentially that the community has no elders. The population profile based on the household interviews presented in Table VIII-1, shows no resident of Karluk above the age of 59 years. The federal census for 2000 reported two people above age 65 living in Karluk. Several Karluk households said all the Karluk elders had passed away and there were no elders around to teach subsistence skills to youth.

Status of Traditional Way of Life

When asked if the oil spill affected the traditional way of life in their community, 83.3% of Karluk respondents said yes and the remainder did not know (see Table A-479). Sixty percent of those who said the traditional way of life was affected reported that recovery has not taken place, and the rest were not sure about the status of recovery (see Table A-480). Recommendations for supporting the recovery included “respond to social disruptions” and “create jobs and new sources of income” (see Table A-481).

EVALUATION OF THE GEM PROGRAM

No person interviewed in Karluk felt adequately informed about the Gulf Ecosystem Monditory Program (GEM) (see Table A-482). Newsletters and more meetings were suggested ways to improve communication about the GEM program to Karluk residents (see Table A-483). Likewise, everyone who was surveyed in Karluk said that their traditional council is not adequately involved in GEM/Trustee Council research and monitoring programs (see Table A-484). The only suggestions for improving this situation concerned improving communications (see Table A-485). Almost all Karluk households said they would like EVOS Trustee Council staff to visit the community in person and meet face to face with residents.

DISCUSSION AND CONCLUSIONS

Because of the incomplete data on subsistence harvests and the low overall sample size, it is not possible to reach any strong conclusions about the status of subsistence uses and the values they support in Karluk. Nevertheless, some themes are evident from the available information. Most Karluk respondents appear to believe that subsistence harvests and uses in their community are declining, including harvests and uses of salmon, the primary subsistence resource for the community. A large majority of Karluk respondents said that the availability of many important subsistence foods is declining. No respondents thought that clams, an important traditional food, are safe to eat. Unlike almost all other study communities, the prevailing view in Karluk is that sharing of subsistence foods is also on the decline. Furthermore, most believe that youth are not learning about subsistence and there are few or no elders in the community to teach them. The continuing population loss raises serious questions about the future of this community.

Table VIII-1. Population Profile, Karluk, 2003 Study Year

AGE	MALE			FEMALE			TOTAL		
	Number	Percent	Cum. Percent	Number	Percent	Cum. Percent	Number	Percent	Cum. Percent
0 - 4	0.00	0.00%	0.00%	0.00	0.00%	0.00%	0.00	0.00%	0.00%
5 - 9	4.29	20.00%	20.00%	0.00	0.00%	0.00%	4.29	11.11%	11.11%
10 - 14	4.29	20.00%	40.00%	2.14	12.50%	12.50%	6.43	16.67%	27.78%
15 - 19	0.00	0.00%	40.00%	0.00	0.00%	12.50%	0.00	0.00%	27.78%
20 - 24	0.00	0.00%	40.00%	0.00	0.00%	12.50%	0.00	0.00%	27.78%
25 - 29	8.57	40.00%	80.00%	2.14	12.50%	25.00%	10.71	27.78%	55.56%
30 - 34	2.14	10.00%	90.00%	2.14	12.50%	37.50%	4.29	11.11%	66.67%
35 - 39	0.00	0.00%	90.00%	4.29	25.00%	62.50%	4.29	11.11%	77.78%
40 - 44	0.00	0.00%	90.00%	2.14	12.50%	75.00%	2.14	5.56%	83.33%
45 - 49	0.00	0.00%	90.00%	2.14	12.50%	87.50%	2.14	5.56%	88.89%
50 - 54	2.14	10.00%	100.00%	0.00	0.00%	87.50%	2.14	5.56%	94.44%
55 - 59	0.00	0.00%	100.00%	2.14	12.50%	100.00%	2.14	5.56%	100.00%
60 - 64	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
65 - 69	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
70 - 74	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
75 - 79	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
80 - 84	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
85 - 89	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
90 - 94	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
95 - 99	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
100+	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
Missing	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
TOTAL	21.43	55.56%		17.14	44.44%		38.57		

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table VIII-2. Subsistence Harvests in Pounds Usable Weight per Person by Resource Category, Karluk

	Pounds Per Person					
	1982	1986	1989	1990	1991	2003[a]
Salmon	582.5	254.9	196.7	293.1	192.2	
Other Fish	100.7	42.4	14.1	50.8	30.0	
Land Mammals	66.6	45.2	27.4	30.5	29.8	
Marine Mammals	89.3	25.4	5.6	5.3	0.9	
Birds & Eggs	11.2	2.9	3.7	3.0	1.1	
Marine Invertebrates	12.9	12.5	5.2	12.9	4.3	
Wild Plants[b]		1.9	2.2	6.1	10.3	
All Resources	863.1	385.2	254.9	401.6	268.7	

[a] Insufficent data were collected during the household surveys for 2003 to develop harvest estimates.

[b] Data was not collected for 1982.

SOURCE: Scott et al. 2001; Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table VIII-3. Composition of Resource Harvests by Resource Category, Karluk

	Percentage of Total Harvest					
	1984	1986	1989	1990	1991	2003[a]
Salmon	67.5%	66.2%	77.1%	73.0%	71.5%	
Other Fish	11.7%	11.0%	5.5%	12.6%	11.2%	
Land Mammals	7.7%	11.7%	10.8%	7.6%	11.1%	
Marine Mammals	10.3%	6.6%	2.2%	1.3%	0.3%	
Birds & Eggs	1.3%	0.7%	1.5%	0.7%	0.4%	
Marine Invertebrates	1.5%	3.2%	2.0%	3.2%	1.6%	
Wild Plants[b]		0.5%	0.9%	1.5%	3.8%	

[a] Insufficent data were collected during the household surveys for 2003 to develop harvest estimates.

[b] Data was not collected for 1982.

SOURCE: Scott et al. 2001; Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

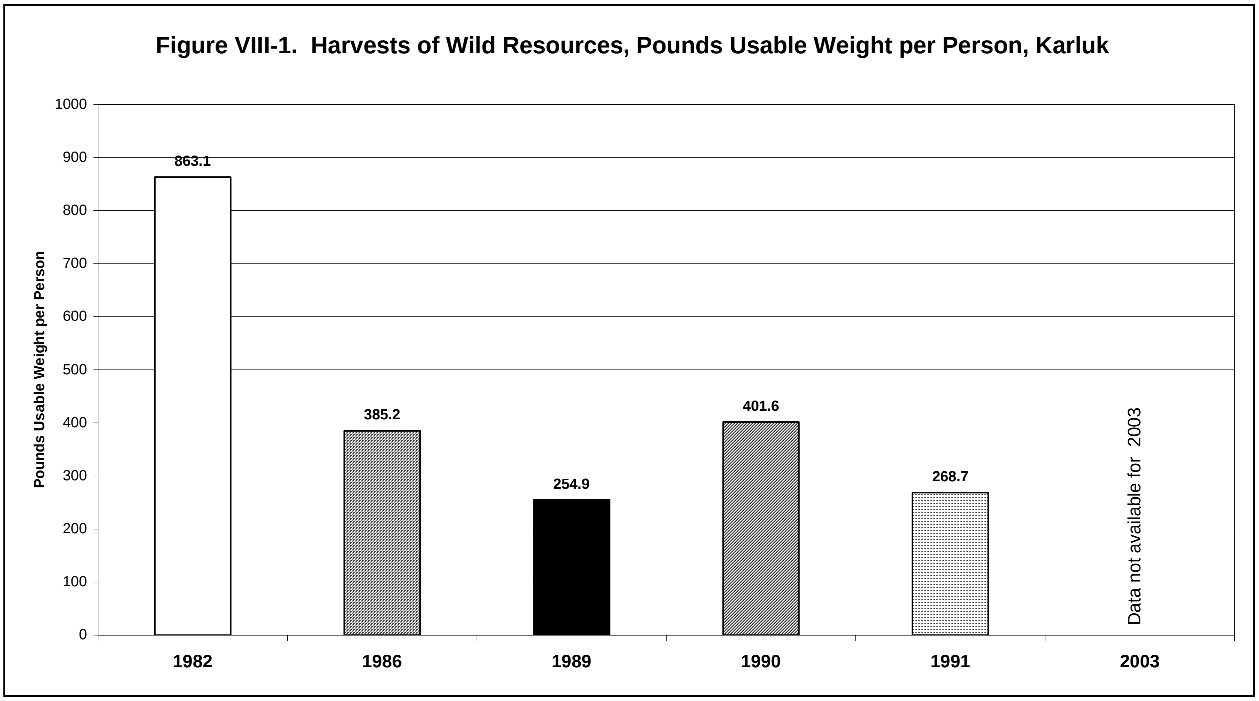


Figure VIII-1. Harvests of Wild Resources, Pounds Usable Weight per Person, Karluk
Pounds Usable Weight per Person
1000
900
800
700
600
500
400
300
200
100
0
863.1
385.2
254.9
401.6
268.7
Data not available for 2003
1982
1986
1989
1990
1991
2003

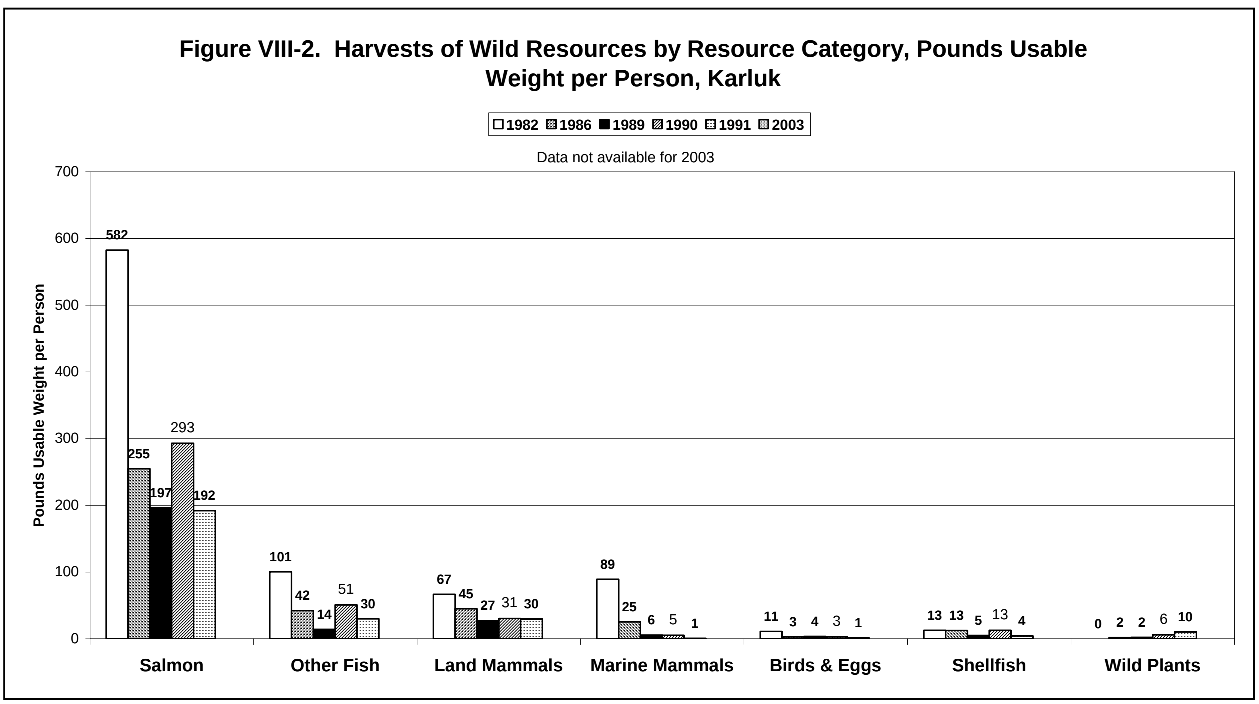


Figure VIII-2. Harvests of Wild Resources by Resource Category, Pounds Usable Weight per Person, Karluk
1982 1986 1989 1990 1991 2003
Data not available for 2003
Pounds Usable Weight per Person
700
600
500
400
300
200
100
0
582
255
197
293
192
101
42
14
51
30
67
45
27
31
30
89
25
6
5
1
11
3
4
3
1
13
13
5
13
4
0
2
2
6
10
Salmon
Other Fish
Land Mammals
Marine Mammals
Birds & Eggs
Shellfish
Wild Plants

CHAPTER IX: LARSEN BAY

by

Brian Davis

COMMUNITY BACKGROUND

Community History

The community of Larsen Bay is located on the west side of Kodiak Island, on the shore of Larsen Bay, which is a small inlet near the mouth of the larger Uyak Bay (Fig. I-1). The average temperatures in Larsen Bay are slightly higher than they are in Kodiak City, and there is less rain and fog during the summer. Otherwise, the community shares the relatively mild climate of the Kodiak Archipelago. The community is not on the Kodiak Island road system and may be reached only by water or by air.

Demography

Alaska Department of Fish and Game (ADF&G), Division of Subsistence staff, assisted by a local research assistant, conducted 25 household surveys in Larsen Bay, representing 80.6% of the 31 full-time resident households in the community in 2003 (see Table I-8). All community estimates (population, average age, harvest quantities, etc.) are expanded figures that apply the findings from those households surveyed to those that were not surveyed.

The estimated population of Larsen Bay in 2003 was 60 people. As stated above, there were 31 households living in Larsen Bay during the survey period. The average household population was only 2.0 people, the lowest of any study community (see Table I-8). This may have been the result of families with children moving from the community, leaving a population that was more elderly and without children living at home.

Larsen Bay had a population that is older than many of the communities participating in this project. The average age of Larsen Bay residents in 2003 was 39.6 years, the highest for any community in the study. People aged 14 years and under constituted 20.4% of the total population, while 14.3% were aged 60 years and over (see Table IX-1). The percentage of young people was only relatively low compared to other communities in this study (on par with Chignik Lagoon, and not as low as Chignik Bay or Port Graham), but the percentage of elders was the highest of any community.

Larsen Bay's total population decreased over the years leading up to this study (Fig. IX-3): 1990, 147 people (44 households); 1992, 156 (43 households); 1993: 136 (42 households); 1994:129 (49 households); 2000: 115 (40 households); 2003: 61 (31 households). The Alaska State Demographer's estimate for 2003 is 96 people. Using the estimate from the Division of Subsistence research, between 1990 and 2003 Larsen Bay lost approximately 69% of its population, and the number of households decreased between 1994 and 2003 by about 37%. The average size of Larsen Bay households has also decreased, from 3.9 people in 1982, 3.6 people in 1992, 3.2 in 1993, 2.7 in 1994, to only 2.0 in 2003.

As the overall population and the average household size diminished, the average age of the population increased. In 1992 the average age was 25.9, in 1993 it increased to 26.3, and in

1994 it was 28.5; in 2003 the estimated average age was 39.6 years, up 28.2% from the 1994 estimate. Another indicator of an "aging" population is the relative percentage of young people in the community. The percentage of the population aged 14 years and younger decreased steadily over the years. For 1992, 1993, and 1994, this percentage decreased from 36.2%, to 35.8%, to 32.1%, and in 2003 this group of young people only made up 20.0% of the population. These observations point to a unique demographic situation that has emerged in Larsen Bay. The population decreased dramatically, and those who remained were increasingly older, with fewer people per household and fewer young people overall. The relationship between changing demographics and changing subsistence patterns is an important and recurring frame of reference for this chapter.

Economic Overview

Larsen Bay households in 2003 earned an estimated $31,800 based on per capita estimates made by the Alaska State Department of Labor, multiplied by the average household size generated in this project. In 1991 the Division of Subsistence estimated the average household income at $29,536. This is an estimated increase of only 7.7% over 12 years, which may indicate a general decrease in purchasing power in the community.

SUBSISTENCE RESOURCE HARVESTS AND USES

Participation In Hunting, Fishing, and Gathering Activities

In Larsen Bay, 28 of 31 households (90.3%) participated in subsistence hunting, fishing, and gathering of at least one resource. One hundred percent of households used at least one subsistence resource, whether it was obtained through harvest or sharing. The average household harvested 4.7 resources in 2003 and used 7.9 resources (see Table I-10). Ninety-six percent attempted to harvest at least one resource, and 92.0% were successful (see Table I-10 and Table IX-2). Every household used at least 3 resources, and the maximum number of resources used by a single household was 19 (see Table I-10).

Table IX-2 shows the subsistence resources harvested, and the percentage of the households in the community that reported harvesting them. Seventy-two percent of households harvested berries, more than any other resource. Halibut were harvested by 48.0% of households. Sockeye salmon, the most heavily harvested resource in terms of pounds, were harvested by 44.0% of households.

In addition to household-level measures, the study estimated the percentage of individuals in each community that participated in subsistence activities such as hunting, fishing, trapping, and gathering wild plants. Table I-9 shows that 71.4% of individuals in Larsen Bay attempted to harvest at least one resource, and that 28.6% did some hunting, and 55.1% did some fishing in 2003. Gathering plants was also a popular activity, with 57.1% of individuals participating.

Resource Harvest Quantities and Harvest Composition

The overall estimated harvest of wild resources by Larsen Bay households totaled 20,639.2 pounds of usable food. The average household harvested 665.8 pounds, and the per capita harvest was 326.4 pounds. In total, 29 different resources were harvested by Larsen Bay households, and 37 different resources were used, including those received from outside the community, ranging from berries to butter clams to brown bear (see Table IX-2).

By resource category, the bulk of the 2003 harvest was salmon, which contributed a total of 11,443.7 pounds, or 181.0 pounds per person (see Table IX-3, Fig. IX-2). This quantity of salmon was 55.5% of the community's harvest of all resources (see Table IX-4), and of the salmon harvest, approximately 73% was sockeye. The other resource categories, their estimated per capita harvests, and their percentages of the total resources harvested are as follows: non-salmon fish, 57.1 pounds (17.5%); marine invertebrates, 50.6 pounds (15.5%); land mammals, 18.9 pounds (5.8%); vegetation, 15.8 pounds (4.9%); marine mammals, 2.2 pounds (0.7%); and birds and eggs, 0.8 pounds (0.2%) (see Table IX-4).

The seven specific resources that were most harvested included: sockeye salmon, 131.2 pounds (40.2%); halibut, 40.8 pounds (12.5%); coho salmon, 37.5 pounds (11.5%); butter clams, 23.7 pounds (7.3%); tanner crab, 21.3 pounds (6.5%); deer, 18.6 pounds (5.7%); and various berry species, 15.8 pounds (4.8%).

Larsen Bay residents used several types of gear to harvest salmon. "Subsistence" gear is one category, which includes nets such as beach seines and set gill nets. Subsistence nets caught 6,235.3 pounds of salmon, that was 54.5% of the total salmon harvest (see Table IX-5) and 30.2% of all resource harvests.

Removing salmon from commercial catches was also an important method for getting subsistence fish; 2,633.4 pounds of salmon (23.0% of the salmon harvest) came from this method. Rod and reel gear was used to harvest 2,574.8 pounds, or 22.5% of the total salmon harvest (see Table IX-5).

Table IX-6 shows the participation rates of Larsen Bay households in each method of salmon harvest. Over half of Larsen Bay households (56.0%) harvested salmon using at least one of these methods. The most popular method was rod and reel, with 28.0% of households using this method (this method also contributed the least amount to the total salmon harvest). Subsistence nets were used by 24.0% of the households, and removing salmon from commercial catches was practiced by 20.0% of households.

The most important non-salmon fish, by weight, was halibut. Forty-eight percent of Larsen Bay households harvested halibut in 2003, and 76.0% of households reported using halibut (see Table IX-2). The per capita harvest of non-salmon fish was 57.1 pounds (Fig. IX-2), and of that, halibut contributed 40.8 pounds. Other fish in this category, and their per capita contributions, included red and black rockfish (a combined total of 7.5 pounds), gray cod (4.1 pounds), herring (3.5 pounds), steelhead (1.1 pounds), and Dolly Varden (0.3 pounds).

Thirty-six percent of Larsen Bay households harvested marine invertebrates in 2003 (see Table IX-2). They focused mainly on butter clams (23.7 pounds per capita) and tanner crab (21.3 pounds). Other species of shellfish included octopus (3.1 pounds), chitons (both red and black) (1.2 pounds), sea urchin (0.6 pounds), razor clams (0.3 pounds), King crab (0.2 pounds), and sea cucumber (0.2 pounds).

No sea lions were taken in 2003, and Larsen Bay hunters have very rarely taken these animals over the past 15 years (Wolfe 2000). However an estimated 2.4 individual harbor seals were harvested, providing 2.2 pounds of edible seal meat, organs, and fat per person (see Table IX-2). Only 12.0% of Larsen Bay households harvested birds and eggs in 2003. Overall the category contributed 0.8 pounds of food per capita (Fig. IX-2), with sea gull eggs being the most-harvested resource in that category (each person in Larsen Bay had about 0.5 pounds of sea gull eggs in 2003). Wild plants were harvested by 72% of Larsen Bay households, with approximately 15.8 pounds harvested per person. The edible portion of this harvest was comprised of only berries, although firewood was also collected.

Harvest Effort

Survey respondents were asked to compare the effort needed to harvest particular subsistence resources in 1998 with the effort expended in 2003. Overall, respondents indicated that the effort required to harvest resources in 2003 was the same as five years before. For example, when asked about any change in effort required to harvest salmon, 62.5% said it was about the same in 2003 as it had been in 1998 (see Table A-58); for non-salmon fish 80% said effort was the same (see Table A-61); and for birds and eggs, 100% of people who answered the question said that effort had not changed in that five-year period (see Table A-76).

A few households said that the effort required to harvest certain resources had changed between 1998 and 2003. These changes in effort, either "more" or "less", maybe due to several factors, including changes in competition for a resource, diminished abundance of a resource, and increased travel distance to a resource. The survey singled out these criteria, and respondents who said that their effort had changed were asked whether or not competition, abundance, or travel had contributed to the change. Blank space was allowed for other explanations, such as personal reasons relating to changing effort. The questions on effort were designed to capture the specific reasons why a household had to exert more or less effort to obtain a resource, beyond the simple fact that a resource may have become less or more available (i.e., if fewer salmon were available, effort to harvest them might not necessarily change). However, correlating changes in effort with a particular set of circumstances was complicated by the fact that individuals reacted differently to similar circumstances.

Effort to harvest Chinook salmon is a case in point (see Table A-58). Several respondents observed the same trend in Chinook salmon populations: decreases due to overharvest by commercial or charter fishers (see Table A-59). But the respondents' corresponding answers to the "effort" question differed: one said effort had remained the same in spite of the decreased numbers, one said that effort had increased as a direct result of the diminished population, and one said that effort had decreased because his fishing skills had increased (see Table A-60).

The key to understanding this variability lies in the fact that a singular condition placed on a resource, like decreasing numbers, may create different reactions in the amount of effort expended to harvest that resource. For example, several respondents said that increased competition for salmon had had an impact on the amount of effort they expended on harvesting those resources. Table A-59 shows that a small portion of the increased effort was caused by increased competition, but Table A-60 shows that for most of those respondents who observed an increase in competition, the result was that they expended less effort (an estimated 3.7 households). For some of these, increased travel distance was also noted as a reason for expending less effort. The interpretation of these results, and further comments by the respondents, revealed that when difficulties reach a certain level, people stop expending effort to harvest subsistence foods. In other words, it ceases to be worth the effort.

The majority of households said their effort to harvest subsistence foods had not changed between 1998 and 2003. However, some did say that their effort had changed. The examples discussed above show how a reduction in effort might correlate with a decrease in availability when the individual respondent decides to stop fishing because the effort is unproductive. It is true then to say that, despite the majority of respondents reporting no change in effort, subsistence harvests might indeed be suffering the effects of external factors such as competition, increased travel distance, and decreased resource abundance.

Comparisons of Harvest and Use With Other Years

In 2003, the average household harvested 665.8 pounds, and per capita harvest was 326.4 pounds. The per household measure indicated that harvests diminished 50% from those in 1994, but using the per capita measure (the Division of Subsistence standard measure) the decrease was only 28%. The difference in these measures reflected the shrinking size of Larsen Bay households, down from 2.7 in 1994 to 2.0 people in 2003. The trend is even more dramatic when these estimates are compared to the average household size in 1991, which was 3.6 individuals. Because of the great decrease in household size, and in the number of potential harvesters and users per household, the fairer unit for comparison should be the per capita harvest measure.

Figure IX-2 shows the per capita harvest estimates by resource category for eight previous study years, plus the 2003 results. The overall harvest (in pounds usable weight) for 2003, 326.4 pounds, was lower than the five previous study years, but slightly higher than three other years. By individual resource category, the harvests in 2003 were generally lower than the previous years. Land mammal, marine mammals, and birds and eggs were harvested at unprecedented low levels. Deer constitute nearly all of the land mammal harvest, and based on survey responses and independent sources (Healy 2003), it was the dramatic decline in deer populations that caused diminished subsistence harvests in 2003. Harvests of non-salmon fish were lower than most survey estimates made for the 1990s, except for the study year 1990–1991, the year after the *Exxon Valdez* oil spill. The increased harvest of non-salmon fish in that year may have been in compensation for the diminished salmon harvest levels.

Salmon and vegetation harvests were the exception. The salmon harvest was down slightly from the estimates made in the 1990s, but higher than the depressed levels immediately after the oil spill. This leveling-off of salmon harvests implies a leveling-off of salmon populations over the last five years or so, which is confirmed by the Larsen Bay responses to specific questions about salmon availability. Vegetation harvests were at an all time high in 2003, at 15.8 pounds per person.

An important measure in understanding a community's subsistence pattern is the number of resources used. This measure of subsistence diversity, or breadth, was down significantly in 2003 in Larsen Bay (see Table I-10). The average number of resources used per household was 7.9, down from an average of about 16.5 during the early 1990s. The most resources harvested by a single household in 2003 was 19, where between 1991 and 1994 it was about 40. Nine resources not harvested in 2003, that were harvested in 1994 and used by more than 5% of households included: flounder (10%), rainbow trout (15%), elk (7.5%), moose (32.5%), scoter (12.5%), black scoter (10.0%), white-winged scoter (7.5%), ptarmigan (10%), and limpets (7%). There were 15 resources used by 5% or less of households in 1994, and not used in 2003, including: sole, land otter, merganser, long-tailed ducks, canvasback, green winged teal, unknown ducks, unknown geese, parakeet auklet, pink neck clams, cockles, mussels, limpets, jingles, and shrimp. This represented a dramatic narrowing of the scope of natural resources used for subsistence.

Here, the changing demographics of the community likely affected the shrinking range of subsistence resources. The diminished number of total households, and the reduced number of possible hunters and fishers in those households, most likely resulted in the reduction in the number of resources harvested. Also, the increasing average age of the community probably affected the overall scope of the community's harvesting ability. A growing lack of hunting partners, lack of opportunity to go out on commercial fishing boats, and health problems associated with increasing age, meant community members probably found themselves with reduced access to things like moose, sea ducks, and elk. These changes in demographics caused real changes in the way the community accessed resources through cooperation and interdependence.

Despite the narrowing range of resources harvested from the 1990s to 2003, general participation rates are steady. These measures indicate the percentage of Larsen Bay residents that attempted to harvest resources, regardless of their success. For different activities in 2003, 30.0% of the individuals in the community attempted to hunt, 59.2% attempted to fish, 53.1% tried to gather plants, and 73.5% attempted to harvest any resource (see Table I-9).

Compared to other study years in 1991–1992, 1992–1993, and 1993–1994, individual participation in hunting remained about the same (28.6% in 2003, compared to 26.8% in 1991–1992, 27.5% in 1992–1993, and 32.1% in 1993–1994). Fishing increased to 55.1% (compared with 53.6%, 55.83%, 56.6%). Participation in plant harvesting is down just a little to 57.1% (from 60.1%, 59.2%, 65.1%), and the overall rate of participation remained about the same at 71.4% of households (compared to 68.8%, 75%, 76.4%).

Despite the continuity in attempts made to harvest resources, there were decreases in the success rates reported on the household level. Using the average percentage of households harvesting between 1991 and 1994, salmon were harvested by 69.0% of households, but only by 56.0% in 2003. The harvest of large land mammals (notably deer) declined from an average of 55.0% of households in the 1990s, to only 28.0% in 2003. Households harvesting non-salmon fish, such as halibut, declined from 65.0% to 56.0%. Households harvesting marine mammals went down from 19.0% to 4.0%, marine invertebrates went down from 79.0% to 36.0%, and birds and egg harvesting households decreased from 36.0% to 12.0% of households.

In addition, many resources were used by fewer households in 2003 than on average between 1991 and 1994. Using the average for the studies done in 1991–1992, 1992–1993, and 1993–1994, approximately 98.0% of Larsen Bay households used marine invertebrates, but in 2003 only 56.0% used them. Use of non-salmon fish decreased from 94.0% of households in the early 1990s, to 80.0% in 2003; large land mammal use declined from 88.6% of households to 84.0%; marine mammal use went from 36.4% to 24.0%; birds and eggs from 54.8% to 20.0%; and wild plants use declined from 80.0% to 72.0% of households.

The use of salmon, however, stayed roughly the same. During the early 1990s, 94.9% of households reported using salmon, and in 2003 that figure was 96.0%. This corresponds with the increase in salmon harvest poundage for 2003 (see above). These measures show the continuity of effort to harvest subsistence resources, but the decreasing success of those efforts by Larsen Bay households.

The difference between the community's success in harvesting a resource and the household rate of use for that resource is accounted for by the amount of sharing that goes on in the community. The households that used resources include households that were successful in their own harvests, as well as those that received resources from another household. Like harvest success rates, the amount of giving and receiving of resources is affected by a number of variables including the quantity of resource harvest and having enough to share with others while meeting one's own needs.

Salmon-fishing success decreased over the years in Larsen Bay. Between 1991 and 1994, an average of 69.0% of households harvested salmon. For 2003, that figure was only 56.0%, despite the relatively high per capita harvest levels in 2003. Along with decreasing participation a shift occurred in the methods used by Larsen Bay households to harvest salmon for home use. Over the years, removing salmon from the commercial catch was an important method for obtaining salmon for use in the home. Between 1991 and 1994, commercial harvest contributed an average of 15.7% of the total salmon catch yearly, and 7.3% of the combined harvest for all resources. In 2003, salmon retained from commercial harvests constituted 23.0% of all salmon harvests and 12.8% of all resource harvests combined. In 2003, subsistence methods contributed 54.5% of all the salmon harvested, and rod and reel methods accounted for 22.5% of salmon harvest (see Table IX-5).

This shift towards a dependence on commercially caught salmon is surprising considering the state of the industry on Kodiak Island. In the 10 years prior to this survey, the commercial fishery in Larsen Bay changed considerably. Figure IX-4 (CFEC 2005) shows the decreasing number of commercial fishing permit holders living in Larsen Bay, the decreasing number of permits actually fished, and the decreasing profitability of those permits (figures are compiled from fishing statistics for all species, not just salmon). With such dramatic changes in the primary industry of the community, one that was directly tied to its subsistence harvest, it is reasonable that there might have been some negative effect on the amount of salmon removed from commercial catches.

Between 1991 and 1994 there were, on average, 27 commercial permits being fished by Larsen Bay fishers, and the percentage of households that removed salmon from commercial catches for home use averaged 36.7%. In 2003 there were only 7 permits fished, and, correspondingly, there were fewer households that removed salmon from their commercial harvest (20.0%). With decreases in commercial-fishing activity and household participation in removing fish from commercial catch, it might be expected that this industry's overall contribution to subsistence would also decrease. However, despite this down-turn, the amount of salmon removed from commercial catches relative to other methods was actually higher in 2003 (Fig. IX-5).

The increase from the 1993–1994 figure necessarily caused changes in the relative contribution of the other two methods. The contribution of rod and reel fishing also rose in 2003 when compared to the average of harvests in 1991-1994. In 2003, this method represented 22.0% of the total salmon harvest, whereas in the early 1990s, it was only 13.0%. Subsistence methods were those that fell away while the others increased, diminishing in relative importance from an average contribution rate of 71.1% in the 1990s to 54.5% in 2003.

Changes in the commercial fishery, as well as in the composition and size of Larsen Bay's population, have had an effect on the way people access salmon. It is possible that decreasing profits in the commercial salmon fishery shifted the value of commercially-caught salmon away from sale to processors, and toward home use.

As the average age in Larsen Bay was increasing, the average household size shrunk, and the importance of rod and reel fishing rose. This method is less physically demanding (a fishing rod being easier to handle than a heavy subsistence seine). Similarly, with smaller households, the importance of family-cooperative methods, such as setting and pulling in seines, appears to have shifted down as the individualistic pursuit of salmon with a rod and reel increased.

The per capita harvest of salmon increased for 2003 regardless of the harvest methods. Based on the responses recorded in this study, the effectiveness of each method and the status of salmon populations are not called into question. People generally said that salmon were no more or less available in 2003 than they were in 1998.

NATURAL RESOURCE CONDITIONS

Food Safety

During this survey, Larsen Bay residents commented frequently on the subject of the safety of eating marine invertebrates in the aftermath of the oil spill. Many people have concerns about the long-term effects of oil contamination, including a strong fear of increased incidence of paralytic shellfish poisoning (PSP), in foods that they use—or once used—for subsistence. Despite these concerns, recorded as written comments on the survey forms, the responses to scripted questions, asking for people's impressions of food safety, did not result in any strong quantitative conclusions. Overwhelmingly, the questions about food safety resulted in "don't know" responses (see Tables A-458 to A-465). No households said that herring or seal were "unsafe to eat" in 2003 (see Tables A-462 to A-465), and only 4% said they believed chitons were unsafe (see Table A-460). An estimated 8% of Larsen Bay households said they think clams were unsafe to eat (see Table A-458), a finding discussed below in detail.

Other comments made during the survey identified other, specific concerns related to food safety. One person was concerned about brown bears eating trash, which made them inedible. One person said she believed that deer may be eating food contaminated by oil off the beach, which would then likely affect the deer meat. Another said that, the year of the oil spill, sockeye salmon had oil inside their bodies, and that the harvest had to be thrown away.

The main concern expressed by Larsen Bay residents was the effect of the spill on the safety of marine invertebrates for human consumption, and comparing the 2003 harvest with the 1994 harvest illustrates that growing concern. Households used some 11 marine invertebrate species in 2003, including butter clams, sea urchins, and chitons (see Table IX-2). No one reported eating mussels, cockles, steamer clams, limpets, jingles, or snails, resources that were harvested in 1994. These species are part of a longer list of resources not harvested or used in 2003. This narrowing of the range of subsistence resources was likely due, in part, to concerns about the possible presence of PSP contamination.

The "don't know" responses in Tables A-458 to A-465 were, in many cases, given by individuals who voiced sentiments, opinions, or fears that imply they were indeed concerned about the safety of eating clams from Larsen Bay beaches. Therefore, the 8% of households that said they believe clams were unsafe to eat were, more likely, closer to 20%, considering the number of "don't know" responses that later voiced their concerns quite clearly.

In Larsen Bay there existed a general attitude that PSP was somehow related to the environmental stress put on the intertidal and marine environments by the oil spill contamination. This connection was specifically stated by only one household, but the way many households discussed their concern with PSP, it was clear that many Larsen Bay residents make this connection.

Only three households said clams are not safe to eat (see Table A-458). One of those does not eat clams anymore, and implicated the oil spill for their concern, as well as for a perceived decrease in the clam population (see Table A-459). Another said that they believed clam populations were decreasing due to the spill, and while they were still eating clams, they were very concerned about PSP. A number of households said they do not eat clams any more because of a general fear of PSP not explicitly linked to the oil spill or any other specific observations of environmental disturbance.

One household testified that the cleanup of the oil near Larsen Bay was superficial, and that oil seeped into the beach sediments and is still there today. Despite these distressing observations, this household was not moved to respond to the food safety question for clams in the negative—they said they "don't know" about the safety of eating clams. This particular household did not dig clams themselves, but they received them and cleaned them carefully, mainly to avoid PSP contamination but potentially other contaminants as well.

In addition to these comments, several other people made mention of concern for oil contaminated beaches, and a desire to see the beaches tested by scientists for the continued presence of oil spill contamination and/or PSP. In light of these concerns and comments, the 8% of households who said clams were unsafe to eat (see Table A-458) should be viewed as an underestimate. A general sense of uncertainty resulted in the elimination of several marine invertebrate species from the 2003 harvest, and this uncertainty pervades Larsen Bay residents perceptions of the safety of their beaches. The pattern indicates that, by far, most people were reluctant to say positively that clams, or other foods, are safe or unsafe, although many individuals voiced their desire for more contaminants testing, for example, of beaches for PSP. The other concerns (salmon contamination, deer eating off of contaminated beaches) should also be taken seriously, even though the households that stated them explicitly were in the minority.

<u>Status of Resource Populations</u>

Based on their responses to survey questions, Larsen Bay residents indicated that the abundance of subsistence resources in their area was stable over the years 1998-2003. With some exceptions, most resources were judged to be as available for harvest as they had been in other recent years. Larsen Bay households, for the most part, believed resources were available at much the same levels in 2003 as they were five years before. For those who did notice a change in availability, the survey asked for their understandings of the reasons why this change was taking place. Those responses are shown in the tables referenced below. Unfortunately, these shed little light on possible explanations, and their lack of specificity may indicate that people did not feel comfortable elaborating or explaining their observations.

Most people said that salmon populations were stable and that they were not having problems getting the salmon they needed. Salmon availability was about the same in 2003 as it was in 1998, said approximately 70.0% of those who responded to the question (see Table A-111). There were some households that said salmon are less available, explaining that commercial fishing and the influx of guided and charter fishing boats into the area created an increase in competition, and was impacting resource populations (see Table A-113).

Of all the salmon species, the most concern was for Chinook salmon (see Table A-111). Approximately five households said that Chinook salmon were less available, citing competition as the main explanation (see Table A-113). The same concern was voiced for coho and sockeye, but by fewer households. Although several households said the competition was from "commercial" fishing pressure, it seems that some people also use that term for guided sportfishing, charter fishing, and fishing lodges. A few expressly used the word "lodges" in conjunction with "commercial fishing", so it is unclear exactly from where this competition is coming. Halibut and deer depletion were also ascribed to overharvesting by guided-sport operations, or “lodges”.

Some respondents saw a rise in salmon availability, saying that Chinook, pink, sockeye and chum salmon are actually more available in 2003 than they were in 1998 (see Table A-111). One respondent cited the management program of the Alaska Department of Fish and Game for the increasing pink salmon populations (see Table A-112).

Other interesting perspectives on salmon populations were recorded in people’s comments outside the scripted questions of this survey. One person said that, because people had avoided harvesting salmon for a period of time after the spill, the runs are now strong and numbers high. Someone else said that both pinks and cohos are depleted as a direct result of the spill. In general, however, Larsen Bay residents observed relative stability in salmon populations between 1998 and 2003.

For non-salmon fish, all the households that answered the question said that availability had stayed the same for halibut and rockfish populations in the area (see Table A-170). However, as stated above, at least one household complained that guided sportfishers were taking too many halibut around Larsen Bay. This is another example of one answer uncovering the true sentiments that were not evident in the response to another, related question (Larsen Bay had an inordinate amount of “don’t know” responses to all questions, see above).

Similarly, 84.6% of those who answered the question said that deer availability had remained the same (see Table A-279). The remaining responses for deer were equally divided between “more” and “less” available. A few respondents indicated that the deer population was being overhunted by guided sport hunters and lodge clients (see Table A-281). One said that there was a noticeable increase in guided sport hunters, then noted that the deer population in 2003 was exceptionally high.

For clams, 66.7% of valid responses said availability was the same, and 33.3% said they were less available (see Table A-226). As discussed above, there is plenty of indication that Larsen Bay residents held back their beliefs that clams have suffered from the oil spill, so it should be considered that at least some of the “don’t know” households did see a decrease in clam availability over recent years.

Most other marine invertebrates were judged to be “same” as they were in 1998 (see Table A-226). Sea urchins were the only example for which some respondents said the availability had increased: 20.0% of valid responses said they were more available due to environmental reasons (see Table A-227). The remaining responses for sea urchin were 60.0% the same and 20% less available. Those saying that sea urchins were less available in 2003 cited increased competition from sea otters as the main factor (see Table A-228).

Plant and berry resources were judged to be at levels close to or less than 1998. Table A-434 shows that 81.3% of the responses indicated that plant availability had remained the same, and 18.8% said it had decreased. Most of the “less available” responses were not followed up with an explanation (see Table A-435).

No detailed discussions about fish or animal populations took place during the surveys in Larsen Bay, nor were any recorded by the survey assistant. This is in contrast to the concerns in other communities, like those for caribou populations around Chignik Lake. The comments regarding the increased pressure from guided sport hunters on deer, and commercial and guided sport fishers on salmon, are the exception. The survey data do indicate at least some decrease in the availability of clams, Chinook salmon, and plants and berries, as well as others. In general, the residents of Larsen Bay did not observe much in the way of resource population changes between 1998 and 2003.

Habitat Changes

As with the resource availability questions, most people in Larsen Bay who answered this question said they have not seen any changes in habitat in their area. One person said that he was afraid of air pollution ("acid rain") contaminating the plant life. Other than that, there were no specific observations of habitat change, such as changes in the streams in which salmon spawn, or deer browse, or the beaches where clams live.

A single household said in their comments that there is still oil under the surface on the beaches around Larsen Bay, but no other respondents repeated this during the survey. It is possible that others had the same information but were reluctant to say so.

SOCIAL AND ECONOMIC CONDITIONS

Food Purchases

Most Larsen Bay respondents did not have to purchase subsistence foods in 2003; only five households (16.0%) said they did (see Table A-475). It is not known how common this practice is, or whether there is a system of customary trade, in which people exchange cash for subsistence foods. Ten households (33.0%) said they did have to buy store-bought food (not wild food) to replace subsistence foods, while the remaining 20 households said they did not have to resort to store-bought foods in 2003 (66.7%) (see Table A-477).

Sharing of Subsistence Resources

When asked for their impressions on changes in sharing activity between the period of 1998 and 2003, most people who answered the question believe that sharing remained mostly unchanged. Only people who lived in the community in 1998 as head of their existing household were included in the final tally of valid responses for this question. Of those, 77.3% said that sharing had remained the same, 13.6% said it had decreased, and 9.1% said it had increased (see Table A-472). Those that indicated a change, whether up or down, for the most part indicated "personal" reasons as to why their situation had changed, such as family members moving away from the village (see Tables A-473 and A-474).

However, a comparison of the participation (harvest, use, received, gave) data from previous years' studies shows that sharing may have dropped off as overall harvests and success rates decreased. As household attempts to harvest resources remained relatively constant through the 1990s, the rates of successful harvest decreased.

With the decreased success in harvesting, the shrinking range of subsistence-harvest diversity, and diminished harvest levels in general, Larsen Bay households shared resources at a lesser rate in 2003 than they had during the early 1990s. Using the average for those three study years, 91.4% of households gave at least one resource, whereas in 2003, only 72.0% gave any resource. Other examples include salmon, where rates of giving decreased from 64.0% of households to 44.0%; giving of non-salmon fish decreased from 59.0% of households to 44.0%;

large land mammal giving decreased from 54.0% of households to 32.0%; and marine invertebrate giving decreased from 71.0% of households to 44.0%.

Sharing is an important element of the subsistence way of life. In some cases, resource scarcity and decreased harvests lead community members to adjust their patterns of distribution in an attempt to maintain sharing relationships. The data for Larsen Bay, however, show that resource scarcity has reached the point at which caring for one's own needs takes precedent over providing for one's neighbors.

Young Adults' Involvement in Subsistence Activities

The survey attempted to determine the effects of the oil spill on the continuity and inter-generational transmission of subsistence knowledge, and interest in pursuing subsistence practices. The question asked whether or not young people are learning enough fishing, hunting, and processing skills. In Larsen Bay, only 68.0% gave a valid response to this question (see Table A-466). Of those, most (64.7%) said yes, young people are learning enough subsistence skills, and 35.3% said no, they are not. Those negative responses pointed to the social disconnect between youth and elders: a general lack of interest, an inability to communicate, as well as a lack of qualified elder teachers.

As was the pattern in Larsen Bay, a significant portion of the respondents did not answer this question or said they didn't know (about 40.0%). Like the other parts of the survey, there may have been an emotional reaction to the question that kept people from volunteering their perspectives.

Elders' Influence

Similarly, the survey attempted to understand the role of elders in community life after the oil spill, and whether or not their influence had flagged in the proceeding years. The question asked whether, over the period from 1998 to 2003, the influence of elders in teaching subsistence skills has changed. Only about half the respondents gave a valid response to this question (56.0%). Of those that answered, most (57.1%) said that elders were as influential in 2003 as they were in 1998. Others (35.7%) said that their influence is less, and 7.1% said they are more influential now (see Table A-469).

The diminishing population of young people in Larsen Bay might be the critical factor in determining the kinds of relationships that elders have with young people. Only 20.4% of the population in 2003 was aged 14 years or less, down significantly from 36.2% in 1992. At the same time, the average age of the population was high, and Larsen Bay had a higher percentage of people over 60 than many other study communities (see Table IX-1).

Status of the Traditional Way of Life

Along the same lines as the youth and elders questions, the survey asked if the traditional way of life was impacted by the oil spill, and if it was, whether or not that way of life had recovered. Those who said that the traditional life had been impacted were 52.0% of the total responses, 12.0% said it had not been impacted and 36.0% said they did not know if the traditional way of life had been impacted or not (see Table A-479). This is a surprisingly high percentage of people taking no position on this subject, and suggests that people were sensitive to the question, and possibly avoided answering it because of conflicting emotions or confusion.

Of those who acknowledged the negative impacts on the traditional way of life, only 23.0% offered their input as to whether or not it had recovered (see Table A-480). Of those responses, 66.7% said it had not yet recovered, and 33.0% said they did not know. The local surveyor did not record any additional comments on these topics. The relatively high percentage of "do not know" answers, and "no response" answers, is on par with other results from the survey for Larsen Bay. People seemed reluctant to take a firm stand on many of the survey questions, such as those related to the status of resource populations, the harmful effects of the spill, and the safety of subsistence foods.

This may indicate that people in 2003 were genuinely unconcerned about the subsistence situation in their area and unobservant of trends in subsistence resources, but this seems unlikely. It might mean they were hesitant to talk about it during an ADF&G survey, and it is also possible that the reluctance to answer survey questions was connected to deep, personal feelings about the oil spill, not only the direct environmental impacts but also the social, economic, and political impacts thereof. Asking questions that evoke a strong emotional response may have thwarted the attempts to collect the "true" feelings of residents of the spill area.

The valid answers to this question indicate that a majority of the people believed the traditional way of life in Larsen Bay was impacted negatively by the spill in some way, and that a recovery of that way of life is incomplete, at best. They also show that people are hesitant to discuss possible explanations, or to elaborate on the changing subsistence situations they have observed.

Significant changes in demography, diminished populations, and decreased harvest levels complicate the picture for Larsen Bay residents, making it unlikely that a clear story of "traditions affected-traditions recovered" will emerge from these data.

EVALUATION OF THE GEM PROGRAM

The survey asked respondents for their general understanding and assessment of the *Exxon Valdez* Oil Spill Trustee Council and its Gulf Ecosystem Monitoring Program (GEM). In general, the households in Larsen Bay feel uninformed about either the Trustee Council or the GEM program. Forty percent of respondents said they are not familiar with one or the other, or both, of these organizations. Of those that were familiar, a great majority (85.7%) said that they do not feel adequately informed about the work being done by the Trustee Council or under the GEM program (see Table A-482). When asked for recommendations for ways to improve the information level in the community, a majority of the respondents (58.3%) said that community meetings in Larsen Bay would be the preferred way of improving communication (see Table A-483).

A similar pattern was seen when asked about the involvement of the Larsen Bay Tribal organization in the GEM program (see Table A-484). A full 68.0% of households said that they did not know enough about the GEM program to answer. For the few households that did answer, 87.5% said they think their tribe is not adequately involved in the work of the GEM program, and most of these (85.7%) said that methods to improve communication with the tribe and with local residents was the preferred way to make the tribe more involved (see Table A-485).

Several Larsen Bay households were concerned that, in their view, the Trustee Council was not doing enough to elicit input and cooperation from the people living in the spill-affected area. Others blamed their tribal councils for not maintaining lines of communication and community involvement, while some seemed ambivalent about the entire enterprise. The consensus was that the Trustee Council's presence is not greatly felt in Larsen Bay, and that much work needs to be done if that community is to become fully-involved in the Trustee Council's work.

DISCUSSION AND SUMMARY

Larsen Bay's subsistence patterns were clearly impacted by the oil spill. Harvests dropped off drastically in 1989 and gradually built back up over the next several years (Fig. IX-1 and IX-2). By 2003, a leveling-off had occurred for many types of harvests, including salmon, other fish, and marine invertebrates. Still, there is a pervasive fear of contamination, affecting the way the community thinks about the harvest of subsistence foods.

In addition, during the 15 years since the spill, other intervening factors have taken a toll on subsistence resource populations, and the changing composition of the average Larsen Bay household has also remade the community subsistence pattern. Commercial fishing has declined tremendously, affecting the seasonal schedules of Larsen Bay households as well as their incomes.

The diversity of subsistence resources, harvested and used by Larsen Bay households, had diminished by 2003; only 7.9 resources were being used by the average household. The changing demographics in the community, with more elderly residents and fewer families with children, as well as the decline of the commercial fishing industry, may have contributed to a narrowing of the range of resources accessible to the average household. The survey data also indicate that, while Larsen Bay residents are attempting to harvest resources at levels comparable to previous years, the levels of success (measured in households that actually harvested) have decreased. This may be due to a combination of factors, including decreasing availability of resources and changes in the way individuals, households, and families are able to access those resources.

Larsen Bay is a community whose population is in transition, but still depends on wild food. Subsistence persists in spite of a number of changing factors, including a shrinking population, an average household that is growing smaller and older, and a shift away from commercial fishing as a means of making a living. These changes have direct effects on families and the interaction between households that form the foundation of a community's subsistence traditions. The subsistence pattern practiced in Larsen Bay in 2003 looks quite different than that practiced before 1989. The people who continue to live in Larsen Bay are adapting to new and changing environmental, social, and economic conditions, building a modified subsistence pattern with some similarities to the older, traditional pattern.

Table IX-1. Population Profile, Larsen Bay, 2003 Study Year

AGE	MALE			FEMALE			TOTAL		
	Number	Percent	Cum. Percent	Number	Percent	Cum. Percent	Number	Percent	Cum. Percent
0 - 4	1.24	3.70%	3.70%	1.24	4.55%	4.55%	2.48	4.08%	4.08%
5 - 9	1.24	3.70%	7.41%	1.24	4.55%	9.09%	2.48	4.08%	8.16%
10 - 14	6.20	18.52%	25.93%	1.24	4.55%	13.64%	7.44	12.24%	20.41%
15 - 19	0.00	0.00%	25.93%	1.24	4.55%	18.18%	1.24	2.04%	22.45%
20 - 24	0.00	0.00%	25.93%	0.00	0.00%	18.18%	0.00	0.00%	22.45%
25 - 29	0.00	0.00%	25.93%	0.00	0.00%	18.18%	0.00	0.00%	22.45%
30 - 34	6.20	18.52%	44.44%	6.20	22.73%	40.91%	12.40	20.41%	42.86%
35 - 39	3.72	11.11%	55.56%	1.24	4.55%	45.45%	4.96	8.16%	51.02%
40 - 44	2.48	7.41%	62.96%	2.48	9.09%	54.55%	4.96	8.16%	59.18%
45 - 49	0.00	0.00%	62.96%	6.20	22.73%	77.27%	6.20	10.20%	69.39%
50 - 54	1.24	3.70%	66.67%	2.48	9.09%	86.36%	3.72	6.12%	75.51%
55 - 59	4.96	14.81%	81.48%	1.24	4.55%	90.91%	6.20	10.20%	85.71%
60 - 64	2.48	7.41%	88.89%	0.00	0.00%	90.91%	2.48	4.08%	89.80%
65 - 69	1.24	3.70%	92.59%	0.00	0.00%	90.91%	1.24	2.04%	91.84%
70 - 74	1.24	3.70%	96.30%	1.24	4.55%	95.45%	2.48	4.08%	95.92%
75 - 79	0.00	0.00%	96.30%	0.00	0.00%	95.45%	0.00	0.00%	95.92%
80 - 84	1.24	3.70%	100.00%	0.00	0.00%	95.45%	1.24	2.04%	97.96%
85 - 89	0.00	0.00%	100.00%	0.00	0.00%	95.45%	0.00	0.00%	97.96%
90 - 94	0.00	0.00%	100.00%	1.24	4.55%	100.00%	1.24	2.04%	100.00%
95 - 99	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
100+	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
Missing	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
TOTAL	33.48	55.10%		27.28	44.90%		60.76		

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table IX-2. Estimated Harvest and Use of Fish, Game and Plant Resources, Larsen Bay, 2003 Study Year

	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
Resource Name	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
All Resources	100.0	96.0	92.0	92.0	72.0	20,639.18	665.78	326.36				36.86%
Fish	96.0	72.0	72.0	76.0	60.0	15,056.20	485.68	238.08				28.21%
Salmon	96.0	56.0	56.0	56.0	44.0	11,443.71	369.15	180.96	2,678.40		86.40	30.35%
Chum Salmon	4.0	4.0	4.0	0.0	0.0	32.86	1.06	0.52	6.20		0.20	88.96%
Coho Salmon	60.0	32.0	32.0	36.0	24.0	2,374.29	76.59	37.54	412.92		13.32	52.65%
Chinook Salmon	52.0	36.0	36.0	28.0	12.0	465.45	15.01	7.36	63.24		2.04	25.46%
Pink Salmon	12.0	12.0	12.0	0.0	0.0	276.20	8.91	4.37	106.64		3.44	60.28%
Sockeye Salmon	88.0	44.0	44.0	48.0	44.0	8,294.92	267.58	131.17	2,089.40		67.40	37.48%
Landlocked Salmon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Salmon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Non-Salmon Fish	80.0	56.0	56.0	64.0	44.0	3,612.49	116.53	57.12				17.54%
Herring	12.0	12.0	8.0	4.0	4.0	223.20	7.20	3.53	37.20	GAL	1.20	64.23%
Herring Roe	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Herring Roe/Unspecified	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Herring Sac Roe	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Herring Spawn on Kelp	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Smelt	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Eulachon (hooligan, candlefish)	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Unknown Smelt	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Bass	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sea Bass	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Cod	20.0	16.0	16.0	4.0	16.0	261.89	8.45	4.14	81.84		2.64	46.89%
Pacific Cod (gray)	20.0	16.0	16.0	4.0	16.0	261.89	8.45	4.14	81.84		2.64	46.89%
Pacific Tom Cod	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Walleye Pollock (whiting)	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Eel	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Flounder	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Starry Flounder	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Flounder	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Greenling	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Lingcod	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Greenling	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Halibut	76.0	48.0	48.0	60.0	36.0	2,579.20	83.20	40.78	2,579.20	LBS	83.20	22.96%
Rockfish	20.0	12.0	12.0	12.0	16.0	458.80	14.80	7.25	285.20		9.20	71.81%
Black Rockfish	8.0	8.0	8.0	4.0	4.0	409.20	13.20	6.47	272.80		8.80	80.68%
Red Rockfish	12.0	4.0	4.0	8.0	12.0	49.60	1.60	0.78	12.40		0.40	88.96%
Unknown Rockfish	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sablefish (black cod)	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sculpin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Irish Lord	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Irish Lord	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Sculpin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Shark	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Shark	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Skates	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%

(Continued)

Table IX-2. Estimated Harvest and Use of Fish, Game and Plant Resources, Larsen Bay, 2003 Study Year

	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
Resource Name	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Sole	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Sole	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Wolffish	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Char	4.0	4.0	4.0	0.0	0.0	20.83	0.67	0.33	14.88		0.48	88.96%
Dolly Varden	4.0	4.0	4.0	0.0	0.0	20.83	0.67	0.33	14.88		0.48	88.96%
Lake Trout	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sturgeon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Sturgeon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Trout	8.0	4.0	4.0	4.0	4.0	68.57	2.21	1.08	12.40		0.40	88.96%
Rainbow Trout	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Steelhead	8.0	4.0	4.0	4.0	4.0	68.57	2.21	1.08	12.40		0.40	88.96%
Unknown Trout	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Land Mammals	84.0	28.0	28.0	72.0	32.0	1,193.38	38.50	18.87	42.16		1.36	37.84%
Large Land Mammals	84.0	28.0	28.0	72.0	32.0	1,178.50	38.02	18.64	27.28		0.88	38.31%
Brown Bear	12.0	0.0	0.0	12.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Caribou	4.0	0.0	0.0	4.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Deer	84.0	28.0	28.0	68.0	32.0	1,178.50	38.02	18.64	27.28		0.88	38.31%
Elk	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Goat	4.0	0.0	0.0	4.0	4.0	0.00	0.00	0.00	0.00		0.00	0.00%
Moose	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Small Land Mammals	12.0	8.0	8.0	4.0	0.0	14.88	0.48	0.24	14.88		0.48	88.96%
Beaver	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Fox	4.0	4.0	4.0	0.0	0.0	0.00	0.00	0.00	7.44		0.24	88.96%
Red Fox	4.0	4.0	4.0	0.0	0.0	0.00	0.00	0.00	7.44		0.24	88.96%
Hare	8.0	4.0	4.0	4.0	0.0	14.88	0.48	0.24	7.44		0.24	88.96%
Snowshoe Hare	8.0	4.0	4.0	4.0	0.0	14.88	0.48	0.24	7.44		0.24	88.96%
Land Otter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Weasel	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Feral Animals	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Reindeer - Feral	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Marine Mammals	24.0	4.0	4.0	20.0	4.0	138.88	4.48	2.20	2.48		0.08	88.96%
Porpoise	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Seal	24.0	4.0	4.0	20.0	4.0	138.88	4.48	2.20	2.48		0.08	88.96%
Harbor Seal	24.0	4.0	4.0	20.0	4.0	138.88	4.48	2.20	2.48		0.08	88.96%
Harbor Seal (saltwater)	24.0	4.0	4.0	20.0	4.0	138.88	4.48	2.20	2.48		0.08	88.96%
Sea Otter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Steller Sea Lion	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Whale	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Whale	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Birds and Eggs	20.0	16.0	12.0	12.0	12.0	50.22	1.62	0.79				44.81%
Migratory Birds	16.0	4.0	4.0	12.0	4.0	18.60	0.60	0.29	22.32		0.72	63.02%
Ducks	12.0	4.0	4.0	8.0	4.0	18.60	0.60	0.29	22.32		0.72	63.02%
Bufflehead	4.0	0.0	0.0	4.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Gadwall	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Goldeneye	8.0	4.0	4.0	4.0	4.0	11.90	0.38	0.19	14.88		0.48	88.96%
Unknown Goldeneye	8.0	4.0	4.0	4.0	4.0	11.90	0.38	0.19	14.88		0.48	88.96%

(Continued)

Table IX-2. Estimated Harvest and Use of Fish, Game and Plant Resources, Larsen Bay, 2003 Study Year

	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
Resource Name	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Harlequin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Mallard	4.0	4.0	4.0	0.0	4.0	6.70	0.22	0.11	7.44		0.24	88.96%
Merganser	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Common Merganser	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Long-tailed Duck (Oldsquaw)	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Northern Pintail	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Scaup	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Scaup	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Scoter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Black Scoter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Surf Scoter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
White-winged Scoter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Scoter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Teal	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Green Winged Teal	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Wigeon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
American Wigeon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Ducks	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Brant	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Canada Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Canada Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Emperor Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
White-fronted Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Shorebirds	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Common Snipe	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Seabirds & Loons	4.0	0.0	0.0	4.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Auklet	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Parakeet Auklet	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Gulls	4.0	0.0	0.0	4.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Gull	4.0	0.0	0.0	4.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Murre	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Common Murre	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Puffins	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Horned Puffin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tufted Puffin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Puffin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Other Birds	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Upland Game Birds	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Ptarmigan	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Bird Eggs	16.0	12.0	8.0	8.0	8.0	31.62	1.02	0.50	105.40		3.40	66.15%
Duck Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Duck Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Geese Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Geese Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Seabird & Loon Eggs	16.0	12.0	8.0	8.0	8.0	31.62	1.02	0.50	105.40		3.40	66.15%

(Continued)

Table IX-2. Estimated Harvest and Use of Fish, Game and Plant Resources, Larsen Bay, 2003 Study Year

	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
Resource Name	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Gull Eggs	16.0	12.0	8.0	8.0	8.0	31.62	1.02	0.50	105.40		3.40	66.15%
Unknown Gull Eggs	16.0	12.0	8.0	8.0	8.0	31.62	1.02	0.50	105.40		3.40	66.15%
Puffin Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tern Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Seabird Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Marine Invertebrates	56.0	36.0	36.0	36.0	44.0	3,198.58	103.18	50.58				32.43%
Chitons (bidarkis, gumboots)	16.0	16.0	16.0	8.0	8.0	78.12	2.52	1.24	21.08	GAL	0.68	39.82%
Red (large) Chitons	4.0	4.0	4.0	4.0	0.0	18.60	0.60	0.29	6.20	GAL	0.20	88.96%
Black (small) Chitons	12.0	12.0	12.0	4.0	8.0	59.52	1.92	0.94	14.88	GAL	0.48	48.33%
Clams	40.0	32.0	32.0	16.0	28.0	1,514.04	48.84	23.94	504.68	GAL	16.28	54.32%
Butter Clams	40.0	32.0	32.0	16.0	28.0	1,495.44	48.24	23.65	498.48	GAL	16.08	54.99%
Horse Clams (Gaper)	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Pacific Littleneck Clams (Steamers)	4.0	0.0	0.0	4.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Pinkneck Clams	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Razor Clams	4.0	4.0	4.0	0.0	0.0	18.60	0.60	0.29	6.20	GAL	0.20	88.96%
Unknown Clams	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Cockles	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Unknown Cockles	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Crabs	44.0	16.0	16.0	36.0	20.0	1,363.38	43.98	21.56	849.40		27.40	48.66%
Dungeness Crab	4.0	0.0	0.0	4.0	4.0	0.00	0.00	0.00	0.00		0.00	0.00%
King Crab	8.0	8.0	8.0	0.0	0.0	14.26	0.46	0.23	6.20		0.20	61.69%
Unknown King Crab	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tanner Crab	44.0	16.0	16.0	36.0	20.0	1,349.12	43.52	21.33	843.20		27.20	49.02%
Tanner Crab, Bairdi	44.0	16.0	16.0	36.0	20.0	1,349.12	43.52	21.33	843.20		27.20	49.02%
Unknown Tanner Crab	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Crab	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Geoducks	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Jingles	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Jingles	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Limpets	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Mussels	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Unknown Mussels	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Octopus	32.0	20.0	20.0	20.0	24.0	193.44	6.24	3.06	48.36		1.56	48.90%
Scallops	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Weathervane Scallops	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Sea Cucumber	4.0	4.0	4.0	0.0	4.0	9.92	0.32	0.16	4.96	GAL	0.16	88.96%
Sea Urchin	20.0	16.0	16.0	12.0	16.0	39.68	1.28	0.63	79.36	GAL	2.56	43.79%
Shrimp	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	LBS	0.00	0.00%
Snails	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Vegetation	72.0	76.0	72.0	12.0	52.0	1,001.92	32.32	15.84				43.78%
Berries	72.0	76.0	72.0	12.0	48.0	1,001.92	32.32	15.84	250.48	GAL		43.78%
Plants/Greens/Mushrooms	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Seaweed/Kelp	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Unknown Seaweed	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Wood	4.0	4.0	4.0	0.0	4.0	0.00	0.00	0.00	1.24	CORDS	0.04	88.96%

Note: Harvest amount in individual units unless otherwise specified.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table IX-3. Subsistence Harvests in Pounds Usable Weight per Person by Resource Category, Larsen Bay

	Pounds per Person								
	1982/83	1986	1989/90	1990/91	1991/92	1992/93	1993/94	1997/98	2003
Salmon	168.5	101.8	68.4	104.9	108.8	182.1	202.7	213.5	181.0
Other Fish	73.6	35.7	37.9	105.2	44.2	67.2	87.6	79.1	57.1
Land Mammals	62.4	39.5	40.3	42.6	66.8	33.0	76.6	55.5	18.9
Marine Mammals	58.3	3.3	20.9	23.2	9.4	4.5	9.6	2.1	2.2
Birds & Eggs	5.1	0.9	4.4	4.7	4.8	3.5	1.7	1.4	0.8
Marine Invertebrate	35.7	24.1	34.7	54.9	52.2	56.8	62.3	12.8	50.6
Wild Plants	*	3.6	5.5	9.1	8.4	6.3	10.6	6.1	15.8
All Resources	403.5	209.0	212.0	344.5	294.6	353.4	451.0	370.5	326.4

*Data not collected for 1982/83.

SOURCE: Scott et al. 2001; Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table IX-4. Composition of Resource Harvests by Resource Category, Larsen Bay

	Percentage of Total Harvest								
	1982/83	1986	1989/90	1990/91	1991/92	1992/93	1993/94	1997/98	2003
Salmon	41.8%	48.7%	32.3%	30.4%	36.9%	51.5%	44.9%	57.6%	55.4%
Other Fish	18.2%	17.1%	17.9%	30.5%	15.0%	19.0%	19.4%	21.4%	17.5%
Land Mammals	15.5%	18.9%	19.0%	12.4%	22.7%	9.3%	17.0%	15.0%	5.8%
Marine Mammals	14.4%	1.6%	9.9%	6.7%	3.2%	1.3%	2.1%	0.6%	0.7%
Birds and Eggs	1.3%	0.4%	2.1%	1.4%	1.6%	1.0%	0.4%	0.4%	0.2%
Marine Invertebrate	8.9%	11.5%	16.3%	15.9%	17.7%	16.1%	13.8%	3.4%	15.5%
Wild Plants	*	1.7%	2.6%	2.6%	2.9%	1.8%	2.4%	1.6%	4.9%

*Data not collected for 1982/83.

SOURCE: Scott et al. 2001; Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Figure IX-1. Harvests of Wild Resources, Pounds Usable Weight per Person, Larsen Bay

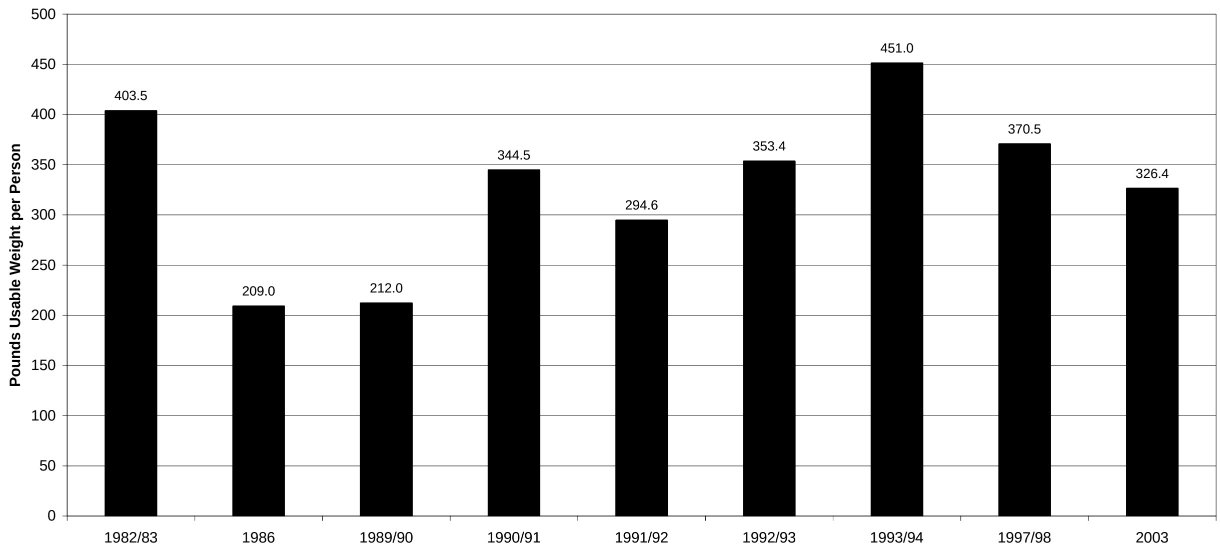


Figure IX-2. Harvests of Wild Resources by Resource Category, Pounds Usable Weight per Person, Larsen Bay

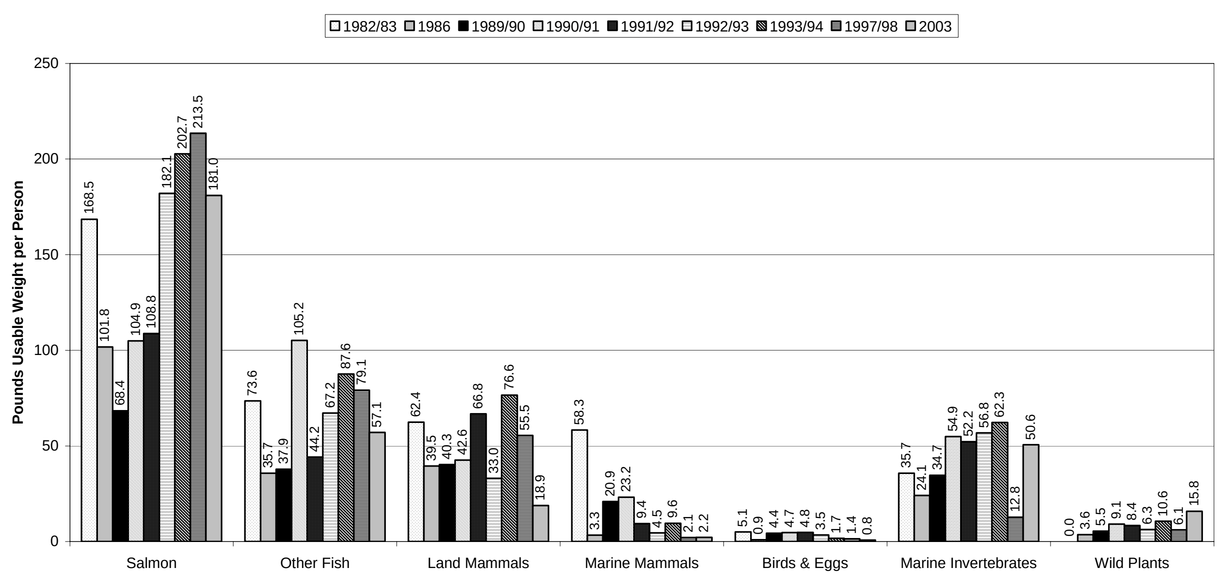


Table IX-5. Estimated Salmon Harvest by Gear Type, Larsen Bay, 2003 Study Year

Resource	Removed From Commercial Catch			Subsistence Methods: Setnet			Subsistence Methods: Seine			Subsistence Methods: Drift Gillnet		
	Amount	Pounds	HH Mean	Amount	Pounds	HH Mean	Amount	Pounds	HH Mean	Amount	Pounds	HH Mean
Salmon	639.8	2,633.5	85.0	161.2	545.8	17.6	1,395.0	5,689.5	183.5	0.0	0.0	0.0
Chum Salmon	6.2	32.9	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Coho Salmon	45.9	263.8	8.5	0.0	0.0	0.0	49.6	285.2	9.2	0.0	0.0	0.0
Chinook Salmon	13.6	100.4	3.2	0.0	0.0	0.0	18.6	136.9	4.4	0.0	0.0	0.0
Pink Salmon	31.0	80.3	2.6	68.2	176.6	5.7	0.0	0.0	0.0	0.0	0.0	0.0
Sockeye Salmon	543.1	2,156.2	69.6	93.0	369.2	11.9	1,326.8	5,267.4	169.9	0.0	0.0	0.0

Resource	Subsistence Methods: Other			Subsistence Methods: Any Method			Rod & Reel			Any Method		
	Amount	Pounds	HH Mean	Amount	Pounds	HH Mean	Amount	Pounds	HH Mean	Amount	Pounds	HH Mean
Salmon	0.0	0.0	0.0	1,556.2	6,235.3	201.1	482.4	2,574.8	83.1	2,678.4	11,443.7	369.2
Chum Salmon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2	32.9	1.1
Coho Salmon	0.0	0.0	0.0	49.6	285.2	9.2	317.4	1,825.3	58.9	412.9	2,374.3	76.6
Chinook Salmon	0.0	0.0	0.0	18.6	136.9	4.4	31.0	228.2	7.4	63.2	465.4	15.0
Pink Salmon	0.0	0.0	0.0	68.2	176.6	5.7	7.4	19.3	0.6	106.6	276.2	8.9
Sockeye Salmon	0.0	0.0	0.0	1,419.8	5,636.6	181.8	126.5	502.1	16.2	2,089.4	8,294.9	267.6

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table IX-6. Percentage of Households Harvesting Salmon by Gear Type and Species, Larsen Bay, 2003 Study Year

RESOURCE	Removed From Commercial Catch	Subsistence Methods				Subsistence Gear		Any Method
		Setnet	Seine	Drift Gillnet	Other	Any Method	Rod & Reel	
Salmon	20.0%	4.0%	24.0%	0.0%	0.0%	24.0%	28.0%	56.0%
Chum Salmon	4.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.0%
Coho Salmon	8.0%	0.0%	8.0%	0.0%	0.0%	8.0%	20.0%	32.0%
Chinook Salmon	8.0%	0.0%	8.0%	0.0%	0.0%	8.0%	20.0%	36.0%
Pink Salmon	4.0%	4.0%	0.0%	0.0%	0.0%	4.0%	4.0%	12.0%
Sockeye Salmon	20.0%	4.0%	24.0%	0.0%	0.0%	24.0%	8.0%	44.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Figure IX-3. Larsen Bay Population, 1990-2003

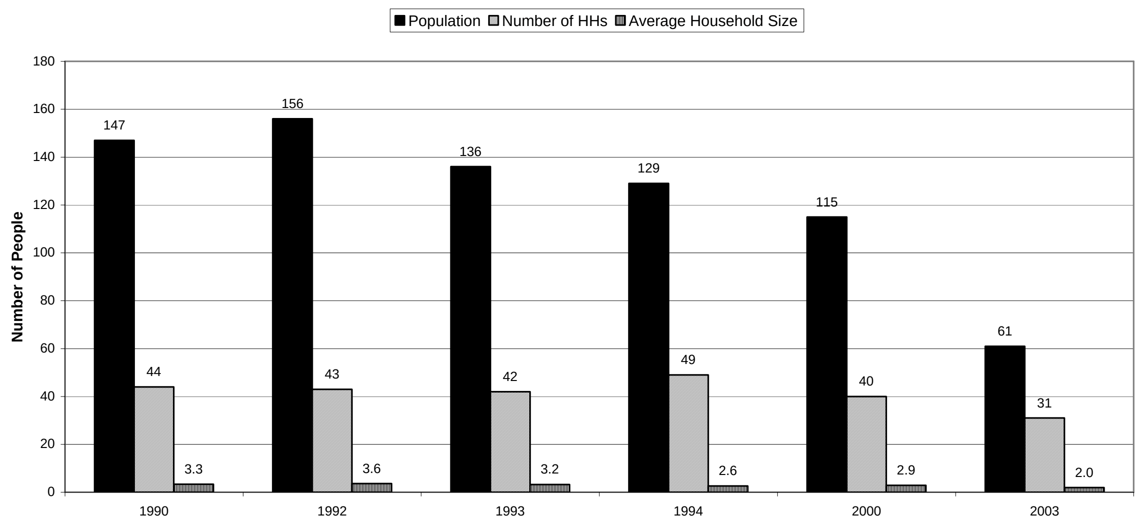
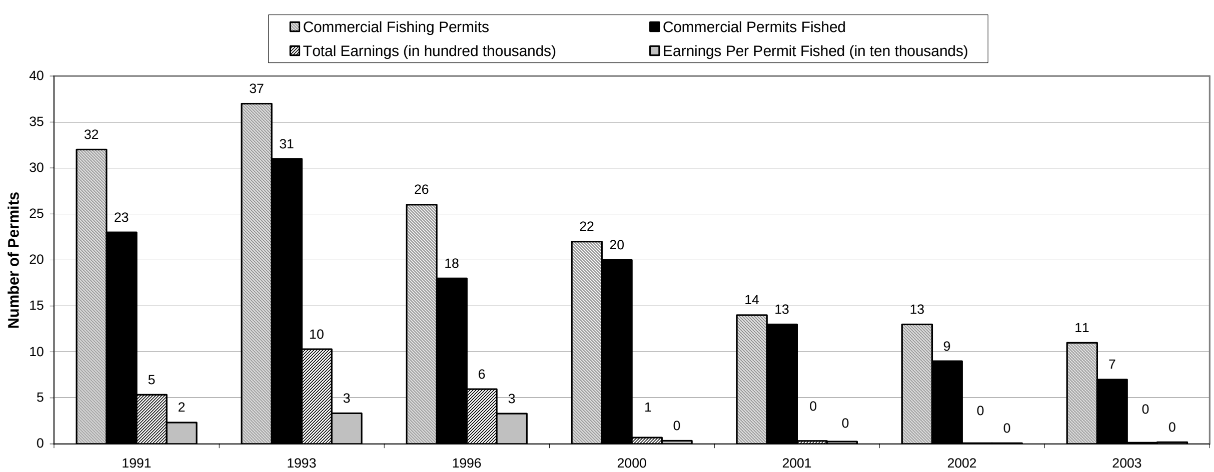
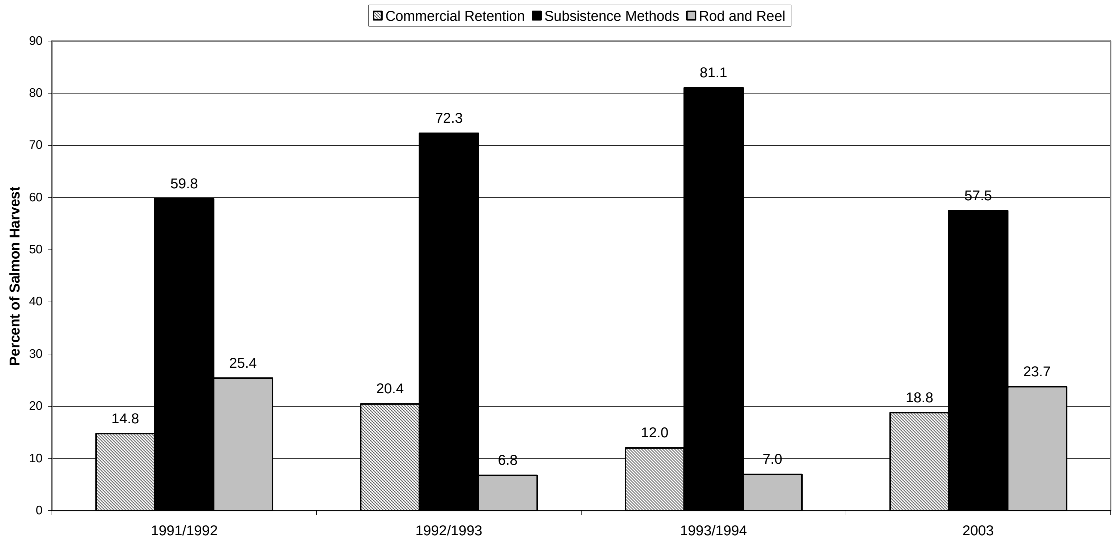


Figure IX-4. Larsen Bay Commercial Fishing Permits and Earnings, 1991-2003



Source: CFEC 2005

Figure IX-5. Salmon Harvest Methods, Larsen Bay, Percent of Salmon Harvest, 1991-2003



CHAPTER X: OLD HARBOR

by

Liz Williams

COMMUNITY BACKGROUND

Community History

Kodiak Island has been occupied by the Alutiiq people for several thousand years. The Alutiiq name of the area that is now called Old Harbor is *Nunyuq*. The Russians called it *Staruigavan*, which means Old Harbor (ADCCED 2005). The Alutiiq people living in this vicinity in 1784 were among the first to experience the impact of Russian colonization. Gregorii Shelikov arrived with the intention of creating a sea otter trading post. He met with extreme Alutiiq resistance to his plan. He overcame this resistance in a bloody battle and his plan was realized (Tikhmenev 1978:14). After the sale of Alaska from Russia to the United States in 1867, the Alaska Commercial Company facilitated the continuation of the sea otter fur trade (Roscoe 1992:50-53). In addition to the importance of the commercial salmon fishery, cod and herring were a major factor in the commercial fishing of Kodiak in the early half of the 1900s (Mishler 2001:25-27). In the early 1900s commercial salmon fishing occurred with fish traps and beach seines. Old Harbor residents have participated in commercial fishing since the industry began on Kodiak. The community was severely damaged during the 1964 earthquake and had to be completely rebuilt. (For an extensive history of Old Harbor see Mishler 2001).

Old Harbor is located on the southeast coast of Kodiak Island on the Gulf of Alaska and is accessible only by plane or boat. The climate is moderate with frequent rain and rare freezing temperatures. Currently there is both a tribal government and a city government in Old Harbor. Old Harbor Tribal Council is a federally-recognized tribe. The City of Old Harbor is a second-class city and was incorporated in 1966 (Alaska Department of Commerce, Community and Economic Development [ADCCED] 2005). During surveys it was mentioned that dissolving the city government was a possibility due to revenue sharing cuts by the State of Alaska that occurred in 2003.

Demography

Old Harbor is one of the three largest Kodiak Island villages in population. The 2000 Census reported a population of 237 people. The 2003 State of Alaska estimate, 211 people, indicates a slight decrease since 2000. In 2003, demographic data collected by Alaska Department of Fish and Game (ADF&G), Division of Subsistence indicate a population of 190 people. There are an estimated 76 households in the community with an average size of 2.5 persons. The community is 88% Alaska Native and the average length of residency in the community is 27.6 years. The average age is 34.9 years (see Table I-8; Table X-1).

Economic Overview

Fish, especially salmon, has always been one of the mainstays of the Kodiak Island economy. Middens around Kodiak reveal the importance of fish to the early Alutiiq inhabitants of the island (Steffian and Saltonstall 2004: 123). The Russians depended upon Alutiiq fish harvests as one way to feed the colony. In a 1995 report, the economy of Old Harbor was clearly described: "Commercial fishing is the lifeblood for cash income in Old Harbor" (Mishler 1995: X1-3). It could have been said that commercial fishing is the lifeblood of the economy– both the cash and the subsistence economy. The mixed economy of many coastal communities in Alaska, including Old Harbor, relies on commercial fishing and subsistence harvests, which are mutually dependent.

The ADCCED (2005) describes the Old Harbor economy in terms of resident occupations: "Many are commercial fishermen or crew; 32 residents hold commercial fishing permits. Most depend to some extent on subsistence activities for food sources." In addition to commercial fishing, other forms of wage employment include positions in tribal and city government, tribal clinic, school, post office and self-employment as hunting and fishing guides and lodge owners.

The economy of Old Harbor has long been based on commercial fishing. Between 1980 and 1989 there were an average of 37 commercial salmon fishing permit holders in Old Harbor and an average of 32 of those permits were fished during the 1980s (ADFG, Commercial Fisheries Entry Commission [CFEC] 2005). In 1987 the number of permit holders and permits fished began to decline. However, as the number of permit holders decreased, fish prices began to increase. In 1988, the year before the *Exxon Valdez* oil spill, commercial salmon prices were high. Kodiak sockeye salmon were worth an average of $2.71 per pound compared to an average of $1.01 in 1984. In 1989, the year of the oil spill, there were 27 commercial salmon permit holders in Old Harbor but due to spill-related closures, only 4 of these permits were fished. In 1989, the average price of Kodiak sockeye salmon dropped from $2.71 to $1.79. With the exception of a slight rise in 1992, when the average price of Kodiak sockeye salmon rose to $1.47, the price has steadily declined since 1988. Concurrently, the number of commercial salmon permits in Old Harbor and other communities has declined. From 1990-1999, there were an average of 29 permit holders in Old Harbor and an average of 25 of these permits were fished. From 2000-2003, there were an average of 23 permit holders in Old Harbor with an average of 10 permits fished. In 2004, there were 21 commercial salmon permits in Old Harbor and only 7 were fished. The average price per pound for Kodiak sockeye in 2003 was 53 cents. The average price per pound for other Kodiak salmon in 2003 was Chinook, 46 cents; coho, 16 cents; chum, 11 cents; and pink, 7 cents (CFEC 2005).

Subsistence harvests provide a significant portion of household economies. In 2003, the average Old Harbor household used 948 pounds of wild foods, down slightly from 1,111 pounds of wild foods during the previous oil spill study in 1997-98 (Fall and Utermohle 1999: R-3). If we use five dollars per pound as the replacement cost of subsistence foods in 2003, an Old Harbor household would have had to spend an average of $5,555 on food. This is a substantial amount in this community where the average household income is $32,500, according to ADCCED data.

SUBSISTENCE RESOURCE HARVEST AND USES

Participation in Hunting, Fishing and Gathering Activities

One characteristic of village subsistence economies in Alaska is the wide variety of subsistence resources that households use, harvest, and share. In 2003, Old Harbor households reported the use of an average of 18.5 different kinds of subsistence resources. In 2003, Old Harbor households reported an average harvest of 12.0 different kinds of subsistence resources. The diversity of subsistence resources used is down slightly from the previous survey year, 1998, when an average of 21.0 resources were used by Old Harbor households. However, the amount of 18.5 in 2003 is higher than in 1986 when the average number of subsistence resources used per household was 13.0. The diversity of subsistence resources used by Old Harbor residents in 2003 appears to have surpassed that recorded for pre-spill years based on surveys conducted in 1983 and 1986 (see Table I-10).

Table I-9 illustrates levels of participation in the harvest and use of wild resources by residents of Old Harbor in 2003. Table I-10 shows that 98.1% of Old Harbor households were involved in subsistence activities in 2003. All Old Harbor households (100%) said they used subsistence resources during the study year (2003) and 98.1% of households said they harvested subsistence resources in 2003. The "harvest" category refers to subsistence resources actually taken by a member of the surveyed household during the year covered in the survey. The "use" category includes all resources taken and given away by a household, and resources "received" by one household from another after a harvest, either as gifts, by trade, or through hunting partnerships and meat given to hunting and fishing guides by their clients. In some cases, households may receive subsistence resources and use them but not actually harvest them. They may not harvest because of age, illness, lack of income or harvest gear, or a wage job that does not allow them time to harvest. If they can, these households that receive and use subsistence resources they do not harvest, often provide cash or other assistance to those who harvest for them. In many cases, there are households who use, harvest, receive and give away or share. These households consume many of the resources they harvest, however, they may harvest more than their household requires in order to share with, or provide for, households that did not harvest. Additionally, some households specialize in specific types of harvests such as marine mammals or waterfowl. These households may harvest the bulk of one type of subsistence resource in order to provide it for the entire community. This is increasingly the case for items such as gull eggs. Because the high price of fuel prohibits many trips, one or more households may make a trip and harvest enough eggs for everyone. Sharing is not confined to need. Many people harvest their own salmon, for example, and still receive salmon from other households depending on who has it fresh that day or for variety because of different household processing methods. The use category was not confined to resources for human consumption, but incorporated all non-commercial uses of resources including fur and wood. The economic implications of sharing between households are considerable, in that sharing results in a wide distribution of wild foods.

In terms of broad categories of resources, Table X-4 shows more households were involved in the use and harvest of fish and plants than in the use and harvest of land and marine mammals, and birds and eggs. More Old Harbor households used fish than they used any other subsistence resource. Eighty-six percent of Old Harbor households harvested fish and 98.1% of

Old Harbor households used fish for a total community harvest of 45,770.6 pounds of fish, approximately 607.2 pounds of fish per household. Of the fish harvested, 33,514.0 pounds was salmon and 12,256.6 pounds was non-salmon fish, mostly halibut. The most widely-harvested category of wild resources was plants. Over ninety percent of Old Harbor households harvested plants and 92.3% used plants. After plants and fish, marine invertebrates were the third highest harvested and used subsistence resource category. Over sixty-five percent of Old Harbor households harvested marine invertebrates and they were eaten by 92.3% of Old Harbor households. As for other subsistence resources, 53.8% of Old Harbor households harvested large land mammals, mostly deer, and 80.8% of households used large land mammals, 40.4% of households harvested birds and eggs and 65.4% used them, 28.8% of households harvested marine mammals and 76.9% used them, and only 9.6% of households harvested and used small land mammals.

Resource Harvest Quantities and Harvest Composition

Table X-4, summarizing resource harvest and use, is organized first by general category and then by specific species. All resources have been recorded in usable pounds (see Appendix D for conversion factors).

In the study year of 2003, Old Harbor's total community harvest of wild resources was 72,035.9 pounds usable weight. The average household harvest for all wild foods was 947.8 pounds; 357.1 pounds per person. In 2003, the community harvested 45,770.6 pounds of fish (63.5% of the total harvest); 9,318.8 pounds of marine mammals (12.9%); 8,656.6 pounds of large land mammals (12.1%); 4,699.4 pounds of marine invertebrates (6.5%), 2,233.2 pounds of vegetation (3.1%); 1,290.1 pounds of birds and eggs (1.8%); and 67.2 pounds of small land mammals (snowshoe hare) (<1%) (see Tables X-3 and X-4).

In terms of specific resources in 2003, salmon (33,514.0 pounds) and halibut (10,119.7 pounds) made up the largest components of the community's resource harvest as measured by edible weight. Next in order of total pounds harvested were deer (7,702.9 pounds), sea lion (5,553.9 pounds), seal (3,764.9 pounds), clams (2,280.0 pounds), berries (2,022.8 pounds) and scoters (sea ducks) (291.4 pounds).

Salmon made up 46.5% of the total subsistence harvest in 2003 (see Table X-2 and Table X-3, Fig. X-2). As noted above, Old Harbor harvested 33,514 pounds of salmon in 2003. This is similar to the 1997-98 salmon harvest of 32,685 pounds (Fall et al. 1999:R-3). The 2003 subsistence salmon harvest was composed of 46.0% coho salmon, 24.0% sockeye salmon, 13.0% chum salmon, 11.0% pink salmon, and 6.0% Chinook salmon. In 2003, 96.2% of Old Harbor households reported using salmon, 84.6% of households harvested salmon, 53.8% of households said they shared salmon with other households and 69.2% received salmon from others. In 2003, the average harvest of salmon per household was 441.0 pounds, approximately 166.2 pounds per person. The methods used by Old Harbor residents to harvest salmon included the following. Overall, the primary method used to harvest salmon was rod and reel, 69.0% of households (14,165.0 pounds); followed by set net, 29.0% of households (7,507.0 pounds); and beach seine, 25.0% of households (8,145 pounds). Nineteen percent of Old Harbor households removed 3,696 pounds of salmon from commercial harvests for home use. Figure X-3 shows the decline in the amount of salmon retained for home use from commercial catch in recent years.

Non-salmon fish species made up 17.0% of the total Old Harbor subsistence harvest and were used by 92.3% of households. Old Harbor residents harvested 12,256.6 pounds of non-salmon fish in 2003 compared to 15,260.0 pounds in 1997–98. The bulk of the 2003 non-salmon fish harvest was composed of halibut, 82.6% (10,119.7 pounds); distantly followed by cod, 8.5% (1,046.8 pounds); various types of rockfish, 4.0% (491.8 pounds); herring 2%, (263.1 pounds); and less than 150 pounds each of greenling, flounder, Dolly Varden and steelhead. As shown in Table X-4, 67.3% of households harvested non-salmon fish, 55.8% of households shared non-salmon fish and 73.1% of Old Harbor households received non-salmon fish. In 2003, the average harvest of non-salmon fish was 161.3 pounds per household, approximately 61 pounds per person.

Marine mammals comprised 12.9% of the total subsistence harvest in Old Harbor in 2003. The total 2003 marine mammal harvest for Old Harbor was 9,318.8 pounds; this is less than the 1997-98 harvest of 12,755.0 pounds. The 2003 harvest included sea lion, 60.0% (5,553.9 pounds) and harbor seal, 40.0% (3,764.9 pounds). Approximately 76.9% of Old Harbor households used marine mammals; 28.8% of households harvested them. Almost thirty-one percent of Old Harbor households said they shared marine mammals and 63.5% of households said they received marine mammals. In 2003, the average household harvest of marine mammals was 122.6 pounds and the average amount harvested per person was 46.2 pounds.

Land mammals made up 12.1% of the total Old Harbor subsistence harvest in 2003. The total 2003 subsistence land mammal harvest for Old Harbor was 8,723.8 pounds. The 2003 amount is approximately half of the 1997-98 harvest of 17,454 pounds. The 2003 harvest was primarily composed of deer, 88.3% (7,702.9 pounds); goat, 10.9% (953.6 pounds); and snowshoe hare, <1% (67.2 pounds). Almost eighty-one percent of Old Harbor households reported using land mammals, and 80.8% of used deer. Seventeen percent of households used goat. The amount of goat used in 2003 is higher than previous years due the creation of a post-drawing permit registration goat hunt that began in 2003. Almost fifty-four percent of Old Harbor households reported harvesting land mammals, 40.4% shared land mammals and 55.8% received land mammals. In 2003, the average household harvest of large land mammals was 114.8 pounds and the average amount harvested per person was 42.3 pounds.

About three percent of Old Harbor's total 2003 subsistence harvest included plants (2,233.2 pounds). The 2003 amount is higher than the 1997-98 harvest of 1,765 pounds. Berries included 90.6% of the plant harvest; in 2003, Old Harbor residents harvested 2,022.8 pounds of berries. Wood is included in the plant harvest and 190.8 cords of wood were harvested by Old Harbor residents in 2003. Wood is important for steam baths (banya), smoking fish, and to some extent, for home heating. Almost ninety-three percent of households said they used plants and 90.4% of households reported harvesting them. Fifty percent of Old Harbor households reported sharing plants and 44.2% of households said they received them. The average 2003 household harvest of plants was 29.4 pounds and the average harvest amount per person was 11.1 pounds.

Birds and eggs made up 1.8% of Old Harbor's total 2003 subsistence harvest (see Table X-4). The total harvest of birds and eggs was 1,290.1 pounds, lower than the 1997-98 harvest of 3,278 pounds. Ducks were the most commonly harvested bird, 78.8% (1,016.2 pounds). Scoters comprised 28.7% of all ducks harvested (291.4 pounds) and mallards included 24.6% (250.1 pounds). Geese made up just 6.7% of the total bird harvest (85.3 pounds). Sea gull eggs comprised 10.2% of the total bird and egg harvest (135.1 pounds). Over sixty-five percent of households said they used birds and eggs and 40.4% of households reported harvesting them. Over thirty percent of Old Harbor households reported sharing birds and eggs and 53.8% of households said they received them. The average 2003 household harvest of birds and eggs was 17.0 pounds and the average harvest amount per person was 6.4 pounds.

Marine invertebrates constituted 6.5% of Old Harbor's total 2003 subsistence harvest. The total harvest of marine invertebrates was 4,699.4 pounds, lower than the 1997-98 harvest of 5,677 pounds. Clams were the most heavily harvested marine invertebrate, at 48.5% (2,280.0 pounds). Of the clams harvested, butter clams were the most common; they comprised 73.8% of all clams harvested (1,683.7 pounds). Crab made up 34.3% (1,611.9 pounds) of the marine invertebrate harvest; tanner were the most harvested, at 72.9% of crab species harvested (1,175.2 pounds). Other marine invertebrate resources harvested include: chitons, 11.2% (526.2 pounds); octopus, 3.7% (175.4 pounds); and sea urchins, 2.0%, (92.8 pounds). Over ninety-two percent of households said they used marine invertebrates and 65.4% of households reported harvesting them. Almost fifty-four percent of Old Harbor households reported sharing marine invertebrates and 82.7% of households said they received them. The average 2003 household harvest of marine invertebrates was 61.8 pounds and the average harvest amount per person was 23.3 pounds.

Harvest Effort

On the 2003 survey, Old Harbor residents were asked to assess the amount of effort it took to harvest wild resources as compared to five years ago. This question was asked about seven resource categories: salmon, non-salmon fish, marine invertebrates, land mammals, marine mammals, birds and eggs, and wild plants. For every category, the majority of Old Harbor households who answered the question said it took the same amount of effort to harvest resources as it did five years ago (see Tables A-58 to A-81). Some of these 2003 "same as five years ago" responses are markedly different than the responses from the 1997-98 responses. In response to the question on the 1997-98 survey, "How do you compare your household's effort to harvest various resource categories' in 1997-98 with 1988?" many more people answered that their harvest required "more" effort (Fall and Utermohle 1999:J-4 to J-5). The categories in which "more effort" was required in 1997-98 compared with 1988 were non-salmon fish (48% said more); marine invertebrates (63% said more); marine mammals (70% said more); and birds and eggs (59% said more). The effort to harvest salmon in 1997-98 was considered to be the "same" by 50% of households and "more" than in 1988 by 40% of households. Survey results from 1997-98 indicate that only land mammals (61%) and plants (76%) required the same amount of harvest effort as before 1988.

In 2003, Old Harbor residents said their overall effort to harvest was the same as five years ago, 1997-98. In a review of 1997-98 survey results, Old Harbor households said their overall harvest effort in 1997-98 was higher than it was in 1988, the year before the oil spill. Hence, in 2003, the amount of harvest effort required to obtain subsistence resources was higher than it was in 1988, prior to the oil spill, but similar to what it was in 1997-98.

Comparisons of Uses and Harvests with Other Years

In 2003, Old Harbor households were asked to assess their current harvest and use of subsistence resources compared to five years ago and to 1988, the year before the oil spill. A near majority of Old Harbor respondents, 46.8%, said that their overall 2003 subsistence harvest was the same as five years ago, and 38.3% said their overall subsistence harvest was less than five years ago (see Tables A-25 to A-27). In contrast, 53.3% of Old Harbor households reported that their overall subsistence harvests in 2003 were less than they were in 1988 (see Tables A-52 to A-57). In response to questions about the seven resource categories, for five of the categories, the majority of households said that their harvests were the same as five years ago but less than they were before 1988. By resource category (see Tables A-1 to A-22), in 2003, 79.6% said their harvest of salmon was the same as five years ago but 57.8% said it was less than in 1988; 68.9% said their harvest of non-salmon fish was the same as five years ago but 53.3% said it was less than in 1988; 61.9% said their harvest of marine invertebrates was the same as five years ago but 58.1% said it was less than in 1988; 70% said their harvest of marine mammals was the same as it was five years ago but 57.5% said it was less than in 1988; 62.5% said their harvest of birds and eggs was the same as five years ago but 51.5% said it was less than in 1988. In the land mammal category, 73.2% said their harvest was the same as it was five years ago but perceptions were divided as to whether land mammal harvests were the same or less compared to 1988: Forty-five percent said their harvest was the same and 45.0% said their harvest was less. Approximately the same number of households, 76.1%, considered their 2003 plant harvests to be comparable to five years ago, and 73.3% said less than 1988.

It appears the overall results of the 2003 survey repeat the results of the 1997-98 survey. The data presented above indicate that most Old Harbor households consider their 2003 harvests of salmon, non-salmon fish, marine invertebrates, marine mammals and birds and eggs the same as five years ago but less than in 1988 (Fall and Utermohle 1999:J-5). In 2003 and 1997-98 most households reported that their harvests of land mammals and plants were similar to five years ago and similar to 1988 harvests.

In 1989, the year of the oil spill, the per capita subsistence harvest in Old Harbor dropped 185 pounds from the pre-spill average of 457.2 pounds per person to 272.4 pounds per person. Subsistence harvests in Old Harbor have gradually rebounded but have not returned to pre-spill levels. Surveys conducted in 1990 indicate the average per capita subsistence harvest rose to 390.9 pounds, then dropped in 1991 to 300.4 pounds and in 2003 it was 357.2 pounds (see Table X-2).

An examination of the seven individual resource categories further indicates a gradual rebound of subsistence resource use but an overall failure to return to pre-spill levels. In Table X-2, data from the 2003 survey is compared to previous surveys in 1982, 1986, 1989, 1990, and 1991. The 2003 per capita harvest averages in four of the seven resource categories, salmon, land mammals, marine mammals, and marine invertebrates, are less than pre-spill per capita averages. In 2003, 166.2 pounds of salmon per person was harvested; prior to the oil spill, the per capita average was 210.6 pounds. In 2003, 43.3 pounds of land mammals per person were harvested; prior to the oil spill, the per capita average was 66.5 pounds. In 2003, 46.2 pounds of marine mammals per person were harvested; prior to the oil spill, the per capita average was 92.7 pounds. In 2003, 23.3 pounds of marine invertebrates per person were harvested; prior to the oil spill, the per capita average was 26.5 pounds. In three of the seven resource categories, per capita resource averages are marginally higher than pre-spill per capita averages. In 2003, 60.8 pounds of non-salmon fish per person were harvested; prior to the oil spill, the per capita average was 55.3 pounds. The same year, 6.4 pounds of birds and eggs per person were harvested; prior to the oil spill, the per capita average was 5.0 pounds. Again in 2003, 11.1 pounds of plants per person were harvested; prior to the oil spill, the per capita average was 1 pound. Subsistence resource harvests are always dynamic, however, the above data indicate an overall decline of approximately 100 pounds per person in 2003 compared to pre-spill harvest levels.

NATURAL RESOURCE CONDITIONS

Food Safety

One aspect of the *Exxon Valdez* oil spill Trustee Council recovery objectives for subsistence uses is that "people must be confident that the resources are safe to eat." In order to measure confidence in food safety, survey respondents were specifically asked if they thought clams, chitons, seals and herring were safe for their families to eat. The majority of Old Harbor respondents reported that they consider all four resources safe (see Tables A-458 to A-465). Almost 74% said they felt clams were safe, 73.9% felt chitons were safe, 89.6% felt seals were safe, and 57.9% felt herring were safe. The low percentage for herring is due to the fact that not many people harvested herring and 42.1% answered that they were not sure if herring were safe or not, largely because few households reported consuming them.

With the exception of clams, the 2003 perceptions of subsistence food safety are very similar to those recorded in the 1997-98 survey (Fall and Utermohle 1999:J-5). In 1997-98, only 40% of Old Harbor residents thought clams were safe to eat and 55% thought they were not safe. In spite of 2003 survey results to the contrary, many households in Old Harbor voiced concerns about clam safety in survey comments.

Status of Resource Populations

There was a wide range of answers in response to the question, "Have subsistence resources recovered since the oil spill?" In addition to the answers "yes", "no", and "don't know", many people said they wanted to say "some have and some haven't." Opinions varied on this topic: 40.4% said "no", 36.2% said "yes" and 23.4% were "not sure" (see Table A-82). When asked what could be done to help subsistence resources recover, some people said they "didn't know, only time will heal it" and others said it won't ever be the same (see Table A-83). There were many comments on this topic:

- "...we know that there was a lot more native food before the oil spill than there is now. Our native pride even seems like it was lowered because we couldn't even provide that for ourselves."
- "The oil spill knocked out people going out together to harvest shellfish, togetherness was ended when people stopped gathering clams as a community during minus tides."
- "We don't know if anything is safe, we will know it is not safe when someone dies from eating it."
- "Elders are starting to teach more because they feel safer about the food."

Old Harbor residents were asked to assess changes in the availability, the population status, of all five species of salmon, three species of non-salmon fish (halibut, "black bass", and herring), five different marine invertebrates (clams, chitons, Dungeness crab, sea urchins and octopus), land mammals (deer), two species of marine mammals (harbor seals and sea lions), birds and eggs (sea ducks) and wild plants (berries) (Tables A-84 to A-455).

The majority of Old Harbor residents said that in 2003, the availability of salmon was the same as five years ago, 1997-98 (Tables A-119 to A-122). Survey results indicate that 62.1% of

Old Harbor residents considered the availability of chum salmon to be the same, coho salmon 72.7%, sockeye salmon 69.0%, pink salmon 70.7% and Chinook salmon 45.9%. Over 35% of Old Harbor residents said they thought more Chinook salmon were available in the last five years. This perspective is probably due to an increase in Old Harbor residents turning to guiding sport fishers for cash income in response to low commercial salmon prices.

It should be noted that five years ago, Old Harbor households said that compared to 1988 availability, in 1997-98, 48% thought chum salmon availability was less than in 1988, 41% thought it was the same; 45% thought coho availability was less than in 1988, 51% thought it was the same; 43% thought sockeye availability was less than in 1988, 57% thought it was the same; 42% thought pink availability was less than in 1988, 48% thought it was the same (Fall and Utermohle 1999: J-6). Many of those who felt salmon populations were lower in 1997-98 compared to 1988 cited environmental contamination as the reason (Fall and Utermohle 1999: V-64 to V83).

During surveys conducted in 2003, over twenty surveyed households commented about the status of salmon populations. Almost all felt there were more salmon before the oil spill.[1] Several households said that the oil spill and draggers had greatly reduced the numbers of salmon available.   People also said they had to travel further to harvest salmon. They said they used to be able to just go to the bay right in front of the village but now they have to go further. Old Harbor residents expressed concerns about deformed fish, mushy hatchery fish and escaped farmed fish they had observed in their area.   Several households said there were less salmon available because “less local commercial fishing boats bring fish to the village because of bad salmon prices caused by the oil spill.”

The majority of Old Harbor residents surveyed considered the availability of herring, cod, halibut, and black rockfish the same as it was five years ago. Almost 64% said they thought herring availability was the same, virtually no one commented on the availability of cod, 72% thought halibut availability was the same and 71.4% thought black rockfish was the same (Tables A-176 to A-179).

The concerns Old Harbor residents expressed about non-salmon fish were primarily about halibut. Many people said they were hesitant to fish for halibut until five years or so ago because they believed that after the oil spill, halibut were exposed to oil at the bottom of the ocean. A 1995 study on the effects of oil from the *Exxon Valdez* on bottomfish and other species in Prince William Sound concluded that halibut and other species were exposed to contaminated bottom sediments. The contamination of these species was found to be more widespread in 1990 than in 1989 possibly due to “movement of fish or movement of oiled prey” (Haynes et al 1995: 8-10). Some households commented that in 2003 there were less halibut than before the oil spill. They said they have to go further to harvest halibut.   Several households cited a combination of factors in the decline of halibut availability. One person said, “There are less fish, seal, and halibut because of draggers and the oil spill put together.”   Many households expressed concern about draggers they can see from their village “ripping up the bottom of the ocean” and causing

[1] The topic of a paper presented at the EVOSTC research symposium held in Anchorage in January 2005 included a discussion of immediate and delayed effects of embryonic exposure of pink salmon to hydrocarbons (Heintz et al 2005: 71). A similar discussion on the long-term effects of spilled oil on the long-term viability of salmon populations can be found in *Science* (Peterson et al 2003: 2082-2086).

harm to marine species. Old Harbor households also cited competition from IFQ holders and charter operators as factors that led to less halibut and more effort for halibut.

In regard to other non-salmon fish, at least five households commented that rockfish were scarce and a few said this was because of the oil spill. People in Old Harbor also said that herring have slowly returned but they still have to travel far for them and herring has not come back to pre-spill levels. Some households said that because they no longer fish commercially for salmon, their effort to harvest non-salmon fish is non-existent because they not out on the water like they used to be.

The response to availability of marine invertebrates in 2003 compared to five years ago was mixed (Tables A-234 to A-237). When asked about the availability of clams, some people said "What do you mean? There are lots of clams out there but we are afraid to harvest them because of paralytic shellfish poisoning (PSP)." Researchers then had to decide how to interpret this question in light of clams being there but not necessarily available. We asked people to answer as to the availability of clams they felt were safe to eat. In Old Harbor, in marked contrast to other Kodiak Island communities, 76.2% of households thought the availability of "safe" clams was the same as five years ago. In 1997-98, 54% of Old Harbor households reported that there were less clams available to harvest, 45% thought there were the same amount as in 1988 (Fall and Utermohle 1999: V-124 to V-126).

Almost 78% of households thought the availability of octopus was the same as five years ago. Much lower numbers of households considered the availability of chitons (54.5% same, 39.4% less), Dungeness crab (54.5% same, 45.5% less) and sea urchins (68.6% same, 28.6% less) to be the same as five years ago. Many households complained of low numbers of marine invertebrates and having to go further to get them. Several people commented that chitons were very small. Some people also expressed fear about eating chitons because of PSP.

Old Harbor's estimation of clam safety is very different from most of the other Kodiak villages, except Akhiok. Currently the Alaska Department of Environmental Conservation advises people not to eat clams from Kodiak (Alaska Department of Environmental Conservation [ADEC] 2005). The beaches are not tested and paralytic shellfish poisoning (PSP) is present and has led to at least 2 deaths and several hospitalizations among Kodiak village residents in the last ten years. A couple of people associated the increase in PSP with the oil spill; most considered it an environmental issue but not necessarily spill-related. There are different opinions as to what has led to the increase in PSP. It should be noted that right after the oil spill, clams and other invertebrates were some of the few species that public health officials specifically warned people not to eat due to the high concentrations of spill-related contaminants (Fall and Field 1996: 819, 834-835). It is therefore easy to see how people would connect these post-spill warnings with a continued risk in consuming clams. Many Old Harbor households requested more research on clams and how to assess risk.[2]

The survey answers with yes or no questions about clams appear to differ distinctly from the answers provided through comments. The comments listed below were recorded during the surveys. The number next to each comment indicates how many people made the specific

[2] The topic of a paper presented at the EVOSTC research symposium held in Anchorage in January 2005 included a discussion of the high persistence of unweathered EVOS oil in intertidal areas (Short et al 2005: 68). A similar discussion on the long-term effects of EVOS oil in protected intertidal areas on the viability of marine invertebrate populations can be found in *Science* (Peterson et al 2003: 2082-2086).

comment during surveys. These comments were copied from 37 surveys that had comments. Each person may have made more than one type of comment:

5--More people are eating clams now.10- Clams are less abundant now.
4--There are less clams now because of the *Exxon Valdez* oil spill (EVOS), red tide increased after oil spill.
5--I have not eaten clams since the oil spill.
6--I don't know when it is safe or not safe to eat clams.
13--PSP has made me afraid to eat clams.
6--There is more red tide and PSP now.
5--Clams are safe except when there is red tide.
4--I only eat clams when the weather is cold.
5--I only eat clams from areas with flowing, open water.
2--I don't eat clams that have dark meat or in spring or summer.
1--I only eat clams when I see other people have eaten them and lived.
1--Problems with clams ended village togetherness, we no longer go out at minus tides.
7--Why isn't more research being done on PSP?

There was not an overwhelming majority in assessments of the numbers of marine mammals available to harvest in 2003 compared to five years ago (see Tables A-340 to A-343). Over 63% of households said that the amount of harbor seals available was the same as five years ago, 28.9% said there were less. In 1997–98, 85% of Old Harbor households said they thought there were less seals available than in 1988 (Fall and Utermohle 1999:V-104 to V-107). In 2003, 55.6% of households said that sea lions were the same as 1997–98, 39% said there were less than five years ago (Fall and Utermohle 1999:V-108 to V-110). In 1997–98, 96% of Old Harbor households said there were less sea lions available than in 1988. In 1997–98, most survey respondents cited contamination as the reason for less seal and sea lion availability (Fall and Utermohle 1999:V-111).

Most survey respondents in Old Harbor said there were still less seals and sea lions than there were before the oil spill. Many people, however, said they feel that both populations are beginning to recover. Most marine mammal hunters said a successful harvest required a lot more effort than it used to because there are still less animals and they seem further away. Some people, in addition to the oil spill, cited lack of food as a problem for marine mammals and many households again cited draggers as another factor involved in the decline of marine mammal populations. One elder commented about seal, " It was good eating then. We're lucky to eat it if we can get it." Other households said they no longer harvested marine mammals themselves because they no longer commercial fish for salmon and that is when they would harvest them. Some people said they have begun to depend more on land mammals because of the decline in marine mammals. This was also noted in Mishler (1995:XI-8).[3]

The only land mammals harvested in Old Harbor in 2003 were deer and snowshoe hare (A total of 10 households harvested 67.2 pounds of snowshoe hare) (see Tables A-285 to A-288). The majority of Old Harbor residents, 53.7%, said there were less deer available to harvest in 2003. Almost 32% of Old Harbor residents thought there were the same amount of deer

[3] A discussion on the long-term effects of *Exxon Valdez* oil spill oil on the viability of marine mammal populations was presented in *Science* (Peterson et al. 2003:2082-2086).

available in 2003 as there were five years ago, and 14.6% thought there were more deer in 2003 compared to five years ago. In 2003, most Old Harbor residents, 40.9%, cited environmental factors as the reason there were less deer and they mentioned a harsh winter in the late 1990s. In 1997-98, 70% of Old Harbor households said they thought there were the same amount of deer available to harvest as there were in 1988 (Fall and Utermohle 1999:V-96). In addition to harsh winters, four households said competition from outside sport hunters made it harder for them to get deer. As noted in the section on marine mammals, some people said they have begun to depend more on land mammals because of the decline in marine mammals. This was also noted in Mishler
(1995:XI-8).

Old Harbor household observations on the availability of sea ducks and geese compared to five years ago were divergent (see Table A-392 to A-395). Fifty percent of households thought sea ducks were less available, and 46.4% thought their availability was the same as five years ago. All surveyed households said there were more geese than five years ago.

In 1997–98, 63% of Old Harbor households said there were less sea ducks available to harvest than in 1988; 53% of households cited contamination as the reason for less sea ducks (Fall and Utermohle 1999:V-115).

Many Old Harbor residents commented about the decline of sea ducks. Most said the decline began after the oil spill. The sea ducks most frequently mentioned as in decline were black scoters, surf scoters, and king eiders.[4] Additionally, people in Old Harbor said there are more people out hunting ducks now and there is more competition for them, which means they had to expend more effort to hunt birds. The competition includes other local subsistence hunters and trophy bird hunters. Many people reported more geese. Some suspected the geese might be displacing the local waterfowl. One household said they lost their boat and could not hunt ducks anymore because of access.

Most households, 84.8% said that the availability of berries was the same as five years ago (see Tables A-439 to A-442). This is similar to 1997–98 results when 93% of households said they thought berry availability was the same as 1988 (Fall and Utermohle 1999:V-136 to V-139).

Habitat Changes

In 2003, 60.4% of Old Harbor residents had not noted changes in the habitat or environment of subsistence resources while 49.6% said they did see changes (Tables A-456 to A-457). Of those who said there had been changes, 52.6% said the change they saw was less subsistence resources and 21.1% said the change they noted was resource contamination and the increased incidence of PSP. In 1997-–98, the responses were split, 50% of households said there were habitat changes and 50% said there were not.

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[4] The topic of a paper presented at the EVOSTC research symposium held in Anchorage in January 2005 included a discussion of the effects of *Exxon Valdez* oil spill oil on sea ducks in Prince William Sound. Scoters were among the species in Prince William Sound whose populations had not returned to pre-spill levels (Irons et al. 2005:70). A similar discussion on the long-term effects of *Exxon Valdez* oil spill oil on sea duck populations was presented in *Science* (Peterson et al. 2003:2082-2086).

SOCIAL AND ECONOMIC CONDITIONS

Food Purchases

In response to the question, "Were there subsistence foods you had to buy because you could not harvest them or obtain them through sharing?" only 7.8% of Old Harbor residents replied "yes" (see Tables A-475 to A-478). This number has decreased since 1997-98 when 37% of households said they had bought food to replace locally harvested food (Fall and Utermohle 1999:V-144 to V-145).

Sharing of Subsistence Resources

As seen in the section on Subsistence Resource Harvest and Uses, sharing is a major aspect of the subsistence economy in Old Harbor (as well as in other rural communities around Alaska). One aspect of the EVOS Trustee Council (EVOSTC) recovery objectives is that "cultural values provided by gathering, preparing, and sharing food need to be reintegrated into community life". In 2003, 64% of Old Harbor households reported that the level of subsistence food sharing was the same as it was five years ago. Eighteen percent of households said there was less sharing in 2003 and 18% said there was more sharing in 2003 than five years ago (see Tables A-472 to A-474). The 2003 figures on sharing are somewhat similar to those reported for 1997–98 compared to 1988. In 1997–98, 56% of Old Harbor residents reported that sharing was the same as in 1988, 31% said there was less and 13% said there was more sharing in 1997–98 than in 1988 (Fall and Utermohle 1999:V-146 to V-148).

As noted earlier, all Old Harbor households, 100% reported receiving a subsistence resource and 78.8% said they gave one or more resources away. Households gave away an average of 7.6 different kinds of resources and received an average of 10.6 different kinds of resources.

Comments on sharing, however, differed from survey answers. Several people said there was more sharing before the oil spill because resource availability was higher. One person commented, "It is harder to get native foods. Before, hunters would share with everyone. Now, I am lucky to get native foods." Several people commented that they harvest less because they do not commercial fish anymore. Others said there used to be a lot of fish available in the village and now, with less boats commercially fishing, there is less fish to be had.

Young Adults' Involvement in Subsistence Activities

Old Harbor residents were almost evenly divided as to whether or not young adults are learning enough subsistence skills, 56.5% thought they were and 43.5% thought they were not (see Tables A-466 to A-468). The most commonly cited reason for why youth were not learning enough skills was lack of interest on the part of youth. The youth who were learning subsistence skills were said to be learning through family members, elders, school programs and other community members and friends. Results from the last oil spill survey, five years ago, were similarly divided. Again, the most cited reason in 1998 was also lack of interest (Fall and Utermohle 1999:V-152 to V-153). In 2003, some households attributed this lack of interest to changes in the village economy. Some residents thought there was no point in sending youth out to harvest when there were not enough resources to justify a trip, especially with recent fuel price increases. Others commented that due to low salmon prices, several families have left the village and those children have no access to subsistence resources and therefore do not learn the skills. One long-time resident of Old Harbor said that youth are learning the skills to hunt and process but not the respect for subsistence resources. Some Old Harbor residents were concerned that youth were not aware of the effects of the oil spill.

Elders' Influence

Old Harbor residents displayed a wide range of opinions on the topic of elders' influence in 2003 compared to five years ago. Twenty five percent of households said that elders' influence was the same, 37.5% said elders had more influence in 2003, and 37.5% said they had less influence than in 1997–98 (see Tables A-469 to A-471). These results are almost identical to the results of five years ago when 28% of Old Harbor residents thought elders' influence was the same as the year before the oil spill, 33% thought it was less, and 38% thought it was more (Fall and Utermohle 1999:V-149 to V-151).

On the topic of elders' influence, many people said there are hardly any elders left. They said the elders who are still around feel more comfortable about teaching people skills now that they feel safer about subsistence foods. They appreciated elders who are working with children at school. A couple of hunters said they harvest less of certain resources because the elders who liked them are gone and younger people do not eat those resources. Some respondents were shocked to realize they had recently become the "elders" of their community.

Status of the Traditional Way of Life

Over 82% of Old Harbor residents said that the traditional way of life had been affected by the oil spill. Over 64% felt that the traditional way of life had not recovered, 23.8% thought it had recovered, and 11.9% were not sure if it had recovered or not (see Tables A- 479 to A-480). These results are similar to those of five years ago when actually fewer Old Harbor residents, 78%, thought the traditional way of life had been affected and even fewer, 54%, thought it had not recovered (Fall and Utermohle 1999:V162). When asked what should be done to help the traditional way of life recover, one quarter of the households had no suggestions. Of those who did, 33% thought there should be more education and spirit camps (see Table A-481).

Most people commented that things would never be the same and there was a lot of uncertainty about this question. People felt that some aspects of the traditional way of life had recovered and others had not. In listening to people think out loud about this question, it seemed that what would not change was a new sense of vulnerability to outside forces that may not have permeated so deeply compared to previous contacts. Subsistence, unlike some aspects of Alutiiq religion and language is one of the most enduring aspects of Alutiiq culture that has survived cataclysmic social and environmental events such as the Russian conquest, huge American commercial fishing operations, World War II, and the 1964 earthquake. Survey respondents said subsistence is what makes them Alutiiq. The threat of the loss of subsistence, to question the safety and availability of the food that makes a group of people who they are, is the ultimate threat to their survival.

EVALUATION OF THE GEM PROGRAM

The last questions on the survey had to do with people's knowledge of the Gulf Ecosystem Management Program (GEM). When asked if they were informed about the Trustee Council and GEM program activities, 55.6% of Old Harbor households said they were informed and 44.4% said they were not informed (see Table A-482). Most people did not recognize the "GEM" program but when surveyors explained it was related to the EVOSTC they said they were informed. Of the people who responded to the question, "How should communication be improved?" the majority suggested newsletters or mailings (see Table A-483).

DISCUSSION AND CONCLUSIONS

As noted earlier, the mixed subsistence-cash economy of coastal Alaskan communities is dependent on commercial fishing and subsistence that are mutually dependent. The seeming paradox of this mutually-dependent economy is that people can no longer live a subsistence lifestyle without cash. Some traditional methods and means were long ago outlawed (laws and regulations require modern harvest gear) and most importantly, subsistence is about efficient harvest and most people would be at a severe disadvantage if they did not use the most modern equipment.

During the period of this survey, 2003, salmon prices were the lowest they have been since 1988 and many people said the commercial fishing industry is in an irreversible decline. In turn, this lack of cash income appears to have reduced access to subsistence resources in two ways. First, many people said they do not have the cash to buy gas, ammunition and equipment for subsistence harvests. Second, some people said they cannot afford to commercial fish anymore. This means they are not out on the land or the water as often as they used to be and consequently, are not harvesting subsistence resources as they did in the past. Some people in Old Harbor have begun to turn to sportfishing and sport hunting-related tourism. Several families have moved to other communities. Many people are riding out the current economic downturn because they have no choice or because they would not want to live anywhere else.

One person in Old Harbor stated what seems to be another aspect of the mixed cash-subsistence economy in coastal Alaska: "More subsistence foods are used in bad fishing years." But he also said, "this change [in traditional lifestyle] was indirectly oil spill-related because there have been bad fish prices since the oil spill." While it might seem like a good thing to use more subsistence foods, it is hard to obtain them when there is no cash from fishing income for fuel or bullets. He also brought up the point upon which several Old Harbor residents were adamant: they believe that the decline in commercial salmon prices is directly related to the oil Spill. These households acknowledged the effects of farmed salmon on wild salmon markets. However, there are many theories as to how the spill allowed farmed salmon to get a head start in the U.S. and other markets without any opposition from the U.S. commercial fishing lobby. Whether it was a bad coincidence or not, the fact is that commercial salmon prices were at a high in 1988 and have not returned to those levels since. The list of comments below are from Old Harbor households. These beliefs are not limited to Old Harbor. The same types of comments were made across Kodiak Island and in other spill-affected communities. In Kodiak Island villages, these comments were always elicited by the same question: "Was the traditional way of life affected by the spill?"

- I have less time to hunt because I no longer commercial fish. I had to get a different job. The oil spill caused the decline in fish prices, it caused the collapse in the fishing industry.
- The kids are no longer interested in learning subsistence skills because of the change in the village economy. (In response to the question, has the traditional way of life recovered?) It is never going to come back unless the village can find a way to get the economy going again. The oil spill has totally wiped out the commercial fishing economy. The *Exxon Valdez* Oil Spill has caused a catastrophic collapse in the local economy. That has affected all the people in Old Harbor on all levels. The village is slowly dying and may not exist in any way that remotely resembles what it was in the past. Subsistence has been adversely affected by the oil spill and may never recover.
- Less commercial boats bring reds to the village because of bad prices caused by the oil spill.
- The natives lost a lot of good food and good fishing prices. Two dollars and fifty cents per pound in 1988 for reds, now it is 60 cents per pound.
- Before EVOS, commercial fishing was a prosperous lifestyle and fishermen whose lives were damaged will never be adequately compensated. Ten Old Harbor families were seriously affected, no subsistence, no income, can't pay bills, hurt people's pride.
- The traditional way of life will probably never recover. Tuberculosis started the demise, the oil spill and the collapse of commercial fishing will be the end.
- The traditional lifestyle will never be the same. Commercial fishing has never recovered since the oil spill, I have not found another way to make a living here.

Fifteen years after the oil spill, Old Harbor residents see both aspects of their economy as damaged the spill. Most people reported that there are less subsistence resources available in 2003, especially compared to 1988 availability.   They cited the spill as one factor and competition in the form of draggers and other harvesters, commercial and sport, as increasing pressure on decreased subsistence resource populations. The price of salmon, the other aspect of the economy upon which they depend, has dropped to the point at which many people cannot afford to fish. As noted throughout the comments in the presentation of data, it is clear that many people conducted subsistence harvests while commercial fishing and this no longer occurs at pre-spill levels.   In the past, the mixed economy appeared to provide a level of flexibility ; if one part of the economy faltered, people could depend on the other. Now, both aspects of the economy are in decline. While there are probably many causes, the oil spill is certainly a watershed event that is emblematic of the beginning of major economic and cultural change. The populations of all Kodiak Island villages have declined in recent years. The people who have stayed are venturing into ecotourism and have increased guiding and outfitting of fishing and hunting tourists from outside. This type of economic activity allows people to stay in their home community and on the water. While some village residents complain about the influx of outsiders and the pressure they put on local resources, this may be the price for continuing to live a rural way of life.

Table X-1. Population Profile, Old Harbor, 2003 Study Year

AGE	MALE			FEMALE			TOTAL		
	Number	Percent	Cum. Percent	Number	Percent	Cum. Percent	Number	Percent	Cum. Percent
0 - 4	4.38	4.05%	4.05%	2.92	3.57%	3.57%	7.31	3.85%	3.85%
5 - 9	5.85	5.41%	9.46%	11.69	14.29%	17.86%	17.54	9.23%	13.08%
10 - 14	14.62	13.51%	22.97%	8.77	10.71%	28.57%	23.38	12.31%	25.38%
15 - 19	5.85	5.41%	28.38%	5.85	7.14%	35.71%	11.69	6.15%	31.54%
20 - 24	8.77	8.11%	36.49%	1.46	1.79%	37.50%	10.23	5.38%	36.92%
25 - 29	8.77	8.11%	44.59%	8.77	10.71%	48.21%	17.54	9.23%	46.15%
30 - 34	5.85	5.41%	50.00%	2.92	3.57%	51.79%	8.77	4.62%	50.77%
35 - 39	2.92	2.70%	52.70%	4.38	5.36%	57.14%	7.31	3.85%	54.62%
40 - 44	5.85	5.41%	58.11%	1.46	1.79%	58.93%	7.31	3.85%	58.46%
45 - 49	10.23	9.46%	67.57%	11.69	14.29%	73.21%	21.92	11.54%	70.00%
50 - 54	13.15	12.16%	79.73%	2.92	3.57%	76.79%	16.08	8.46%	78.46%
55 - 59	7.31	6.76%	86.49%	8.77	10.71%	87.50%	16.08	8.46%	86.92%
60 - 64	7.31	6.76%	93.24%	1.46	1.79%	89.29%	8.77	4.62%	91.54%
65 - 69	5.85	5.41%	98.65%	1.46	1.79%	91.07%	7.31	3.85%	95.38%
70 - 74	0.00	0.00%	98.65%	2.92	3.57%	94.64%	2.92	1.54%	96.92%
75 - 79	1.46	1.35%	100.00%	2.92	3.57%	98.21%	4.38	2.31%	99.23%
80 - 84	0.00	0.00%	100.00%	1.46	1.79%	100.00%	1.46	0.77%	100.00%
85 - 89	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
90 - 94	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
95 - 99	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
100+	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
Missing	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
TOTAL	108.15	56.92%		81.85	43.08%		190.00		

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table X-2. Subsistence Harvests in Pounds Usable Weight per Person by Resource Category, Old Harbor

	Pounds per Person					
	1982	1986	1989	1990	1991	2003
Salmon	233.8	187.4	148.9	206.9	110.5	166.2
Other Fish	69.3	41.3	39.2	73.4	51.6	60.8
Land Mammals	73.0	59.9	26.9	29.0	58.9	43.3
Marine Mammals	79.1	106.3	24.9	27.7	43.1	46.2
Birds & Eggs	6.4	3.5	4.1	7.6	11.1	6.4
Marine Invertebrates	29.6	23.3	27.0	36.4	19.2	23.3
Wild Plants	*	1.4	1.3	9.9	6.0	11.1
All Resources	491.1	423.2	272.4	390.9	300.4	357.2

*Data not collected for 1982.

SOURCE: Scott et al. 2001; Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table X-3. Composition of Resource Harvests by Resource Category, Old Harbor

	Percentage of Total Harvest					
	1984	1986	1989	1990	1991	2003
Salmon	47.6%	44.3%	54.7%	52.9%	36.8%	46.5%
Other Fish	14.1%	9.8%	14.4%	18.8%	17.2%	17.0%
Land Mammals	14.9%	14.2%	9.9%	7.4%	19.6%	12.1%
Marine Mammals	16.1%	25.1%	9.1%	7.1%	14.4%	12.9%
Birds & Eggs	1.3%	0.8%	1.5%	1.9%	3.7%	1.8%
Marine Invertebrates	6.0%	5.5%	9.9%	9.3%	6.4%	6.5%
Wild Plants	*	0.3%	0.5%	2.5%	2.0%	3.1%

*Data not collected for 1982.

SOURCE: Scott et al. 2001; Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table X-4. Estimated Harvest and Use of Fish, Game and Plant Resources, Old Harbor, 2003 Study Year

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
All Resources	100.0	98.1	98.1	100.0	78.8	72,035.87	947.84	357.16				49.75%
Fish	98.1	86.5	86.5	86.5	61.5	45,770.59	602.24	226.93				26.51%
Salmon	96.2	84.6	84.6	69.2	53.8	33,514.04	440.97	166.16	7,240.46		95.27	19.58%
Chum Salmon	65.4	50.0	50.0	23.1	26.9	4,283.62	56.36	21.24	808.23		10.63	34.33%
Coho Salmon	94.2	80.8	78.8	40.4	42.3	15,395.85	202.58	76.33	2,677.54		35.23	16.39%
Chinook Salmon	69.2	25.0	25.0	50.0	21.2	1,925.49	25.34	9.55	261.62		3.44	42.92%
Pink Salmon	69.2	57.7	57.7	30.8	30.8	3,675.61	48.36	18.22	1,419.15		18.67	22.03%
Sockeye Salmon	82.7	55.8	51.9	50.0	38.5	8,233.47	108.34	40.82	2,073.92		27.29	20.92%
Landlocked Salmon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Salmon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Non-Salmon Fish	92.3	67.3	67.3	73.1	55.8	12,256.55	161.27	60.77				21.77%
Herring	15.4	1.9	1.9	15.4	5.8	263.08	3.46	1.30	43.85	GAL	0.58	111.73%
Herring Roe	1.9	0.0	0.0	1.9	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Herring Roe/Unspecified	1.9	0.0	0.0	1.9	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Herring Sac Roe	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Herring Spawn on Kelp	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Smelt	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Eulachon (hooligan, candlefish)	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Unknown Smelt	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Bass	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sea Bass	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Cod	67.3	36.5	36.5	50.0	28.8	1,046.75	13.77	5.19	388.77		5.12	24.36%
Pacific Cod (gray)	67.3	36.5	36.5	48.1	26.9	1,010.22	13.29	5.01	315.69		4.15	25.40%
Pacific Tom Cod	1.9	1.9	1.9	1.9	1.9	36.54	0.48	0.18	73.08		0.96	111.73%
Walleye Pollock (whiting)	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Eel	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Flounder	1.9	1.9	1.9	0.0	0.0	87.69	1.15	0.43	29.23		0.38	111.73%
Starry Flounder	1.9	1.9	1.9	0.0	0.0	87.69	1.15	0.43	29.23		0.38	111.73%
Unknown Flounder	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Greenling	15.4	9.6	9.6	5.8	9.6	122.77	1.62	0.61	30.69		0.40	67.07%
Lingcod	15.4	9.6	9.6	5.8	9.6	122.77	1.62	0.61	30.69		0.40	67.07%
Unknown Greenling	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Halibut	92.3	59.6	57.7	61.5	50.0	10,119.69	133.15	50.17	10,119.69	LBS	133.15	22.43%
Rockfish	28.8	21.2	19.2	17.3	9.6	491.81	6.47	2.44	249.92		3.29	32.59%
Black Rockfish	25.0	19.2	19.2	9.6	9.6	304.73	4.01	1.51	203.15		2.67	39.47%
Red Rockfish	15.4	7.7	5.8	13.5	3.8	187.08	2.46	0.93	46.77		0.62	67.18%
Unknown Rockfish	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sablefish (black cod)	11.5	1.9	1.9	11.5	3.8	22.65	0.30	0.11	7.31		0.10	111.73%
Sculpin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Irish Lord	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Irish Lord	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Sculpin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%

(Continued)

Table X-4. Estimated Harvest and Use of Fish, Game and Plant Resources, Old Harbor, 2003 Study Year

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Gadwall	13.5	13.5	13.5	3.8	5.8	67.82	0.89	0.34	84.77		1.12	54.12%
Goldeneye	21.2	13.5	13.5	9.6	5.8	63.14	0.83	0.31	78.92		1.04	41.63%
Unknown Goldeneye	21.2	13.5	13.5	9.6	5.8	63.14	0.83	0.31	78.92		1.04	41.63%
Harlequin	9.6	9.6	9.6	1.9	5.8	24.12	0.32	0.12	48.23		0.63	51.10%
Mallard	55.8	32.7	28.8	32.7	21.2	250.70	3.30	1.24	278.55		3.67	29.82%
Merganser	5.8	5.8	5.8	0.0	0.0	23.68	0.31	0.12	26.31		0.35	74.32%
Common Merganser	5.8	5.8	5.8	0.0	0.0	23.68	0.31	0.12	26.31		0.35	74.32%
Long-tailed Duck (Oldsquaw)	5.8	5.8	5.8	0.0	1.9	17.54	0.23	0.09	21.92		0.29	68.18%
Northern Pintail	17.3	11.5	11.5	5.8	5.8	30.40	0.40	0.15	38.00		0.50	45.85%
Scaup	19.2	15.4	15.4	5.8	7.7	73.66	0.97	0.37	81.85		1.08	36.08%
Unknown Scaup	19.2	15.4	15.4	5.8	7.7	73.66	0.97	0.37	81.85		1.08	36.08%
Scoter	26.9	19.2	19.2	17.3	9.6	291.43	3.83	1.44	323.81		4.26	29.33%
Black Scoter	23.1	17.3	17.3	13.5	5.8	152.00	2.00	0.75	168.89		2.22	46.11%
Surf Scoter	9.6	9.6	9.6	5.8	7.7	48.67	0.64	0.24	54.08		0.71	51.23%
White-winged Scoter	9.6	9.6	9.6	1.9	7.7	90.76	1.19	0.45	100.85		1.33	67.44%
Unknown Scoter	1.9	0.0	0.0	1.9	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Teal	13.5	13.5	13.5	7.7	3.8	21.92	0.29	0.11	73.08		0.96	50.35%
Green Winged Teal	13.5	13.5	13.5	7.7	3.8	21.92	0.29	0.11	73.08		0.96	50.35%
Wigeon	13.5	11.5	11.5	3.8	11.5	53.20	0.70	0.26	76.00		1.00	45.74%
American Wigeon	13.5	11.5	11.5	3.8	11.5	53.20	0.70	0.26	76.00		1.00	45.74%
Unknown Ducks	5.8	0.0	0.0	5.8	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Geese	23.1	9.6	7.7	17.3	3.8	85.34	1.12	0.42	61.38		0.81	58.37%
Brant	3.8	1.9	1.9	1.9	1.9	3.51	0.05	0.02	2.92		0.04	111.73%
Canada Geese	15.4	7.7	5.8	11.5	3.8	57.88	0.76	0.29	48.23		0.63	77.55%
Unknown Canada Geese	15.4	7.7	5.8	11.5	3.8	57.88	0.76	0.29	48.23		0.63	77.55%
Emperor Geese	1.9	1.9	1.9	0.0	1.9	21.92	0.29	0.11	8.77		0.12	111.73%
White-fronted Geese	1.9	0.0	0.0	1.9	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Geese	7.7	1.9	1.9	5.8	0.0	2.03	0.03	0.01	1.46		0.02	111.73%
Shorebirds	1.9	1.9	1.9	0.0	0.0	2.92	0.04	0.01	29.23		0.38	111.73%
Common Snipe	1.9	1.9	1.9	0.0	0.0	2.92	0.04	0.01	29.23		0.38	111.73%
Seabirds & Loons	1.9	1.9	1.9	0.0	0.0	2.19	0.03	0.01	7.31		0.10	111.73%
Auklet	1.9	1.9	1.9	0.0	0.0	2.19	0.03	0.01	7.31		0.10	111.73%
Parakeet Auklet	1.9	1.9	1.9	0.0	0.0	2.19	0.03	0.01	7.31		0.10	111.73%
Gulls	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Gull	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Murre	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Common Murre	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Puffins	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Horned Puffin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tufted Puffin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Puffin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Other Birds	7.7	7.7	7.7	0.0	0.0	25.58	0.34	0.13	36.54		0.48	56.16%
Upland Game Birds	7.7	7.7	7.7	0.0	0.0	25.58	0.34	0.13	36.54		0.48	56.16%
Ptarmigan	7.7	7.7	7.7	0.0	0.0	25.58	0.34	0.13	36.54		0.48	56.16%
Bird Eggs	25.0	17.3	17.3	11.5	11.5	157.87	2.08	0.78	863.77		11.37	37.32%

(Continued)

Table X-4. Estimated Harvest and Use of Fish, Game and Plant Resources, Old Harbor, 2003 Study Year

	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
Resource Name	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Duck Eggs	1.9	1.9	1.9	0.0	0.0	1.75	0.02	0.01	11.69		0.15	111.73%
Unknown Duck Eggs	1.9	1.9	1.9	0.0	0.0	1.75	0.02	0.01	11.69		0.15	111.73%
Geese Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Geese Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Seabird & Loon Eggs	25.0	17.3	17.3	11.5	11.5	156.12	2.05	0.77	852.08		11.21	37.78%
Gull Eggs	25.0	17.3	17.3	11.5	11.5	135.05	1.78	0.67	450.15		5.92	43.59%
Unknown Gull Eggs	25.0	17.3	17.3	11.5	11.5	135.05	1.78	0.67	450.15		5.92	43.59%
Puffin Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tern Eggs	3.8	3.8	3.8	1.9	1.9	19.73	0.26	0.10	394.62		5.19	77.97%
Unknown Seabird Eggs	1.9	1.9	1.9	0.0	0.0	1.34	0.02	0.01	7.31		0.10	111.73%
Marine Invertebrates	92.3	65.4	65.4	82.7	53.8	4,699.37	61.83	23.30				19.39%
Chitons (bidarkis, gumboots)	61.5	42.3	42.3	28.8	26.9	526.15	6.92	2.61	131.54	GAL	1.73	41.29%
Red (large) Chitons	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Black (small) Chitons	61.5	42.3	42.3	28.8	26.9	526.15	6.92	2.61	131.54	GAL	1.73	41.29%
Clams	88.5	48.1	48.1	63.5	38.5	2,280.00	30.00	11.30	760.00	GAL	10.00	14.10%
Butter Clams	80.8	46.2	46.2	53.8	36.5	1,683.69	22.15	8.35	561.23	GAL	7.38	19.41%
Horse Clams (Gaper)	1.9	1.9	1.9	0.0	0.0	4.38	0.06	0.02	1.46	GAL	0.02	111.73%
Pacific Littleneck Clams (Steamers)	38.5	25.0	25.0	19.2	17.3	285.00	3.75	1.41	95.00	GAL	1.25	35.17%
Pinkneck Clams	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Razor Clams	25.0	11.5	11.5	17.3	9.6	306.92	4.04	1.52	102.31	GAL	1.35	45.23%
Unknown Clams	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Cockles	3.8	1.9	1.9	1.9	0.0	13.15	0.17	0.07	4.38	GAL	0.06	111.73%
Unknown Cockles	3.8	1.9	1.9	1.9	0.0	13.15	0.17	0.07	4.38	GAL	0.06	111.73%
Crabs	80.8	38.5	36.5	69.2	30.8	1,611.87	21.21	7.99	1,254.79		16.51	26.83%
Dungeness Crab	32.7	21.2	17.3	25.0	13.5	332.50	4.38	1.65	475.00		6.25	41.68%
King Crab	44.2	15.4	15.4	32.7	5.8	104.21	1.37	0.52	45.31		0.60	56.32%
Unknown King Crab	3.8	3.8	3.8	0.0	0.0	53.78	0.71	0.27	23.38		0.31	104.72%
Tanner Crab	71.2	30.8	28.8	61.5	28.8	1,175.17	15.46	5.83	734.48		9.66	37.40%
Tanner Crab, Bairdi	69.2	25.0	23.1	61.5	28.8	999.78	13.16	4.96	624.86		8.22	43.67%
Unknown Tanner Crab	5.8	5.8	5.8	0.0	1.9	175.38	2.31	0.87	109.62		1.44	77.67%
Unknown Crab	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Geoducks	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Jingles	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Jingles	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Limpets	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Mussels	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Unknown Mussels	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Octopus	38.5	19.2	19.2	26.9	13.5	175.38	2.31	0.87	43.85		0.58	35.77%
Scallops	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Weathervane Scallops	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Sea Cucumber	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Sea Urchin	59.6	30.8	30.8	38.5	26.9	92.81	1.22	0.46	185.62	GAL	2.44	38.33%
Shrimp	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	LBS	0.00	0.00%
Snails	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
(Continued)												

Table X-4. Estimated Harvest and Use of Fish, Game, and Plant Resources, Old Harbor, 2003

Resource Name	Percentage of Households: Use	Att	Harv	Recv	Give	Pounds Harvested: total	Mean HH	Percapita	Amount Harvested: Total	Units	Mean HH	Conf Limit 95% (+/-): Harvest
Murre	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Common Murre	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Puffins	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Horned Puffin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tufted Puffin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Puffin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Other Birds	7.7	7.7	7.7	0.0	0.0	25.58	0.34	0.13	36.54		0.48	56.16%
Upland Game Birds	7.7	7.7	7.7	0.0	0.0	25.58	0.34	0.13	36.54		0.48	56.16%
Ptarmigan	7.7	7.7	7.7	0.0	0.0	25.58	0.34	0.13	36.54		0.48	56.16%
Bird Eggs	25.0	17.3	17.3	11.5	11.5	157.87	2.08	0.78	863.77		11.37	37.32%
Duck Eggs	1.9	1.9	1.9	0.0	0.0	1.75	0.02	0.01	11.69		0.15	111.73%
Unknown Duck Eggs	1.9	1.9	1.9	0.0	0.0	1.75	0.02	0.01	11.69		0.15	111.73%
Geese Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Geese Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Seabird & Loon Eggs	25.0	17.3	17.3	11.5	11.5	156.12	2.05	0.77	852.08		11.21	37.78%
Gull Eggs	25.0	17.3	17.3	11.5	11.5	135.05	1.78	0.67	450.15		5.92	43.59%
Unknown Gull Eggs	25.0	17.3	17.3	11.5	11.5	135.05	1.78	0.67	450.15		5.92	43.59%
Puffin Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tern Eggs	3.8	3.8	3.8	1.9	1.9	19.73	0.26	0.10	394.62		5.19	77.97%
Unknown Seabird Eggs	1.9	1.9	1.9	0.0	0.0	1.34	0.02	0.01	7.31		0.10	111.73%
Marine Invertebrates	92.3	65.4	65.4	82.7	53.8	4,699.37	61.83	23.30				19.39%
Chitons (bidarkis, gumboots)	61.5	42.3	42.3	28.8	26.9	526.15	6.92	2.61	131.54	GAL	1.73	41.29%
Red (large) Chitons	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Black (small) Chitons	61.5	42.3	42.3	28.8	26.9	526.15	6.92	2.61	131.54	GAL	1.73	41.29%
Clams	88.5	48.1	48.1	63.5	38.5	2,280.00	30.00	11.30	760.00	GAL	10.00	14.10%
Butter Clams	80.8	46.2	46.2	53.8	36.5	1,683.69	22.15	8.35	561.23	GAL	7.38	19.41%
Horse Clams (Gaper)	1.9	1.9	1.9	0.0	0.0	4.38	0.06	0.02	1.46	GAL	0.02	111.73%
Pacific Littleneck Clams (Steamers)	38.5	25.0	25.0	19.2	17.3	285.00	3.75	1.41	95.00	GAL	1.25	35.17%
Pinkneck Clams	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Razor Clams	25.0	11.5	11.5	17.3	9.6	306.92	4.04	1.52	102.31	GAL	1.35	45.23%
Unknown Clams	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Cockles	3.8	1.9	1.9	1.9	0.0	13.15	0.17	0.07	4.38	GAL	0.06	111.73%
Unknown Cockles	3.8	1.9	1.9	1.9	0.0	13.15	0.17	0.07	4.38	GAL	0.06	111.73%
Crabs	80.8	38.5	36.5	69.2	30.8	1,611.87	21.21	7.99	1,254.79		16.51	26.83%
Dungeness Crab	32.7	21.2	17.3	25.0	13.5	332.50	4.38	1.65	475.00		6.25	41.68%
King Crab	44.2	15.4	15.4	32.7	5.8	104.21	1.37	0.52	45.31		0.60	56.32%
Unknown King Crab	3.8	3.8	3.8	0.0	0.0	53.78	0.71	0.27	23.38		0.31	104.72%
Tanner Crab	71.2	30.8	28.8	61.5	28.8	1,175.17	15.46	5.83	734.48		9.66	37.40%
Tanner Crab, Bairdi	69.2	25.0	23.1	61.5	28.8	999.78	13.16	4.96	624.86		8.22	43.67%
Unknown Tanner Crab	5.8	5.8	5.8	0.0	1.9	175.38	2.31	0.87	109.62		1.44	77.67%
Unknown Crab	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%

(Continued)

Table X-4. Estimated Harvest and Use of Fish, Game and Plant Resources, Old Harbor, 2003 Study Year

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Vegetation	92.3	90.4	90.4	44.2	50.0	2,233.23	29.38	11.07				14.59%
Berries	92.3	90.4	90.4	38.5	46.2	2,022.77	26.62	10.03	505.69	GAL	6.65	14.31%
Plants/Greens/Mushrooms	28.8	28.8	28.8	5.8	11.5	175.38	2.31	0.87	43.85	GAL	0.58	34.46%
Seaweed/Kelp	3.8	3.8	3.8	0.0	0.0	35.08	0.46	0.17	8.77	GAL	0.12	94.25%
Unknown Seaweed	3.8	3.8	3.8	0.0	0.0	35.08	0.46	0.17	8.77	GAL	0.12	94.25%
Wood	40.4	36.5	36.5	9.6	19.2	0.00	0.00	0.00	190.77	CORDS	2.51	54.53%

Note: Harvest amount in individual units unless otherwise specified.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Figure X-1. Harvests of Wild Resources, Pounds Usable Weight per Person, Old Harbor

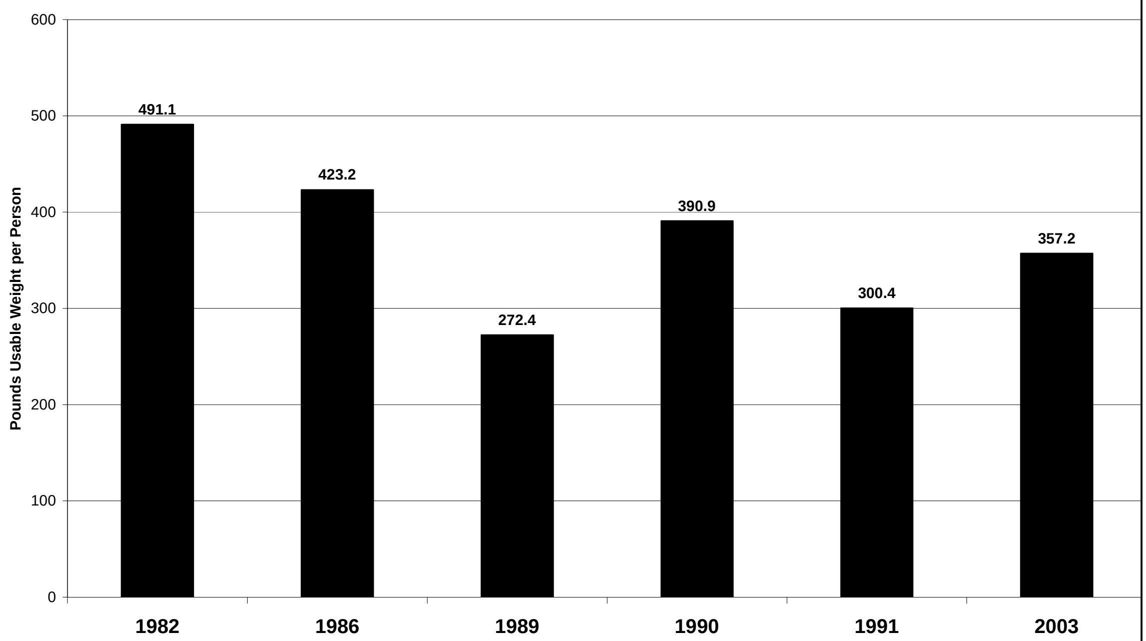
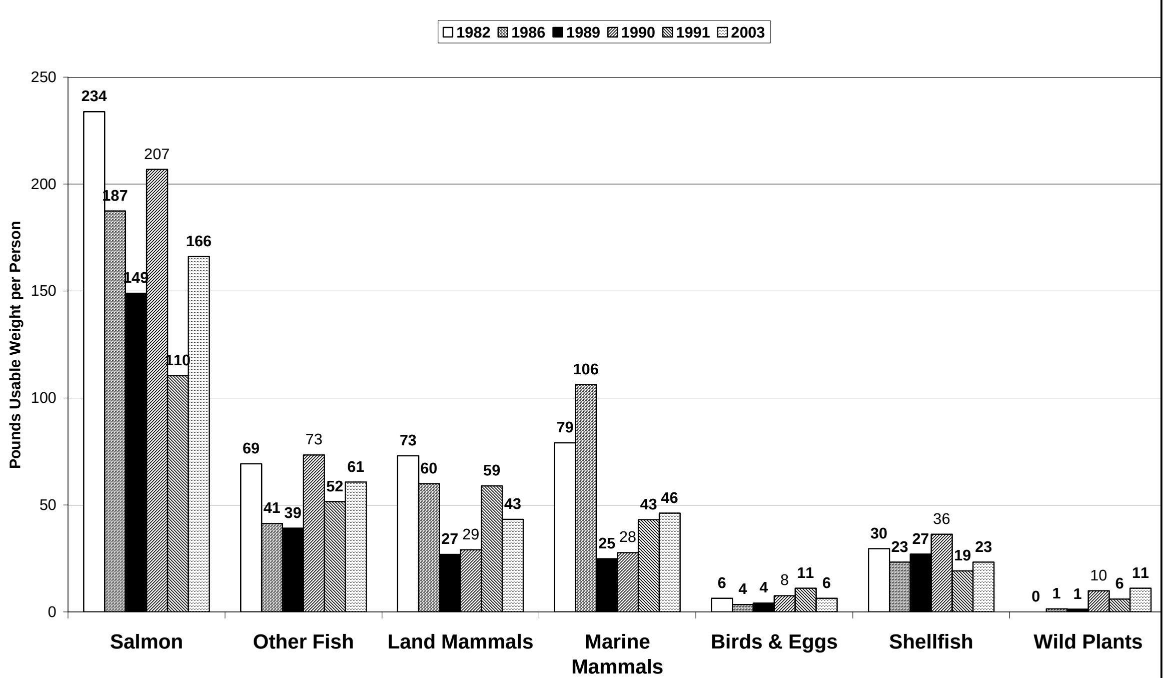


Figure X-2. Harvests of Wild Resources by Resource Category, Pounds Usable Weight per Person, Old Harbor



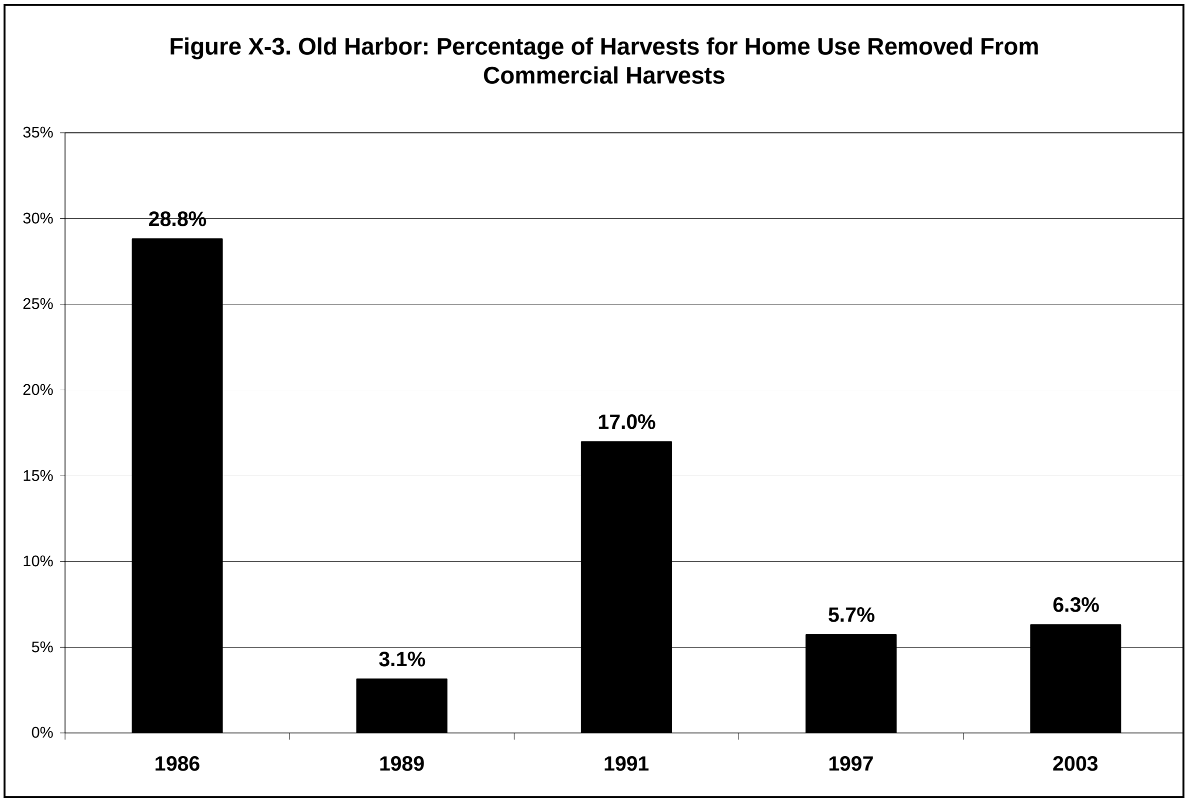


Figure X-3. Old Harbor: Percentage of Harvests for Home Use Removed From Commercial Harvests
35%
30%
25%
20%
15%
10%
5%
0%
28.8%
3.1%
17.0%
5.7%
6.3%
1986
1989
1991
1997
2003

CHAPTER XI: OUZINKIE

by

Liz Williams

COMMUNITY BACKGROUND

Community History

Ouzinkie is located on the west coast of Spruce Island on the Gulf of Alaska, just northeast of Kodiak Island and Kodiak City. Ouzinkie is accessible only by plane or boat. Unlike other Kodiak Island villages further to the south, Ouzinkie can be reached by skiff from Kodiak City. The climate is subject to strong marine influence with frequent rain, wind and rare freezing temperatures. Currently there is a tribal government and a city government. The Ouzinkie Tribal Council is a federally-recognized tribe. The City of Ouzinkie is a second-class city and was incorporated in 1967 (Alaska Department of Commerce, Community and Economic Development [AADCCED] 2005).

Kodiak Island has been occupied by the Alutiiq people for several thousand years. The name of the village, Ouzinkie, is a Russian word that means “the narrows”, and describes the passage between Spruce Island and Kodiak Island. Alutiiq people used the area now called Ouzinkie long before the arrival of Russians in the late-eighteenth century. The village of Ouzinkie began as a “creole” retirement community during the Russian Colonial period. “Creole” is the word used to describe people of mixed Russian and Alutiiq descent. Many Russian-American Company employees married Alutiiq people and chose not to return to Russia. The Russian settlers promoted gardening and cattle husbandry in Ouzinkie. Aspects of the Russian-colonial economy of Ouzinkie included subsistence fishing and hunting, animal husbandry and gardening. In 2003, unique aspects of the Ouzinkie “creole” economy that persist are old cattle trails still used as pathways, and gardening, including the use of kelp for fertilizer. Like all other Kodiak Island communities, fish, marine invertebrates, marine mammals and other subsistence resources have always been important in Ouzinkie.

Demography

Ouzinkie is one of the three largest Kodiak Island villages in population. The 2000 U.S. Census reported the population at 225. The 2005 State of Alaska estimate, 187, indicates a decrease since 2000. In 2003, demographic data collected by Alaska Department of Fish and Game (ADF&G), Division of Subsistence indicated a population of 204 people. There are an estimated 69 households in the community with an average size of 3 persons per household. The community is 88.1% percent Alaska Native and the average length of residence in the community is 26.2 years. The average age is 34.3 years (see Table I-8; Table XI-1). According to ADCCED data, the median annual household income is $52,500.

Economic Overview

Ouzinkie residents have participated since the inception of the commercial fishing industry on Kodiak. Several canneries were built in Ouzinkie, the first in 1889. Many local people worked in various cannery-related occupations; the men fished with "power dories" and the women often worked as fish processors. In the late 1940s many families bought their own fishing boats (Mishler 2001:50). Ouzinkie was severely damaged during the 1964 earthquake and much of the community had to be completely rebuilt. In 1976, the last cannery burned and was not rebuilt. Fish, especially salmon, have always been one of the mainstays of the Kodiak Island economy. Middens around Kodiak reveal the importance of fish to the earliest Alutiiq inhabitants of the island (Steffian and Saltonstall 2004:123). The Russians depended upon Alutiiq fish harvests as one way feed the colony. Commercial fishing has been the basis of the Kodiak Island economy since Alaska was purchased by the United States in 1867. In most Kodiak Island villages, commercial fishing has been an integral part of the mixed economy of rural Alaska– the cash and subsistence economy. The mixed economies of many coastal communities in Alaska, including Ouzinkie, rely on commercial fishing and subsistence harvests, which are mutually dependent.

The ADCCED (2005) described the 2005 Ouzinkie economy by noting that: "Ouzinkie's economic base is primarily commercial salmon fishing. Twenty-six residents hold commercial fishing (salmon) permits. Almost all of the population depends to some extent on subsistence activities for various food sources." In addition to commercial fishing and subsistence, the 2003 Ouzinkie economy included work on a new water and sewer system, logging, city and tribal government, clinic, school, post office and self employment as hunting and fishing guides, and lodge owners.

The economy of Ouzinkie has long been based on commercial fishing. Between 1980 and 1989 there were an average of 17 commercial salmon fishing permit holders in Ouzinkie and an average of 14 of those permits were fished during the 1980's (Alaska Department of Fish and Game, Commercial Fisheries Entry Commission [CFEC] 2005). In 1984, the number of permit holders and permits fished began to decline. However, as the number of permit holders decreased, fish prices began to increase. In 1988, the year before the *Exxon Valdez* oil spill (EVOS), commercial salmon prices were high. Kodiak sockeye salmon were worth an average of $2.71 per pound compared to an average of $1.01 in 1984. In 1989, the year of the oil spill, there were 12 commercial salmon permit holders in Ouzinkie but due to spill-related closures, none of these permits were fished. In 1989, the average price of Kodiak sockeye salmon dropped from $2.71 to $1.79. With the exception of a slight rise in 1992, when the average price of Kodiak sockeye salmon rose to $1.47, the price has steadily declined since 1988. Concurrently, the number of commercial salmon permits, in Ouzinkie and other communities, has declined. From 1990-1999, there were an average of 13 permit holders in Ouzinkie and an average of 9 of these permits were fished. From 2000-2003, there were an average of 13 permit holders in Ouzinkie with an average of 6 permits fished. In 2004, there were 12 commercial salmon permits in Ouzinkie and only 5 were fished. The average price per pound for Kodiak sockeye in 2003 was 53 cents. The average price per pound for other Kodiak salmon in 2003 was Chinook, 46 cents; coho, 16 cents; chum, 11 cents; and pink, 7 cents (CFEC 2005).

Subsistence harvests provide a significant portion of household economies. In 2003, the average Ouzinkie household used 971.7 pounds of wild foods, up from 887 pounds of wild foods during the previous oil spill study in 1997–98 (Fall and Utermohle 1999:S-3). If we use five dollars per pound as the replacement cost of subsistence foods in 2003, an Ouzinkie household would have had to spend an average of $4,860.00 on food.

SUBSISTENCE RESOURCE HARVEST AND USES

Participation in Hunting, Fishing and Gathering Activities

One characteristic of village subsistence economies in Alaska is the wide variety of subsistence resources that households use, harvest, and share In 2003, Ouzinkie households reported the use of an average of 24.9 different kinds of subsistence resources. In 2003, Ouzinkie households reported an average harvest of 13.5 different kinds of subsistence resources. The diversity of subsistence resources used is higher than the previous survey year of 1998 when an average of 19 resources were used by Ouzinkie households. Also, the amount of 25 in 2003 is higher than in 1986, when the average number of subsistence resources used per household was 16. The diversity of subsistence resources used by Ouzinkie residents in 2003 has surpassed the number recorded for pre-spill years, based on surveys conducted in 1983 and 1986 (see Table I-10).

Table XI-4 illustrates levels of participation in the harvest and use of wild resources by residents of Ouzinkie in 2003. It shows that 96.1% of Ouzinkie households were involved in subsistence harvest activities and all Ouzinkie households (100%) said they used subsistence resources during the study year (2003). The "harvest" category refers to subsistence resources actually taken by a member of the surveyed household during the year covered in the survey. The "use" category includes all resources taken and given away by a household, and resources "received" by one household from another after a harvest, either as gifts, by trade, or through hunting partnerships, and meat given to hunting and fishing guides by their clients. In some cases, households may receive subsistence resources and consume them but not actually harvest them. They may not harvest because of age, illness, lack of income for harvest gear, or a wage job that does not allow them time to harvest. These households that "receive" and "use" subsistence resources and do not harvest, often provide cash or other assistance to those who harvest for them. In many cases, there are households who "use", "harvest", "receive" and "give away" or share. These households consume many of the resources they harvest, however, they may harvest more than their household requires in order to share with, or provide for, households that did not harvest. Additionally, some households specialize in specific types of harvests such as marine mammals or waterfowl. These households may harvest the bulk of one type of subsistence resource in order to provide for the entire community. This is increasingly the case for items like gull eggs. Because the high price of fuel prohibits many trips, one or more households may make a trip and harvest enough eggs for everyone. Sharing is not confined to need. Many people harvest their own salmon, for example, and still receive salmon from other households, depending on who has it fresh that day or for variety, because of different household processing methods. The "use" category was not confined to resources for human consumption, but incorporated all non-commercial uses of resources including fur and wood. Clearly the economic implications of sharing between households are significant.

In terms of broad categories of resources (see Table I-9), more people were involved in the use and harvest of fish and plants than in the use and harvest of land and marine mammals, marine invertebrates and birds and eggs. Table XI-4 shows that more Ouzinkie households used fish than any other subsistence resource. Over 80% of Ouzinkie households harvested fish and

100% of Ouzinkie households used fish for a total community harvest of 51,263.5 pounds of fish (approximately 743.0 pounds of fish per household). Of the fish harvested, 27,730.3 pounds was salmon and 23,533.2 pounds was non-salmon fish, mostly halibut. The most widely harvested category of wild resources was plants. Eighty-eight percent of Ouzinkie households harvested plants and 96% used plants. After plants and fish, marine invertebrates were the third highest harvested and used subsistence resource category. Over 88% of Ouzinkie households harvested marine invertebrates and they were eaten by 96.1% of households. As for other subsistence resources, 52.9% of households harvested birds and eggs and 88.2% used them, 43.1% of Ouzinkie households harvested large land mammals, mostly deer, and 86.3% of households used large land mammals, 19.6% of households harvested marine mammals and 58.8% used them, and 15.7% of households harvested and 23.5% used small land mammals.

Resource Harvest Quantities and Harvest Composition

Table XI-4, summarizing resource harvest and use, is organized first by general category and then by specific species. All resources have been recorded in usable pounds (see Appendix D for conversion factors).

In the study year of 2003, Ouzinkie's total community harvest of wild resources was 67,046.2 pounds usable weight. The average household harvest for all wild foods was 971.7 pounds; 315.6 pounds per person (see Table XI-4). In 2003, the community harvested 51,263.5 pounds of fish (76.5% of the total harvest); 4,152.5 pounds of large land mammals (6.2%); 3,166.1 pounds of plants (4.7%); 2,997.2 pounds of birds and eggs (4.5%); 2,966.7 pounds of marine invertebrates (4.4%); 2,500.2 pounds of marine mammals (3.7%); and 153.7 pounds of small land mammals (<1%).

In terms of specific resources in 2003, salmon (27,730.3 pounds) and halibut (9,991.5 pounds) made up the largest components of the community's resource harvest as measured by usable weight. Next in order of total pounds harvested were deer (3,389.9 pounds), seal (2,500.2 pounds), berries (2,079.1 pounds), chitons (1,458.5 pounds), and sea gull eggs (510.6 pounds).

Salmon made up 41.4% percent of the total subsistence harvest in 2003. As noted above, Ouzinkie harvested 27,730.3 pounds of salmon in 2003 (see Table XI-3). This is similar to the 1997–98 salmon harvest of 26,374 pounds (Fall and Utermohle 1999:S-3). The 2003 subsistence salmon harvest was composed of 45.7% coho salmon, 37.2% sockeye salmon, 6.8% chum salmon, 6.6% pink salmon, and 3.6% Chinook salmon. In 2003, 98.8% of Ouzinkie households reported using salmon, 74.5% of households harvested salmon, 66.7% of households said they shared salmon with other households, and 82.4% received salmon from others. In 2003, the average harvest of salmon per household was 401.9 pounds, approximately 130.6 pounds per person.

The methods used by Ouzinkie residents to harvest salmon were set net, 57% of households (19,723 pounds); rod and reel, 55% of households (6,625 pounds); and 10% removed 1,332 pounds of salmon from commercial harvests for home use. Figure XI-3 shows the decline in the amount of salmon retained for home use from commercial catch in recent years.

Non-salmon fish species made up 35.1 % of the total Ouzinkie subsistence harvest and were used by 100% percent of households. Ouzinkie residents harvested 23,533.2 pounds of non-salmon fish in 2003 compared to 13,632 pounds in 1997–98. The bulk of the 2003 non-salmon fish harvest was composed of halibut 42.5% (9,991.5 pounds); followed by herring 11.6% (2,731.0 pounds); cod 10.2% (2,397.7 pounds); various types of rockfish 10.1%, (2,385.2

pounds); char 10.0%, (2,344.9 pounds); trout 9.2% (2,164.9 pounds); and greenling 5.7% (1,343.5 pounds). As shown in Table XI-4, 72.5% percent of households harvested non-salmon fish, 66.7% of households shared non-salmon fish, and 88.2% of Ouzinkie households received non-salmon fish. In 2003, the average harvest of non-salmon fish was 341.1 pounds per household, approximately 110.8 pounds per person.

Land mammals made up 6.2% of the total Ouzinkie subsistence harvest in 2003. The total 2003 subsistence land mammal harvest for Ouzinkie was 4,152.5 pounds. The 2003 amount is approximately 1,200 pounds less than the 1997–98 harvest of 5,966 pounds. The 2003 harvest was primarily composed of deer, 81.2% (3,389.9 pounds); caribou (harvested on the mainland), 14.7% (608.8 pounds); and snowshoe hare, 3.7% (153.7 pounds). Over 86% of Ouzinkie households reported using land mammals, and 84.3% of Ouzinkie households used deer. Almost 14% of Ouzinkie households used caribou and 23.5% used snowshoe hare. Over 43% of Ouzinkie households reported harvesting land mammals, 43.1% of households shared land mammals and 78.4% received land mammals. In 2003, the average household harvest of large land mammals was 60.2 pounds and the average amount harvested per person was 19.6 pounds.

About 5% of Ouzinkie's total 2003 subsistence harvest included plants, 3,166.1 pounds. The 2003 amount is higher than the 1997–98 harvest of 2,051 pounds. Berries included 65.7% of the plant harvest in 2003 and 2,079.1 pounds of berries were harvested by Ouzinkie residents. They also harvested kelp 21.3% (675.4 pounds) and greens 13.0% (411.7 pounds). Wood is included in the plant harvest and 327.4 cords were harvested in 2003. Wood is important for steam baths (banya), smoking fish, and to some extent, for home heating. About 96% of households said they used plants and 88.2% of households reported harvesting them. About 72% of Ouzinkie households reported sharing plants and 56.9% of households said they received them. The average 2003 household harvest of plants was 45.9 pounds and the average harvest amount per person was 14.9 pounds.

Birds and eggs made up 4.5% of Ouzinkie's total 2003 subsistence harvest (see Table XI-4). The total harvest of birds and eggs was 2,997.2 pounds, higher than the 1997–98 harvest of 2,586 pounds. Ducks were the most commonly harvested bird, at 71.7% (2,149.6 pounds). Scoters comprised 20.1% of all ducks harvested (445.7 pounds) and mallards accounted for 18.9% (405.5 pounds). Geese made up just 1.2% of the total bird harvest (37.3 pounds). Bird eggs comprised 18.1% (542.7 pounds) of the total bird and egg harvest, and sea gull eggs 17.0% (510.6 pounds). More than 88% of households said they used birds and eggs and 52.9% of households reported harvesting them. Over 45% of Ouzinkie households reported sharing birds and eggs and 68.6% of households said they received them. The average 2003 household harvest of birds and eggs was 43.4 pounds and the average harvest amount per person was 14.1 pounds.

Marine invertebrates constituted 4.5% of Ouzinkie's total 2003 subsistence harvest. The total harvest of marine invertebrates was 2,966.7 pounds, higher than the 1997–98 harvest of 1,554 pounds. Chitons were the most heavily harvested marine invertebrate, 4.29% (1,458.5 pounds). Tanner crab made up 19.7% (584.5 pounds) of the marine invertebrate harvest, followed by octopus 19% (578 pounds). Of the clams harvested, razor clams were the most common, followed by steamer clams. Over 96% of households said they used marine invertebrates and 82% of households reported harvesting them. Fifty-three percent of Ouzinkie households reported sharing marine invertebrates and 82.4% of households said they received them.   The average 2003 household harvest of marine invertebrates was 43.0 pounds and the average harvest amount per person was 14.0 pounds.

Marine mammals comprised 3.7% of the total subsistence harvest in Ouzinkie in 2003. The total 2003 marine mammal harvest for Ouzinkie was 2,500.2 pounds; this is approximately the same as the 1997–98 harvest of 2,585 pounds, except that the 2003 harvest did not include sea lion. The 2003 harvest only included harbor seal. Almost 59% of Ouzinkie households used marine mammals, while 19.6% of households harvested them. Almost 22% of Ouzinkie households said they shared marine mammals and 54.9% of households said they received marine mammals. In 2003, the average household harvest of marine mammals was 36.2 pounds and the average amount harvested per person was 11.8 pounds.

Harvest Effort

On the 2003 survey, Ouzinkie residents were asked to assess the amount of effort it took to harvest wild resources as compared to five years ago. This question was asked about seven resource categories: salmon, non-salmon fish, marine invertebrates, land mammals, marine mammals, birds and eggs, and wild plants. For every category, the majority of Ouzinkie households who answered the question said it took the same amount effort to harvest resources as it did five years ago (see Table A-58 to A-81).

Some of these 2003 "same as five years ago" responses are different than the responses from the 1997–98 survey. In response to the question on the 1997–98 survey, "How do you compare your household's effort to harvest various resource categories' in 1997–98 with 1988?" the responses were varied. For four resource categories, Ouzinkie residents answered that their harvest required "less effort." The categories in which "less effort" was required in 1997–98 compared with 1988 were marine invertebrates (71% said less); land mammals (40.5% said less); marine mammals (69% said less); and birds and eggs (47% said less) (Fall and Utermohle 1999:K-4 to K-5).   It should be noted, however, that a "less effort" response does not always indicate easy harvests and "more effort" does not always indicate a high-quantity harvest.   As will be seen later, there was less effort to harvest marine invertebrates in 2003 and in 1997–98 compared to 1988 due to PSP and perceptions of lower population abundance of several marine invertebrate species.

The effort to harvest salmon in 1997–98 was considered to be the "same" by 37% of households and "more" than in 1988 by 33% of households. The effort required to harvest plants was reported the same by 70% of Ouzinkie residents in 1997–98 compared to 1988. Survey results from 1997–98 indicate that only non-salmon fish required more effort (44%) to harvest in 1997–98 compared to 1988.

In 2003, Ouzinkie residents said their overall effort to harvest was the same as five years ago, 1997–98. In a review of 1997–98 survey results (Fall and Utermohle 1999), Ouzinkie households said their harvest effort for most resource categories in 1997–98 was lower than it was in 1988, the year before the oil spill.   Hence, Ouzinkie residents reported that the amount of harvest effort required to obtain subsistence resources in 2003 was the same as it was in 1997–98 and that their harvest effort in 1997–98 was lower than it was in 1988. Some of this lower effort was related to concerns about safety and resource abundance; this was especially clear in the case of marine invertebrates and marine mammals. In 1997–98, 67% of Ouzinkie households said their harvests of marine mammals were less because of concerns about the safety of the resource, and 52% said they used less because of lack of abundance. They attributed both of these conditions to the oil spill (Fall and Utermohle 1999:V-29). Ouzinkie households made similar comments about marine mammals in 1997–98. Sixty-eight percent of Ouzinkie households said they used less marine mammals because of spill-related abundance issues (Fall and Utermohle 1999:V-21).

Comparisons of Uses and Harvests with Other Years

In 2003, Ouzinkie households were asked to assess their current harvest and use of subsistence resources compared to five years ago and to 1988, the year before the oil spill. The majority of Ouzinkie respondents, 85%, said that their overall 2003 subsistence harvest was the same as five years ago, and 11% said their overall subsistence harvest was less than five years ago (see Tables A-25 to A-27). Correspondingly, 78% of Ouzinkie households reported that their overall subsistence harvests in 2003 were the same as they were in 1988 and 13% said they were less (see Tables A-52 to A-57).

In response to specific questions about the seven resource categories, for five of the categories, the majority of households said that their harvests were the same as five years ago (see Tables A-1 to A-27), but less than they were before 1988 (see Tables A-28 to A-51). By resource category, in 2003, 76.9% said their harvest of salmon was the same as five years ago and 59.0% said it was the same as in 1988; 71.4% said their harvest of non-salmon fish was the same as five years ago and 52.4% said it was less than in 1988; 65.0% said their harvest of marine invertebrates was the same as five years ago and 67.5% said it was the same as in 1988; 77.3% said their harvest of marine mammals was the same as it was five years ago and 65.0% said it was the same as in 1988; 69.7% said their harvest of birds and eggs was the same as five years ago and 48.5% said it was the same as in 1988. In the land mammal category, 82.4% said their harvest was the same as it was five years ago and 82.9% thought it was the same as in 1988. Over 82% of Ouzinkie households considered their 2003 plant harvests to be the same as five years ago, and 81.8% said they were the same as 1988. Despite these subjective comparisons, a review of the harvest data (below) indicates that harvests have declined since 1988.

The data presented above indicate that most Ouzinkie households consider their 2003 harvests of all resource categories the same as five years ago. However, in 1997–98, Ouzinkie residents considered their harvests of marine mammals, land mammals, marine invertebrates, and birds and eggs less than they were in 1988. In regard to the three other resource categories, most households reported that their harvests of salmon and plants in 1997–98 were the same as their 1988 harvests and they considered their harvests of non-salmon fish higher in 1997–98 than their 1988 harvests (Fall and Utermohle 1999:K-5).

In 1989, the year of the oil spill, the per capita subsistence harvest in Ouzinkie dropped to 86.9 pounds from the pre-spill average of 386.0 pounds per person. Subsistence harvests in Ouzinkie have gradually rebounded but have not returned to pre-spill levels. Surveys conducted in 1992-93 indicate the average per capita subsistence harvest rose to 347.3 pounds, then dropped in 1993 to 218.2 pounds and in 2003 it was 315.7 pounds (see Table XI-2; Fig. XI-1).

An examination of the seven individual resource categories further indicates a gradual rebound of subsistence resource use but an overall failure to return to pre-spill levels. In Table XI-2, data from the 2003 survey is compared to previous surveys in 1982, 1986, 1989, 1990, and 1991. The 2003 per capita harvest averages in four of the seven resource categories (salmon, land mammals, marine mammals, and marine invertebrates), are less than pre-spill per capita averages. In 2003, 130.6 pounds of salmon per person were harvested; prior to the oil spill, the per capita average was 182.7 pounds. In 2003, 19.6 pounds of land mammals per person were harvested; prior to the oil spill, the per capita average was 54.7 pounds. In 2003, 11.8 pounds of marine mammals per person were harvested; prior to the oil spill, the per capita average was 31 pounds. In 2003, 14.0 pounds of marine invertebrates per person were harvested; prior to the oil spill, the per capita average was 39.4 pounds. In three of the seven resource categories, 2003 per capita resource averages are higher than pre-spill per capita averages. In 2003, 110.8 pounds of non-salmon fish per person were harvested; prior to the oil spill, the per capita average was 65.3 pounds. In 2002, 14.9 pounds of plants per person were harvested; prior to the oil spill, the per capita average was 4.8 pounds; and in 2003, 14.1 pounds of birds and eggs per person were harvested; prior to the oil spill, the per capita average was 10.5 pounds. It should be noted that for birds and eggs, the 14.1 pounds per person in 2003 is high as the post-spill average is 8.6 pounds of birds and eggs per person. Subsistence resource harvests are always dynamic, however, the above data indicate an overall decline of approximately 73.5 pounds per person in 2003 compared to pre-spill harvest levels.

NATURAL RESOURCE CONDITIONS

Food Safety

One aspect of the EVOS Trustee Council (EVOSTC) recovery objectives for subsistence uses is that “people must be confident that the resources are safe to eat”. In order to measure confidence in food safety, survey respondents were specifically asked if they thought clams, chitons, seals and herring were safe for their families to eat. The majority of Ouzinkie respondents reported that they consider all chitons, seal and herring to be safe (see Tables A-460 to A-465), however, the majority also reported they did not consider clams to be safe (see Table A-458 to A-459). Over 91% said they felt chitons were safe, 91.2% felt seals were safe, and 78.3% felt herring were safe.

The 2003 perceptions of subsistence food safety are less varied than those recorded in the 1997–98 survey. In 1997–98, 96% of Ouzinkie residents thought clams were not safe to eat (Fall and Utermohle 1999: V-60). Fifty-two percent thought chitons were safe to eat and 43% thought they were not safe. Seventy-four percent of Ouzinkie households thought herring were safe and 86% thought seals were safe to eat in 1997–98 (Fall and Utermohle 1999:V-56 to V-63).

According to survey results, 68.2% of Ouzinkie households do not believe that clams are safe because of the high levels of paralytic shellfish poison (PSP) toxins that have been found in clams in their area and 61.4% because of oil spill contamination. Many of these households believe that oil spill contamination is responsible for the increased frequency and toxicity of PSP. Currently the Alaska Department of Environmental Conservation (ADEC) advises people not to eat clams from Kodiak due to the danger of PSP (ADEC 2005). Kodiak Island beaches are not tested for PSP, but PSP is sporadically present in Kodiak Island waters and has led to at least two deaths and several hospitalizations among Kodiak village residents in the last ten years.

Some Kodiak Island village residents believe there has been an increase in the frequency and toxicity of PSP in the last 15-20 years. There are different opinions as to what has led to the increase. It should be noted that right after the oil spill, clams and other invertebrates were some of the few species that public health officials specifically warned people not to eat due to the high concentrations of spill-related contaminants (Fall and Field 1996:819, 834-835). It is therefore easy to see how people would connect these post-spill warnings with a continued risk in consuming clams. This is especially the case in Ouzinkie, which was one of the Kodiak villages that was first and hardest hit with the oil. Many Ouzinkie households requested more research on clams and how to assess risk.

For the native people of coastal Alaska, clams have been an important subsistence food for hundreds, if not thousands, of years. Russian accounts indicate that when salmon or marine mammals were scarce, Alutiiq people relied on clams and other foods from the intertidal zone to prevent starvation. PSP is not a recent phenomenon in Alaska. Colonial Russian accounts and comments made during these surveys indicate that coastal Alaska Natives knew of beaches, times of year, tidal activity, antidotes and other empirical data about bivalves and PSP (Fortuine 1975). Many 2003 survey respondents commented that their traditional ecological knowledge (TEK) of clams and PSP had prevented deaths from PSP in their lifetimes and many said they had heard of illness but not death from PSP from their parents and grandparents. They were taught to only harvest clams in winter months, usually months with r's (in English), and to cut out certain parts "the tip of the neck above the sand, the gills, and part of the belly." They were also taught that if a clam or mussel was a particular color (brown or gray inside) not to eat it and how to clean them out by keeping them in fresh salt water and feeding them prior to consuming them. The Department of Environmental Conservation disputes the efficaciousness of any of these methods.

Several households commented, though, that much like ice conditions in northwest Alaska have begun to change, tidal and algal bloom conditions are much different today in the Kodiak area than they have been in living memory. People said the red tides come earlier in the spring and last later into the fall than they did in the past. One woman said, "We didn't have red tides as long in the past before the spill. Something in the environment that combated PSP died. Oil gets buried in the winter and then it bubbles up in the summer when warmer." Many households commented that they had not eaten clams since the oil spill. During this survey, it sounded like the TEK was being adapted to the new conditions. Some people said they had recently resumed eating clams. They said that in order to get clams that were free of PSP, they had to get clams that are completely submerged, except during extreme minus tides, not the ones easily accessible from the beach. They said the "safe" clams had to come from "open water" locations with ocean currents, constantly flowing water, not bays or coves.

Most scientific researchers have said there is no connection between recent PSP outbreaks and the spill. When survey respondents said they firmly believed that the oil spill has caused more PSP, they were asked how they felt about the fact that scientists who study the topic say there is no relationship. One person said, "Science has been wrong before," and many repeatedly said, "We have not seen these same conditions and we know of no one, in our memory, who died from PSP." The conviction of these beliefs came through in the often stated, "I have not eaten clams since 1989." Currently, there is no scientific proof that the oil spill is linked to perceived increases in PSP. However, the fact that this link was so prevalent in many Kodiak Island communities illustrates the persistence of the perception that most food safety issues are related to the effects of the spill.

In the newsletter, *Red Tides*, produced by the Northwest Fisheries Science Center (NWFSC) and Washington State Sea Grant Program, there is an article titled "Harmful Algal Blooms and their Impacts on West Coast Tribes". In this article, the cultural significance of clams (and other intertidal bi-valves), for subsistence and cultural identity for native people from California to Alaska, is reviewed (NWFSC 2002:1). Perhaps the aspect of cultural identity should be emphasized when conclusions on research about the danger of consuming clams is publicized. Clams are extremely important to Kodiak Island village residents. Many people expressed sadness about the loss of the communal nature of the clam harvest because everyone had to go out at the same time to harvest during minus tides. Many people said the traditional life has not recovered after the oil spill because they still cannot have clams. Every culture has foods that its members consume, foods that the members believe make them who they are. Even if members do not get these foods regularly, they may get them ritually, only at certain times, and that can satisfy the need to consume foods that are culturally significant. Many survey respondents discussed fear of eating clams. Afterward they talked about the grief and loss related to not being able to confidently harvest clams the way they felt they could before the spill. After conducting the oil spill surveys for five weeks in three Kodiak Island communities, it seemed that if the report had to be summarized in one word, that word would be "clams." DEC issues bulletins that simply state, do not eat clams, period. However, not eating clams is more than just a matter of food, it is a public health issue that affects the body and the mind of many Kodiak Island residents.

The topic of a paper presented at the EVOSTC research symposium held in Anchorage in January 2005 included a discussion of the high persistence of unweathered oil in intertidal areas (Short et al. 2005:68). A similar discussion on the long-term effects of the oil in protected intertidal areas on the viability of marine invertebrate populations can be found in *Science* (Peterson et al. 2003:2082-2086).

<u>Status of Resource Populations</u>

There was a wide range of answers in response to the question, "Have subsistence resources recovered since the oil spill?" In addition to the answers "yes", "no", and "don't know", many people said they wanted to say "some have and some haven't." The majority of Ouzinkie households, 84.4%, said "no" and 6.7% said "yes" (see Appendix Table A-82). When asked what could be done to help subsistence resources recover, some people said they "didn't know, only time will heal it" and others said it will not ever be the same (see Appendix Table A-83). Some of the comments on this topic include:

- Stop the draggers!
- The traditional way of life can't recover because some resources haven't.

Ouzinkie residents were asked to assess changes in the availability, and the population status of all five species of salmon, three species of non-salmon fish (halibut, "black bass", and herring), five different marine invertebrates (clams, chitons, Dungeness crab, sea urchins and octopus), land mammals (deer), two species of marine mammals (harbor seals and sea lions), birds and eggs (sea ducks) and wild plants (berries) (see Tables A-84 to A-455).

The majority of Ouzinkie residents said that in 2003, the availability of salmon was the same as five years ago, 1997–98 (see Tables A-123 to A-126). Survey results indicate that 65.2% of Ouzinkie residents considered the availability of chum salmon to be the same, coho salmon 71.4%, sockeye salmon 59.4% (34.4% said less), pink salmon 67.7%, and Chinook salmon 60.0%. Thirty-two percent of Ouzinkie residents said they thought more Chinook salmon were available in the last five years. This perspective may be due to an increase in

Ouzinkie residents turning to guiding sportfishers for cash income in response to low commercial salmon prices.

It should be noted that five years ago, Ouzinkie households said that compared to 1988 availability, in 1997–98, 61% thought chum salmon availability was less than in 1988, 33% thought it was the same; 45% thought coho availability was less than in 1988, 40% thought it was the same; 58% thought sockeye availability was the same as in 1988, 22% thought it was less; 54% thought pink availability was the same as in 1988, 37% thought it was less; and 46% thought Chinook availability was more than 1988 and 30% thought it was the same as in 1988. Many of those who felt salmon populations were lower in 1997–98 compared to 1988 cited oil spill-related contamination as the reason (Fall and Utermohle 1999:V64-83).

In 2003, opinions in Ouzinkie varied as to the current abundance of salmon. In general, some households thought there was less abundance, some thought salmon abundance was as it should be. However, no matter what their opinion on abundance, many households commented on increased competition from "sportfishers" from Kodiak. One person said, "My effort to harvest salmon is the same but more people are coming into our harvest area." Others commented that their effort had increased because of competition. Another person said, "We do not use our traditional areas as much, people from Kodiak are using Monk's Lagoon." Three people mentioned the oil spill, specifically, as a reason for less salmon. One person said their household uses less salmon because of poor commercial salmon prices.

Ouzinkie residents were somewhat divided as to their opinions on the availability of non-salmon fish in 2003 compared to five years ago. Almost 47% thought herring availability was less and 40.0% thought it was the same; virtually no one commented on the availability of cod; 48.4% thought halibut availability was the same and 41.9% thought it was less; 55.0% thought black rockfish was the same and 45.0% thought it was less (see Tables A-180 to A-183).

In 1997–98 when Ouzinkie residents were asked to compare harvest availability with that of 1988, their answers were slightly different (Fall and Utermohle 1999:V-84—V-95). In regard to herring, 63% of Ouzinkie residents felt there were less herring in 1997–98 than there were in 1988, and as noted above, this is still the conclusion of most Ouzinkie residents. Five years ago, 45% of Ouzinkie residents thought available halibut was less than it was in 1988 and 45% thought the same amount was available. Ouzinkie opinions on rockfish availability in 1997–98 are somewhat similar to those of 2003 in that there were many households who perceived less were available in both survey years. In 1997–98 compared to 1988, 78% of Ouzinkie households thought rockfish was less available and 19% thought availability was the same.

In 2003, numerous Ouzinkie households said that competition for halibut was fierce. Competition included charter operators, sportfishers, local residents and commercial fishers (Individual Fishing Quota [IFQ] holders). They said halibut were smaller, there were less, and they have to travel further to find them because they are no longer found in their usual range near the village. Decreasing numbers of rockfish was also a concern for Ouzinkie residents. Some attributed this perceived decline to commercial fishing, overfishing in general and children catching rockfish for sport at one of the docks in Kodiak. No one specifically mentioned the oil spill as a reason for less halibut or rockfish.

Many people said there were less herring. For some, this was a critical issue because, "They are the main food source in the food chain. Their absence affects other species." Another person said, "There is less herring, you used to be able to walk on them before the oil spill." One man thought herring were not safe to eat, "The oil spill hurt herring. They are not safe. I think the herring were more affected [by the oil spill] because they were closer to the surface and had more exposure to the oil." Several other households connected less herring with the spill.

Several households also mentioned less flounder. One said, "The bay used to be full of flounder, it is gone now." Another person said, "The south arm of Uganik always looked like the bottom was moving because of the flounders that covered the bottom". This person attributed the decline in flounder to draggers. He and several others said that draggers were affecting the habitat of many non-salmon fish species including halibut. There were several comments about draggers including: "There used to be thousands of flounder out there, draggers have raped the bottom," "Draggers have changed the bottom of the ocean," "Draggers catch as much halibut as they can and sell it."

Most Ouzinkie households said there were less marine invertebrates available to harvest in 2003 than there were five years ago (see Tables A-238 to A-241). When asked about the availability of clams, some people said "What do you mean? There are lots of clams out there but we are afraid to harvest them because of PSP." Researchers then had to decide how to interpret this question in light of clams being there but not necessarily available. We asked people to answer as to the availability of clams they felt were safe to eat. In Ouzinkie, 86.5% of households thought the availability of "safe" clams was less than it was five years ago. In 1997–98, 92% of Ouzinkie households reported that there were less clams available to harvest (Fall and Utermohle 1999:V-124–V-126). In 2003, 27.1 households said clams were not safe because of PSP and 20.3 households said they believed the PSP was related to contamination caused by the spill. In 1997–98, 26 Ouzinkie households said clams were not safe because of oil spill contamination, 8 households said they thought clams were not safe because of PSP, and 3 households associated PSP with the spill (Fall and Utermohle 1999:V-60 –V-61).

In 2003, 62.5% of households thought the availability of octopus was the same as five years ago and 81.4% thought chiton availability was the same as five years ago. Many households considered the availability of other marine invertebrates to be less; Dungeness crab (90.9% less), mussels (100% less), and sea urchins (76.9% less) compared to five years ago. This is similar to results in 1997–98 when Ouzinkie residents said the availability of Dungeness crab were 92% less and sea urchins (73% less) than in 1988 (Fall and Utermohle 1999:V-116–V135). There were no reported harvests of mussels in 2003 or 1997–98. However, prior to the spill, an average of 66 gallons of mussels were harvested by the community of Ouzinkie based on survey data from 1982 and 1986 (Scott et al. 2001). Many Ouzinkie households reported that they have not harvested mussels because there are none available to harvest.

Ouzinkie households had many comments about marine invertebrates. By far, the most comments received were about clams. There were, however, plentiful substantive comments on other marine invertebrate species. These comments include many reasons, both spill- and non spill-related as to why there seem to be less marine invertebrates in 2003 than before the spill.

Several households in Ouzinkie and around the island cited an overabundance of sea otters as one reason there were less marine invertebrates to harvest. Some people were not sure why but said that since the spill, "marine invertebrates have not recovered." Others said, "shellfish are less abundant and there is more competition from locals." Many Ouzinkie households took a long time when they answered questions about marine invertebrates. After a long pause, one respondent said, "Recovered [since the oil spill] is not the right word for the status of resources, most things have not. Shellfish have not, it will take a long time." Some households said they expend less effort to harvest marine invertebrates because they have to go further, the resources are less abundant and there is more competition for them.

The survey answers Ouzinkie households provided to “yes” or “no” questions about clams mirror the answers provided through comments. The comments listed below were recorded during the surveys. These comments were copied from 47 surveys that had comments; the rest did not. Each person may have made more than one type of comment:

27--There are less clams available now because of the spill, PSP-red tide increased after the spill.
7--I have not eaten clams since the oil spill.
2--I don’t know when it is safe or not safe to eat clams.
13--PSP has made me afraid to eat clams.
3--Problems with clams ended village togetherness, we no longer go out at minus tides.
11--Why isn’t more research being done on PSP?
5--Sea otter predation has affected the amount of clams and other marine invertebrates.
9--I now harvest my clams from the mainland, Kenai and Alaska Peninsula.
2--PSP, less clams due to global warming.

In regard to other marine invertebrates, especially sea urchins, many Ouzinkie households cited over-predation by sea otters as the reason for less availability of sea urchins. Several households said they had not had sea urchins in ages and would love to get some, but they can not. Some households said that sea urchins had been overfished commercially and some cited the oil spill as reasons there were less sea urchins available to harvest in 2003.

In response to a question about crab abundance, one household said, “Dungeness have been overfished, then there are sea otters and the oil spill.” One person said that the oil spill detrimentally affected the species, such as crab, that live at the bottom of the ocean. Another household said, “We used to see Dungeness crab right under the dock. They would be in their pyramid. We stopped seeing that after 1989, probably their food is gone.” Other households blamed draggers for less crab abundance, “the minute they drag, the crabs go.” Many Ouzinkie households included former commercial crab fishers. One man in his 60s said his dad urged officials not to increase commercial crab harvest limits in the late 1950s. He said they laughed at his dad when he told them he was afraid the crab would disappear. Several households said they never thought they would see the day when there was no crab because it was always so plentiful. Many Kodiak Island crab fisheries have been closed due to resource shortages. One of the remaining commercial crabbers said that he used to remove crab from his commercial harvest for home use but he can no longer afford to do so because he can hardly harvest enough to sell.

As noted earlier, in 1997–98, some Ouzinkie households did not harvest chitons due to fear that they were not safe to eat. Data from 2003 indicate this fear has subsided greatly, though some households are still hesitant to consume chitons because, like clams, they live in the intertidal area. One person said, “We still don’t know if they are safe but we do not want to lose the practice and the way of life of customary and traditional gathering.” Many Ouzinkie households reported stiff competition for chitons. Several households said that in the last five to ten years chitons were smaller than usual.

The fact that there was little or no harvest of mussels and shrimp in 2003 is discussed in other parts of this chapter. It should be noted that several households commented that the lack of mussels was not only an issue for humans but also perhaps a factor in the lack of recovery of other species that feed upon mussels.[1]

In 2003 and in 1997–98, the majority of Ouzinkie households said there were less marine mammals available to harvest (see Tables A-344 to A-347). In 2003, 52.6% of households said there were less harbor seals compared to five years ago and in 1997–98, 79% of households said there were less harbor seals (Fall and Utermohle 1999:V-104–V-107). In 2003, 60.0% of households said there were less sea lions compared to five years ago and in 1997–98, 77% of households said there were less sea lions (Fall and Utermohle 1999:V-108–V-110). In 2003, very few households provided reasons for why they thought there were less marine mammals available. In 1997–98, approximately 20 households cited oil spill contamination as the reason for less seal and sea lion availability (Fall and Utermohle 1999:V-111)

Many survey respondents in Ouzinkie said they felt that seals and sea lions were scarce and some households attributed the perceived shortage as a long-term effect of the oil spill. One household said he did not hunt seals because there were not enough. Some Ouzinkie households said that seals and sea lions were not in the areas they used to frequent. Several households suggested these absences were due to increased skiff traffic from Kodiak City disturbing seals and sea lions in their traditional haul out or resting areas.[2]

The only land mammals harvested in Ouzinkie in 2003 were deer and snowshoe hare; a total of 16 households harvested 153.7 pounds of snowshoe hare (see TablesXI-4). The majority of Ouzinkie residents, 74.2%, said the amount of deer available to harvest in 2003 was the same as in 1997–98 (Fall and Utermohle 1999:V-96–V-99). In 1997–98, 75% of Ouzinkie residents said the amount of deer available to harvest was about the same as it was in 1988.

Many Ouzinkie households commented that there was high competition for deer from outside hunters, especially guided hunters with guides from the Kenai Peninsula. One household said they expended less effort to harvest deer because they have to travel further and there is so much competition from charters and other sport hunters. There were no comments that specifically linked deer availability with the oil spill.

Ouzinkie household observations on the availability of sea ducks compared to five years ago were divergent (see Tables A-396 to A-399). Almost 58% of households thought sea ducks were less available, and 42.9% thought their availability was the same as five years ago. This is somewhat of an improvement since 1997–98 when 74% of Ouzinkie households thought the availability of sea ducks was less than in 1988 and only 27% thought sea duck availability was the same as in 1988 (Fall and Utermohle 1999:V-112–V-114).

In 1997–98, 42% (24) Ouzinkie households said there were less sea ducks available to harvest than in 1988 because of spill-related contamination (Fall and Utermohle 1999:V-115).

Many Ouzinkie households said there were less sea ducks, specifically scoters (locally referred to as whistlers, officers, or sailorboys). More than one household said these species have not recovered because they feed on mussels, and mussels and some of their other food sources have not recovered since the spill. Numerous Ouzinkie households said there was a lot of local and outside competition for birds and eggs. This competition led many households to

[1] The topic of a paper presented at the EVOSTC research symposium held in Anchorage in January 2005 included a discussion of the high persistence of unweathered EVOS oil in intertidal areas (Short et al. 2005:68). A similar discussion on the long-term effects of EVOS oil in protected intertidal areas on the viability of marine invertebrate populations can be found in *Science* (Peterson et al. 2003:2082-2086).

[2] A discussion on the long-term effects of EVOS oil on the viability of marine mammal populations was presented in *Science* (Peterson et al. 2003:2082-2086).

comment that they expend more effort for less resources. One household observed that what used to be considered "accidental" species such as gadwalls and widgeons were beginning to show up as "common" in the Kodiak area.[3]

Most households, 88.9% said that the availability of berries was the same as five years ago (see Tables A-443 to A-444). This is similar to 1997–98 results, when 93% of households said they thought berry availability was the same as 1988 (Fall and Utermohle 1999:V-136–V-139). However, several Ouzinkie households said local and outside competition for berries had increased since a winery in Kodiak City that produces wines made from Kodiak Island berries, began buying berries.

Habitat Changes

In 2003, 59.5% of Ouzinkie residents had not noted changes in the habitat or environment of subsistence resources and 40.5% said they did see changes (see Tables A-456 to A-457). Of those who said there had been changes, 47.1% said the change they saw was less subsistence resources and 17.6% said the change they noted was resource contamination and the increased incidence of PSP. In 1997–98, the responses were more evenly divided, 46% of households said there were habitat changes, and 54% said there were not (Fall and Utermohle 1999:V-148–V-149).

Several Ouzinkie households commented that the oil spill disturbed the food chain and it had not recovered. They felt the disturbance of the food chain led to a broad effect on many subsistence resources whose food had disappeared or diminished. In general, many Ouzinkie households responded to the question about habitat by saying there were less subsistence resources available to harvest. Some households said warmer temperatures were negatively affecting resource reproduction. As noted in the non-salmon fish section, many Ouzinkie households are extremely concerned about the effects of draggers on marine habitat. One man said they used to sometimes get a type of orange coral in their nets when they fished. He said that since draggers have been around he no longer sees this type of coral.

SOCIAL AND ECONOMIC CONDITIONS

Food Purchases

In response to the question, "Were there subsistence foods you had to buy because you could not harvest them or obtain them through sharing?", 75.0% of Ouzinkie residents replied "yes" (see Table A-475 to A-478). This number has increased since 1997–98 when 66% of households said they had bought food to replace locally-harvested food (Fall and Utermohle 1999:V-144–V-145). Of those who responded to this question, the reasons given for having to purchase food included: PSP (38.9%), resource availability (27.8%), and contamination (13.9%). Of those who purchased subsistence-type foods to replace those they could not harvest

[3] The topic of a paper presented at the EVOSTC research symposium held in Anchorage in January 2005 included a discussion of the effects of EVOS oil on sea ducks in Prince William Sound. Scoters were among the species in Prince William Sound whose populations had not returned to pre-spill levels (Irons et al. 2005:70). A similar discussion on the long-term effects of EVOS oil on sea duck populations was presented in *Science* (Peterson et al. 2003:2082-2086).

locally, 34% purchased clams, 24% purchased crab, and 19% purchased shrimp. Shrimp were not discussed in the initial discourse of Ouzinkie's marine invertebrate harvest. However, Ouzinkie shrimp harvests provide another insight into pre- and post-spill resource availability. The average amount of shrimp harvested by the community of Ouzinkie prior to the oil spill, based on two survey years was 267 pounds. In 1989, the community harvested 39 pounds of shrimp. During five post-spill survey years, the average community shrimp harvest was 3 pounds per year. In 2003, the total community harvest of shrimp was 40.6 pounds.

Sharing of Subsistence Resources

As seen in the section on "Subsistence Resource Harvest and Uses," sharing is a major aspect of the subsistence economy in Ouzinkie (as well as in other rural communities around Alaska). One aspect of the EVOSTC recovery objectives is that "cultural values provided by gathering, preparing, and sharing food need to be reintegrated into community life." In 2003, 77.1% of Ouzinkie households reported that the level of subsistence food sharing was the same as it was five years ago (see Tables A-472 to A-474). Almost 13% of households said there was less sharing in 2003 and 10.4% said there was more sharing in 2003 than five years ago. The 2003 figures on sharing are somewhat similar to those reported for 1997–98 compared to 1988. In 1997–98, 51% of Ouzinkie residents reported that sharing was the same as in 1988, 29% said there was less and 20% said there was more sharing in 1997–98 than in 1988 (Fall and Utermohle 1999:V-146–V-148).

Young Adults' Involvement in Subsistence Activities

The majority of Ouzinkie households, 89.6%, said they thought young adults were learning enough subsistence skills (see Tables A-466 to A-468). It should be noted that the local researcher is involved in organizing "spirit" or "culture camps" and this person's presence was a reminder of these type of youth activities. For this reason, in a comparison of spill-affected communities, Ouzinkie's positive response far surpassed that of any other community. Results from the previous spill survey, five years ago, were different. In 1997–98 most Ouzinkie households, 64%, said that youth were not learning enough skills. The most cited reason for this phenomenon in 1998 was lack of interest on the part of youth (Fall and Utermohle 1999:V-152–V-153). Many households added, however, that youth who were interested could learn if they wanted to, and many did. There is, however, little doubt that spirit and culture camps have made a difference and have increased the subsistence skills of young adults. In 1997–98, 57% of Ouzinkie households said they felt that spirit camps were very good ways to pass on subsistence skills and 38% said they were a good way to do so. The questions about spirit camps was not on the 2003 survey but there was obviously a lot of support for them in Ouzinkie in 1997–98 (Fall and Utermohle 1999:V-154).

Elders' Influence

Most Ouzinkie households, 76.1%, said elders' influence had increased in 2003 compared to five years ago. Most respondents did not provide a reason as to why they thought elders' influence had increased (see Tables A-469 to A-471). These results are totally different than results of five years ago, when 64% of Ouzinkie residents thought elders' influence was less than the year before the oil spill, 25% thought it was the same, and 11% thought it was more (Fall and Utermohle 1999:V-149–V-151).

Several elders who participated in the survey were raising their grandchildren. They said this led to them teaching subsistence skills and actually harvesting more because grandchildren wanted to actively harvest. Several grandparents said they have their grandchildren during the summers; they practice subsistence activities together and the grandchildren learn in this way. Many of the grandchildren and their parents have moved to Kodiak City, Anchorage and beyond for wage jobs that are not available in the village.

Status of the Traditional Way of Life

Almost 98% of Ouzinkie residents said that the traditional way of life had been affected by the oil spill. Over 80% felt that the traditional way of life had not recovered, 14.6% thought it had recovered, and 4.9% were not sure if it had recovered or not (see Tables A-479 to A-480). These results are similar to those of five years ago when 95% of Ouzinkie households thought the traditional way of life had been affected, although fewer households, 64%, did not think it had recovered (Fall and Utermohle 1999:V-162). When asked what should be done to help the traditional way of life recover, most households had no suggestions. Of those who did, 12% thought nothing could be done and 9% said time is the thing that would heal oil spill damage to the traditional way of life (see Tables A-481).

Some of the comments on this topic include:

- A generation was interrupted, we need more testing to show food is safe.
- Has the traditional life recovered? It is never going to, people don't trust food anymore, they are afraid and it stopped the transmission of skills.

Most people commented that things would never be the same and there was a lot of uncertainty about this question. People felt that some aspects of the traditional way of life had recovered and others had not. In listening to people think out loud about this question, it seemed that what would not change was a new sense of vulnerability to outside forces that may not have permeated so deeply compared to previous events. Subsistence, unlike some aspects of Alutiiq religion and language is one of the most enduring aspects of Alutiiq culture that has survived cataclysmic social and environmental events such as the Russian conquest, huge American commercial fishing operations, World War II, and the 1964 earthquake. Survey respondents said subsistence is what makes them Alutiiq. Many Alutiiq people feel that subsistence is what helped them survive the massive changes of the past. All of these changes have altered their lifestyle and culture in many ways. The effects of socio-cultural change and environmental change are one thing, but they are enormously different than the possibility that subsistence foods may be poison. The threat of the loss of subsistence, to question the safety and availability of the food that makes a group of people who they are, is the ultimate threat to their survival.

EVALUATION OF THE GEM PROGRAM

The last questions on the survey had to do with people's knowledge of the Gulf Ecosystem Management Program (GEM). When asked if they were informed about the Trustee

Council and GEM program activities, 93.3% of Ouzinkie households said they were not informed and said they had never heard of the GEM program (see Table A-482). Almost no households provided suggestions as to how to improve communication about EVOSTC and GEM program activities. However, some suggested that the GEM program or the EVOSTC visit in person. One person said they would like for the EVOSTC to communicate with the city as well as the tribal government (see Table A-483).

DISCUSSION AND CONCLUSIONS

As noted earlier, the mixed subsistence-cash economy of coastal Alaskan communities is dependent on commercial fishing and subsistence, which are mutually dependent. The seeming paradox of this mutually-dependent economy is that people can no longer live a subsistence lifestyle without cash. Many traditional methods and means were long ago outlawed (laws and regulations require modern harvest gear) and most importantly, subsistence is about efficient harvest. Due to competition, regulations, and the schedules of wage work, most people would not be able to harvest the amounts of subsistence foods they needed if they did not use the most modern equipment.

During the period of this survey, 2003, salmon prices were the lowest they have been since 1988 and some people said the commercial fishing industry is in an irreversible decline. Some households in Ouzinkie said they have been eating and sharing more salmon because they cannot sell it. Some households are fishing fewer seasons because the price for some species is less than five cents per pound. Many commercial crab fisheries, in which Ouzinkie fishers also participated, have been closed for several years.

At the same time, Ouzinkie residents report a lack of abundance of many subsistence resources and increasing competition from Kodiak City, and beyond, for the resources that are available. Some people in Ouzinkie have taken jobs with the logging operations at Danger Bay. Some have begun to turn to sportfishing and sport hunting-related tourism. Several families have moved to other communities. Many people are riding out the current economic downturn because they have no choice or because they would not want to live anywhere else.

Fifteen years after the oil spill, many Ouzinkie residents feel that many subsistence resources have not recovered because of spill effects on the food chain (especially keystone species such as herring and mussels). There is also still an element of fear in consuming clams, a historically significant subsistence resource for Ouzinkie. In addition to resource shortages, there seems to be more competition for the resources that are available. The competition is from locals and outsiders. Ouzinkie residents feel that marine habitat and populations are seriously threatened by draggers they can see sailing in the waters, uncomfortably close to their community. The factors of resource shortages, more competition, low salmon prices and commercial crab fishery closures have affected both aspects of the mixed subsistence-cash economy of Ouzinkie. In the past, the mixed economy appeared to provide a level of flexibility, if one part of the economy faltered, people could depend on the other. Now, both aspects of the economy are in decline. While there are probably many causes, the oil spill is certainly a watershed event that is emblematic of the beginning of major economic and cultural change. The populations of all Kodiak Island villages have declined in recent years. The people who have stayed are venturing into ecotourism and have increased guiding and outfitting of fishing and hunting tourists from outside. This type of economic activity allows people to stay in their home community and on the water. While some village residents complain about the influx of outsiders and the pressure they put on local resources, this may be the price for continuing to live at home.

Table XI-1. Population Profile, Ouzinkie, 2003 Study Year

AGE	MALE			FEMALE			TOTAL		
	Number	Percent	Cum. Percent	Number	Percent	Cum. Percent	Number	Percent	Cum. Percent
0 - 4	6.76	6.76%	6.76%	5.41	5.19%	5.19%	12.18	5.96%	5.96%
5 - 9	8.12	8.11%	14.86%	20.29	19.48%	24.68%	28.41	13.91%	19.87%
10 - 14	8.12	8.11%	22.97%	9.47	9.09%	33.77%	17.59	8.61%	28.48%
15 - 19	9.47	9.46%	32.43%	8.12	7.79%	41.56%	17.59	8.61%	37.09%
20 - 24	4.06	4.05%	36.49%	2.71	2.60%	44.16%	6.76	3.31%	40.40%
25 - 29	2.71	2.70%	39.19%	6.76	6.49%	50.65%	9.47	4.64%	45.03%
30 - 34	9.47	9.46%	48.65%	5.41	5.19%	55.84%	14.88	7.28%	52.32%
35 - 39	4.06	4.05%	52.70%	5.41	5.19%	61.04%	9.47	4.64%	56.95%
40 - 44	4.06	4.05%	56.76%	9.47	9.09%	70.13%	13.53	6.62%	63.58%
45 - 49	6.76	6.76%	63.51%	4.06	3.90%	74.03%	10.82	5.30%	68.87%
50 - 54	5.41	5.41%	68.92%	9.47	9.09%	83.12%	14.88	7.28%	76.16%
55 - 59	12.18	12.16%	81.08%	2.71	2.60%	85.71%	14.88	7.28%	83.44%
60 - 64	6.76	6.76%	87.84%	9.47	9.09%	94.81%	16.24	7.95%	91.39%
65 - 69	4.06	4.05%	91.89%	1.35	1.30%	96.10%	5.41	2.65%	94.04%
70 - 74	5.41	5.41%	97.30%	1.35	1.30%	97.40%	6.76	3.31%	97.35%
75 - 79	1.35	1.35%	98.65%	0.00	0.00%	97.40%	1.35	0.66%	98.01%
80 - 84	0.00	0.00%	98.65%	0.00	0.00%	97.40%	0.00	0.00%	98.01%
85 - 89	0.00	0.00%	98.65%	1.35	1.30%	98.70%	1.35	0.66%	98.68%
90 - 94	0.00	0.00%	98.65%	0.00	0.00%	98.70%	0.00	0.00%	98.68%
95 - 99	1.35	1.35%	100.00%	1.35	1.30%	100.00%	2.71	1.32%	100.00%
100+	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
Missing	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
TOTAL	100.12	49.01%		104.18	50.99%		204.29		

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table XI-2. Subsistence Harvests in Pounds Usable Weight per Person by Resource Category, Ouzinkie

	Pounds per Person								
	1982/83	1986	1989/90	1990/91	1991/92	1992/93	1993/94	1997/98	2003
Salmon	172.7	192.7	29.4	75.5	88.5	213.4	102.4	126.5	130.6
Other Fish	62.1	68.4	14.6	68.2	54.5	58.4	36.5	65.4	110.8
Land Mammals	39.4	70.0	18.5	23.3	32.4	19.4	24.2	28.6	19.6
Marine Mammals	32.4	30.0	8.6	10.4	6.9	12.1	15.0	13.7	11.8
Birds & Eggs	12.1	8.8	6.6	7.5	5.7	7.5	6.6	12.4	14.1
Marine Invertebrates	50.6	28.2	7.8	13.9	12.3	27.6	21.9	7.5	14.0
Wild Plants	*	4.8	3.5	6.5	9.3	8.9	11.6	9.8	14.9
All Resources	369.1	402.8	88.9	205.2	209.6	347.3	218.2	264.0	315.7

*Data not collected for 1982/83.

SOURCE: Scott et al. 2001; Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table XI-3. Composition of Resource Harvests by Resource Category, Ouzinkie

	Percentage of Total Harvest								
	1982/83	1986	1989/90	1990/91	1991/92	1992/93	1993/94	1997/98	2003
Salmon	46.8%	47.8%	33.0%	36.8%	42.2%	61.4%	46.9%	47.9%	41.4%
Other Fish	16.8%	17.0%	16.4%	33.2%	26.0%	16.8%	16.7%	24.8%	35.1%
Land Mammals	10.7%	17.4%	20.8%	11.3%	15.5%	5.6%	11.1%	10.8%	6.2%
Marine Mammals	8.8%	7.5%	9.7%	5.1%	3.3%	3.5%	6.9%	5.2%	3.7%
Birds and Eggs	3.3%	2.2%	7.4%	3.6%	2.7%	2.2%	3.0%	4.7%	4.5%
Marine Invertebrates	13.7%	7.0%	8.8%	6.8%	5.9%	7.9%	10.0%	2.8%	4.4%
Wild Plants	*	1.2%	3.9%	3.2%	4.4%	2.6%	5.3%	3.7%	4.7%

*Data not collected for 1982/83.

SOURCE: Scott et al. 2001; Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table XI-4. Estimated Harvest and Use of Fish, Game and Plant Resources, Ouzinkie, 2003 Study Year

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
All Resources	100.0	96.1	96.1	98.0	86.3	67,046.25	971.68	315.64				49.58%
Fish	100.0	80.4	80.4	92.2	72.5	51,263.49	742.95	241.34				29.10%
Salmon	98.0	74.5	74.5	82.4	66.7	27,730.26	401.89	130.55	6,005.71		87.04	17.97%
Chum Salmon	62.7	39.2	37.3	33.3	41.2	1,885.86	27.33	8.88	355.82		5.16	22.13%
Coho Salmon	90.2	66.7	62.7	62.7	56.9	12,672.66	183.66	59.66	2,203.94		31.94	14.62%
Chinook Salmon	78.4	35.3	33.3	74.5	45.1	1,015.68	14.72	4.78	138.00		2.00	26.53%
Pink Salmon	74.5	54.9	52.9	45.1	47.1	1,832.65	26.56	8.63	707.59		10.25	23.06%
Sockeye Salmon	94.1	62.7	60.8	66.7	58.8	10,323.40	149.61	48.60	2,600.35		37.69	18.40%
Landlocked Salmon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Salmon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Non-Salmon Fish	100.0	72.5	72.5	88.2	66.7	23,533.23	341.06	110.79				22.94%
Herring	29.4	13.7	11.8	19.6	13.7	2,731.01	39.58	12.86	455.17	GAL	6.60	78.23%
Herring Roe	5.9	3.9	0.0	5.9	3.9	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Herring Roe/Unspecified	5.9	3.9	0.0	5.9	3.9	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Herring Sac Roe	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Herring Spawn on Kelp	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Smelt	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Eulachon (hooligan, candlefish)	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Unknown Smelt	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Bass	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sea Bass	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Cod	78.4	41.2	35.3	64.7	37.3	2,397.68	34.75	11.29	915.94		13.27	40.01%
Pacific Cod (gray)	78.4	41.2	33.3	64.7	37.3	2,212.33	32.06	10.42	691.35		10.02	43.40%
Pacific Tom Cod	9.8	3.9	3.9	5.9	3.9	71.71	1.04	0.34	143.41		2.08	95.79%
Walleye Pollock (whiting)	19.6	5.9	5.9	13.7	3.9	113.65	1.65	0.54	81.18		1.18	84.86%
Eel	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Flounder	7.8	5.9	5.9	3.9	2.0	162.35	2.35	0.76	54.12		0.78	74.51%
Starry Flounder	7.8	5.9	5.9	3.9	2.0	162.35	2.35	0.76	54.12		0.78	74.51%
Unknown Flounder	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Greenling	43.1	19.6	17.6	31.4	19.6	1,343.47	19.47	6.32	450.53		6.53	81.73%
Lingcod	37.3	15.7	11.8	29.4	17.6	1,190.59	17.25	5.61	297.65		4.31	92.26%
Unknown Greenling	15.7	7.8	7.8	7.8	3.9	152.88	2.22	0.72	152.88		2.22	65.91%
Halibut	98.0	52.9	52.9	70.6	51.0	9,991.47	144.80	47.04	9,991.47	LBS	144.80	26.39%
Rockfish	58.8	37.3	37.3	37.3	27.5	2,385.24	34.57	11.23	1,071.53		15.53	47.88%
Black Rockfish	54.9	35.3	35.3	25.5	25.5	1,140.53	16.53	5.37	760.35		11.02	37.02%
Red Rockfish	39.2	11.8	11.8	29.4	13.7	1,244.71	18.04	5.86	311.18		4.51	88.11%
Unknown Rockfish	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sablefish (black cod)	7.8	0.0	0.0	7.8	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sculpin	7.8	3.9	3.9	3.9	0.0	12.18	0.18	0.06	24.35		0.35	74.51%
Irish Lord	3.9	2.0	2.0	2.0	0.0	8.12	0.12	0.04	16.24		0.24	101.58%
Unknown Irish Lord	3.9	2.0	2.0	2.0	0.0	8.12	0.12	0.04	16.24		0.24	101.58%
Unknown Sculpin	3.9	2.0	2.0	2.0	0.0	4.06	0.06	0.02	8.12		0.12	101.58%

(Continued)

Table XI-4. Estimated Harvest and Use of Fish, Game and Plant Resources, Ouzinkie, 2003 Study Year

	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
Resource Name	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Shark	2.0	0.0	0.0	2.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Shark	2.0	0.0	0.0	2.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Skates	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sole	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Sole	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Wolffish	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Char	56.9	45.1	45.1	13.7	23.5	2,344.92	33.98	11.04	1,674.94		24.27	19.52%
Dolly Varden	35.3	27.5	27.5	9.8	17.6	905.39	13.12	4.26	646.71		9.37	38.24%
Lake Trout	39.2	27.5	27.5	11.8	13.7	1,439.53	20.86	6.78	1,028.24		14.90	27.13%
Sturgeon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Sturgeon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Trout	27.5	21.6	21.6	7.8	9.8	2,164.91	31.38	10.19	1,357.45		19.67	51.80%
Rainbow Trout	17.6	13.7	13.7	3.9	3.9	289.80	4.20	1.36	207.00		3.00	44.15%
Steelhead	17.6	11.8	11.8	7.8	5.9	354.14	5.13	1.67	64.04		0.93	57.75%
Unknown Trout	5.9	5.9	5.9	0.0	2.0	1,520.98	22.04	7.16	1,086.41		15.75	72.47%
Land Mammals	86.3	51.0	43.1	78.4	43.1	4,152.45	60.18	19.55	170.20		2.47	20.80%
Large Land Mammals	86.3	45.1	39.2	78.4	41.2	3,998.75	57.95	18.83	82.53		1.20	20.99%
Brown Bear	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Caribou	13.7	2.0	2.0	13.7	3.9	608.82	8.82	2.87	4.06		0.06	101.58%
Deer	84.3	43.1	37.3	68.6	39.2	3,389.93	49.13	15.96	78.47		1.14	19.61%
Elk	31.4	2.0	0.0	31.4	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Goat	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Moose	25.5	0.0	0.0	25.5	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Small Land Mammals	23.5	19.6	15.7	9.8	11.8	153.69	2.23	0.72	87.67		1.27	49.55%
Beaver	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Fox	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Red Fox	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Hare	23.5	19.6	15.7	9.8	11.8	153.69	2.23	0.72	76.85		1.11	49.55%
Snowshoe Hare	23.5	19.6	15.7	9.8	11.8	153.69	2.23	0.72	76.85		1.11	49.55%
Land Otter	2.0	2.0	2.0	0.0	0.0	0.00	0.00	0.00	10.82		0.16	101.58%
Weasel	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Feral Animals	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Reindeer - Feral	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Marine Mammals	58.8	25.5	19.6	54.9	21.6	2,500.24	36.24	11.77	50.06		0.73	31.04%
Porpoise	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Seal	58.8	25.5	19.6	54.9	21.6	2,500.24	36.24	11.77	44.65		0.65	31.04%
Harbor Seal	58.8	25.5	19.6	54.9	21.6	2,500.24	36.24	11.77	44.65		0.65	31.04%
Harbor Seal (saltwater)	58.8	25.5	19.6	54.9	21.6	2,500.24	36.24	11.77	44.65		0.65	31.04%
Sea Otter	3.9	2.0	2.0	2.0	2.0	0.00	0.00	0.00	5.41		0.08	101.58%
Steller Sea Lion	3.9	0.0	0.0	3.9	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Whale	5.9	0.0	0.0	5.9	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Whale	5.9	0.0	0.0	5.9	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Birds and Eggs	88.2	54.9	52.9	68.6	45.1	2,997.23	43.44	14.11				23.41%
Migratory Birds	86.3	49.0	49.0	64.7	43.1	2,425.15	35.15	11.42	3,248.41		47.08	20.36%
Ducks	84.3	47.1	47.1	52.9	39.2	2,149.55	31.15	10.12	2,877.71		41.71	18.94%
Bufflehead	47.1	25.5	25.5	25.5	25.5	135.84	1.97	0.64	339.59		4.92	23.78%
Gadwall	21.6	15.7	15.7	11.8	13.7	71.44	1.04	0.34	89.29		1.29	35.40%

(Continued)

Table XI-4. Estimated Harvest and Use of Fish, Game and Plant Resources, Ouzinkie, 2003 Study Year

	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
Resource Name	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Goldeneye	60.8	29.4	29.4	37.3	29.4	346.35	5.02	1.63	432.94		6.27	22.27%
Unknown Goldeneye	60.8	29.4	29.4	37.3	29.4	346.35	5.02	1.63	432.94		6.27	22.27%
Harlequin	47.1	29.4	29.4	21.6	21.6	87.26	1.26	0.41	174.53		2.53	26.25%
Mallard	66.7	39.2	39.2	37.3	35.3	405.48	5.88	1.91	450.53		6.53	20.21%
Merganser	31.4	19.6	19.6	15.7	17.6	79.15	1.15	0.37	87.94		1.27	30.06%
Common Merganser	31.4	19.6	19.6	15.7	17.6	79.15	1.15	0.37	87.94		1.27	30.06%
Long-tailed Duck (Oldsquaw)	45.1	25.5	25.5	25.5	21.6	196.99	2.85	0.93	246.24		3.57	28.44%
Northern Pintail	31.4	17.6	17.6	19.6	13.7	106.07	1.54	0.50	132.59		1.92	35.17%
Scaup	37.3	23.5	23.5	21.6	19.6	170.47	2.47	0.80	189.41		2.75	27.33%
Unknown Scaup	37.3	23.5	23.5	21.6	19.6	170.47	2.47	0.80	189.41		2.75	27.33%
Scoter	52.9	27.5	27.5	31.4	23.5	445.66	6.46	2.10	495.18		7.18	11.09%
Black Scoter	52.9	27.5	27.5	31.4	23.5	203.35	2.95	0.96	225.94		3.27	23.91%
Surf Scoter	29.4	15.7	15.7	15.7	15.7	104.72	1.52	0.49	116.35		1.69	35.96%
White-winged Scoter	45.1	23.5	23.5	23.5	17.6	137.59	1.99	0.65	152.88		2.22	29.10%
Unknown Scoter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Teal	31.4	21.6	21.6	13.7	19.6	47.08	0.68	0.22	156.94		2.27	31.06%
Green Winged Teal	31.4	21.6	21.6	13.7	19.6	47.08	0.68	0.22	156.94		2.27	31.06%
Wigeon	15.7	9.8	9.8	9.8	9.8	57.77	0.84	0.27	82.53		1.20	49.06%
American Wigeon	15.7	9.8	9.8	9.8	9.8	57.77	0.84	0.27	82.53		1.20	49.06%
Unknown Ducks	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Geese	17.6	3.9	3.9	15.7	3.9	37.34	0.54	0.18	31.12		0.45	70.46%
Brant	13.7	2.0	2.0	11.8	2.0	19.48	0.28	0.09	16.24		0.24	101.58%
Canada Geese	5.9	0.0	0.0	5.9	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Canada Geese	5.9	0.0	0.0	5.9	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Emperor Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
White-fronted Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Geese	2.0	2.0	2.0	2.0	2.0	17.86	0.26	0.08	14.88		0.22	101.58%
Shorebirds	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Common Snipe	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Black Oystercatcher	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Seabirds & Loons	43.1	21.6	21.6	31.4	17.6	238.25	3.45	1.12	339.59		4.92	32.73%
Auklet	15.7	9.8	9.8	5.9	5.9	43.43	0.63	0.20	144.76		2.10	48.82%
Parakeet Auklet	15.7	9.8	9.8	5.9	5.9	43.43	0.63	0.20	144.76		2.10	48.82%
Gulls	33.3	15.7	15.7	25.5	13.7	194.82	2.82	0.92	194.82		2.82	40.31%
Unknown Gull	33.3	15.7	15.7	25.5	13.7	194.82	2.82	0.92	194.82		2.82	40.31%
Murre	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Common Murre	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Puffins	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Horned Puffin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tufted Puffin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Puffin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Other Birds	7.8	3.9	3.9	5.9	2.0	29.36	0.43	0.14	41.94		0.61	98.24%
Upland Game Birds	7.8	3.9	3.9	5.9	2.0	29.36	0.43	0.14	41.94		0.61	98.24%
Ptarmigan	7.8	3.9	3.9	5.9	2.0	29.36	0.43	0.14	41.94		0.61	98.24%
Bird Eggs	29.4	19.6	17.6	21.6	15.7	542.72	7.87	2.56	1,942.82		28.16	47.71%

(Continued)

Table XI-4. Estimated Harvest and Use of Fish, Game and Plant Resources, Ouzinkie, 2003 Study Year

	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
Resource Name	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Duck Eggs	7.8	3.9	3.9	3.9	3.9	12.58	0.18	0.06	83.88		1.22	83.49%
Unknown Duck Eggs	7.8	3.9	3.9	3.9	3.9	12.58	0.18	0.06	83.88		1.22	83.49%
Geese Eggs	5.9	3.9	3.9	2.0	3.9	4.87	0.07	0.02	16.24		0.24	70.39%
Unknown Geese Eggs	5.9	3.9	3.9	2.0	3.9	4.87	0.07	0.02	16.24		0.24	70.39%
Seabird & Loon Eggs	29.4	19.6	17.6	21.6	15.7	525.27	7.61	2.47	1,842.71		26.71	49.32%
Gull Eggs	27.5	17.6	15.7	19.6	13.7	510.60	7.40	2.40	1,702.00		24.67	50.75%
Unknown Gull Eggs	27.5	17.6	15.7	19.6	13.7	510.60	7.40	2.40	1,702.00		24.67	50.75%
Puffin Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tern Eggs	7.8	5.9	5.9	3.9	5.9	5.41	0.08	0.03	108.24		1.57	60.14%
Unknown Seabird Eggs	7.8	2.0	2.0	7.8	2.0	9.26	0.13	0.04	32.47		0.47	101.58%
Marine Invertebrates	96.1	82.4	82.4	82.4	52.9	2,966.73	43.00	13.97				23.62%
Chitons (bidarkis, gumboots)	88.2	76.5	76.5	37.3	43.1	1,458.47	21.14	6.87	365.29	GAL	5.29	38.65%
Red (large) Chitons	3.9	2.0	2.0	3.9	0.0	8.12	0.12	0.04	2.71	GAL	0.04	101.58%
Black (small) Chitons	84.3	74.5	74.5	33.3	43.1	1,450.35	21.02	6.83	362.59	GAL	5.25	38.85%
Clams	25.5	7.8	7.8	19.6	2.0	247.59	3.59	1.17	82.53	GAL	1.20	52.51%
Butter Clams	19.6	5.9	5.9	13.7	0.0	52.76	0.76	0.25	17.59	GAL	0.25	57.78%
Horse Clams (Gaper)	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Pacific Littleneck Clams (Steamers)	2.0	2.0	2.0	0.0	0.0	81.18	1.18	0.38	27.06	GAL	0.39	101.58%
Pinkneck Clams	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Razor Clams	17.6	3.9	3.9	13.7	2.0	113.65	1.65	0.54	37.88	GAL	0.55	90.93%
Unknown Clams	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Cockles	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Unknown Cockles	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Crabs	76.5	15.7	13.7	72.5	21.6	621.41	9.01	2.93	418.06		6.06	41.02%
Dungeness Crab	31.4	5.9	5.9	27.5	9.8	36.94	0.54	0.17	52.76		0.76	56.67%
King Crab	51.0	0.0	0.0	51.0	3.9	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown King Crab	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tanner Crab	72.5	15.7	13.7	68.6	19.6	584.47	8.47	2.75	365.29		5.29	43.86%
Tanner Crab, Bairdi	72.5	15.7	13.7	68.6	19.6	584.47	8.47	2.75	365.29		5.29	43.86%
Unknown Tanner Crab	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Crab	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Geoducks	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Jingles	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Jingles	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Limpets	7.8	7.8	7.8	0.0	2.0	10.15	0.15	0.05	6.76	GAL	0.10	51.00%
Mussels	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Unknown Mussels	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Octopus	58.8	31.4	27.5	37.3	21.6	578.38	8.38	2.72	144.60		2.10	46.14%
Scallops	21.6	2.0	2.0	19.6	2.0	2.71	0.04	0.01	2.71	GAL	0.04	101.58%
Weathervane Scallops	21.6	2.0	2.0	19.6	2.0	2.71	0.04	0.01	2.71	GAL	0.04	101.58%
Sea Cucumber	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Sea Urchin	19.6	11.8	11.8	11.8	5.9	7.44	0.11	0.04	14.88	GAL	0.22	50.31%
Shrimp	27.5	2.0	2.0	27.5	5.9	40.59	0.59	0.19	40.59	LBS	0.59	101.58%
Snails	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Vegetation	96.1	90.2	88.2	56.9	72.5	3,166.13	45.89	14.91				17.68%

(Continued)

Table XI-4. Estimated Harvest and Use of Fish, Game and Plant Resources, Ouzinkie, 2003 Study Year

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Berries	96.1	90.2	88.2	54.9	70.6	2,079.06	30.13	9.79	519.76	GAL	7.53	11.47%
Plants/Greens/Mushrooms	54.9	54.9	54.9	9.8	23.5	411.68	5.97	1.94	102.92	GAL	1.49	21.03%
Seaweed/Kelp	9.8	9.8	9.8	0.0	0.0	675.39	9.79	3.18	168.85	GAL	2.45	79.71%
Unknown Seaweed	9.8	9.8	9.8	0.0	0.0	675.39	9.79	3.18	168.85	GAL	2.45	79.71%
Wood	58.8	58.8	58.8	5.9	15.7	0.00	0.00	0.00	327.41	CORDS	4.75	41.71%

Note: Harvest amount in individual units unless otherwise specified.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Figure XI-1. Harvests of Wild Resources, Pounds Usable Weight per Person, Ouzinkie

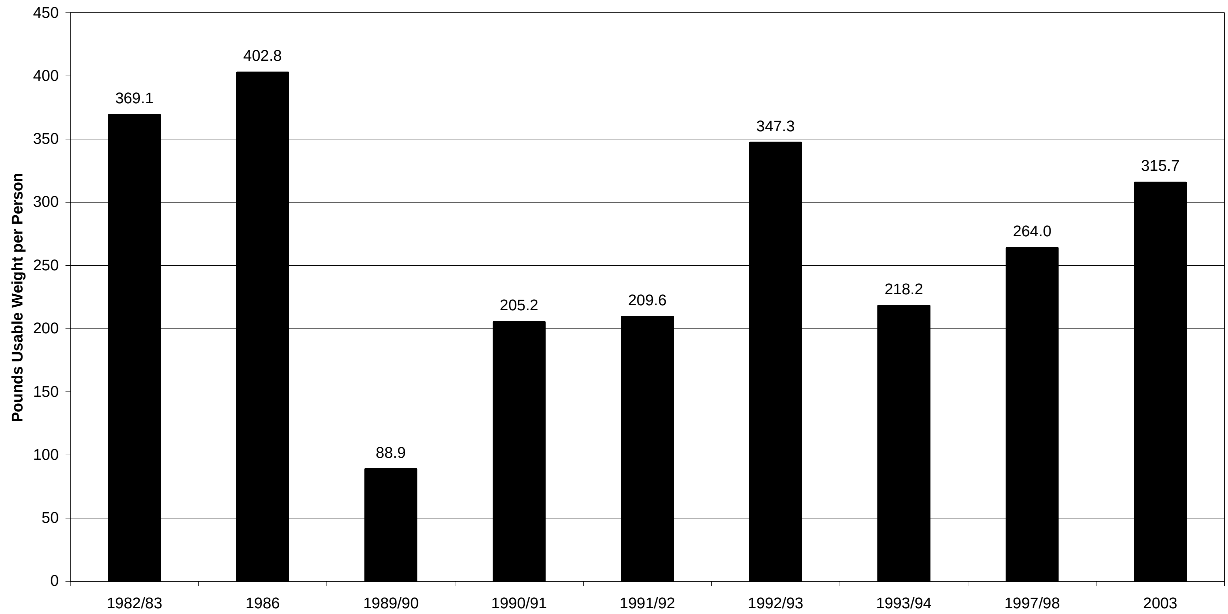


Figure XI-2. Harvests of Wild Resources by Resource Category, Pounds Usable Weight per Person, Ouzinkie

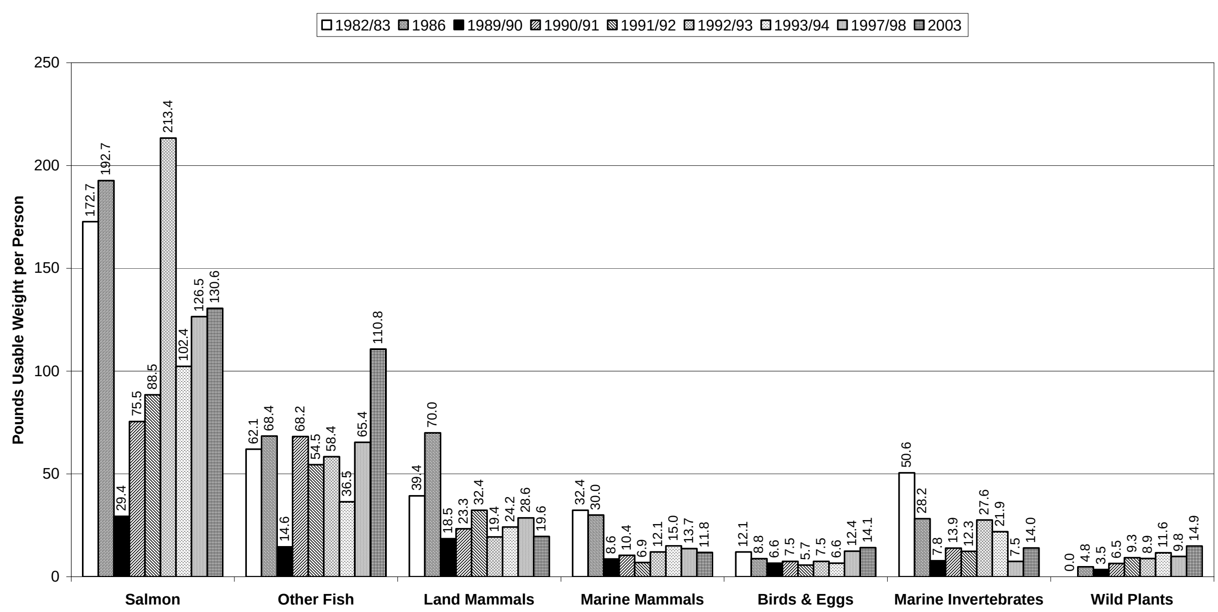
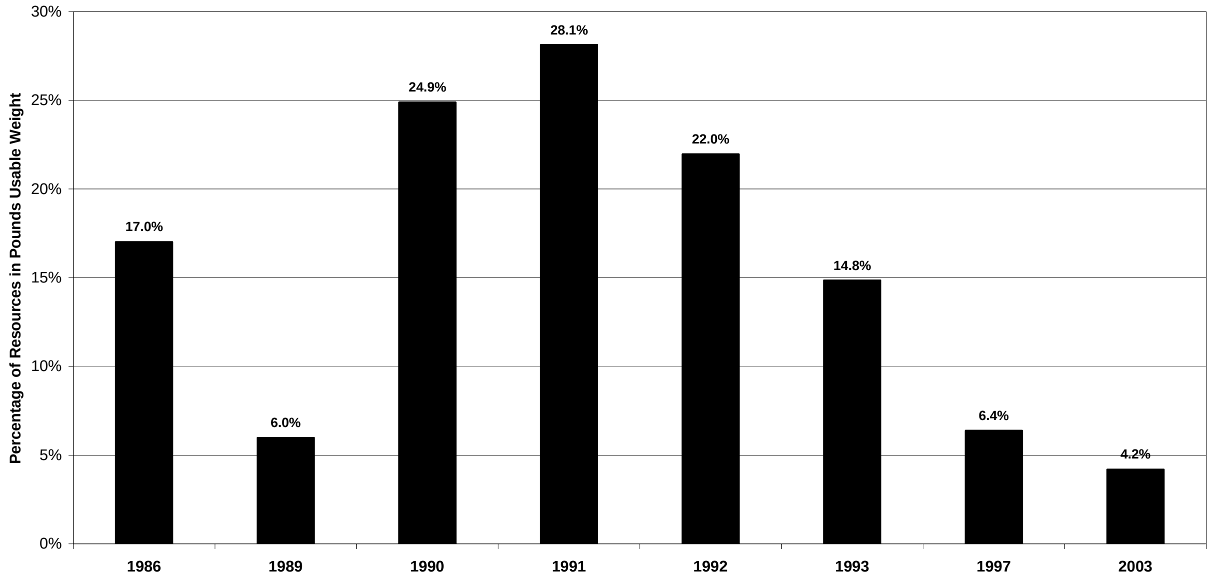


Figure XI-3. Percentage of Resources in Pounds Usable Weight Removed for Home Use from Commercial Harvests, Ouzinkie, 2003



CHAPTER XII: PORT LIONS

by

Liz Williams

COMMUNITY BACKGROUND

Community History

Port Lions is located on the northeast coast of Kodiak Island on Kizhuyak Bay and is accessible by plane, boat and the Alaska Marine Highway (ferry). After Ouzinkie, Port Lions is the second-closest village to Kodiak City. When weather allows, Port Lions residents can travel by skiff to Antone Larsen Bay and then drive approximately 15 miles to get to Kodiak City. The climate is moderate with frequent rain and rare freezing temperatures. Currently there is both a tribal and city government in Port Lions. The Port Lions Traditional Tribal Council is a federally-recognized tribe. The City of Port Lions is a second-class city and was incorporated in 1964 (Alaska Department of Commerce, Community and Economic Development [ADCCED] 2005).

Kodiak Island has been occupied by the Alutiiq people for several thousand years. Many of the residents of Port Lions are originally from the village of Afognak or in Alutiiq, *Ag'waneq*, which was destroyed during the 1964 earthquake (Native Village of Afognak [NVA] 2005). The Lions Club assisted Afognak residents in building the new community, hence the name, Port Lions.

Alutiiq people used and occupied the Afognak area, and the area that is now called Port Lions, long before the arrival of Russians in the late-eighteenth century. Historic accounts indicate that the Russians constructed a fort at Afognak in 1803 (Tikhmenev 1978:81). Afognak was one of seven settlements or *odinockas* (fur trading posts) created by the Russians in 1844 (Tikhmenev 1978: 200). These seven settlements were "consolidated" from "the sixty-five places in which the Aleuts [Alutiiq] had been living or, rather, from which they had been leading a nomadic life over all of Kad'iak and the surrounding islands…" (Tikhmenev 1978: 200). The Alutiiq people who were relocated into these settlements by the Russians were organized into forced hunting parties that harvested sea otters for the fur trade and subsistence resources to feed themselves, their families and the Russians. In addition to subsistence harvests, "Company cattle were distributed among the settlements and the seeds of various garden vegetables were sent…in order to introduce the Aleuts [Alutiiq] to the benefits of cattle breeding and gardening which offered a reliable food supply when fish could not be caught" (Tikhmenev 1978:200). Many Russian-American Company employees married Alutiiq people and chose not to return to Russia. "Creole" is the word used to describe people of mixed Russian and Alutiiq descent. In Afognak, two communities developed during the Russian occupation. One was "Russian Town," a retirement community for Russian and Creole people. It "was located adjacent to Aleut town and over time, these two communities combined and became known as Afognak" (NVA 2005). Many of the residents of these communities were multilingual and spoke Alutiiq and Russian among other languages. In addition to cattle husbandry and gardening, like all other Kodiak Island communities, fish, marine invertebrates, marine mammals and other subsistence resources have always been important to Afognak-Port Lions residents.

Demography

Port Lions is one of the three largest Kodiak Island villages in population. The 2000 U.S. Census reported the population at 256. The 2004 State of Alaska estimate, 238, indicates a slight decrease since 2000. In 2003, census data collected by Alaska Department of Fish and Game (ADF&G), Division of Subsistence indicate a population of 191 people. There are an estimated 71 households in the community with an average size of 3 persons. The community is 81% Alaska Native and the average length of residency in the community is 21 years. The average age is 37 years (see Table I-1 and Table I-8). According to ADCCED data, the median annual family income is $39,107.

Economic Overview

Since the inception of the commercial fishing industry on Kodiak in the late 1800s, Afognak-Port Lions residents have participated. Many Alutiiq people worked in various cannery-related occupations; often the men fished and the women worked as fish processors. There were several canneries located on the northeast end of Kodiak Island near Afognak-Port Lions. The last one that operated in Port Lions was the Wakefield Cannery which burned down in 1975 (ADCCED 2005).

Fish, especially salmon, has always been one of the mainstays of the Kodiak Island economy. Middens around Kodiak reveal the importance of fish to the subsistence lifestyle of the early Alutiiq inhabitants of the island (Steffian and Saltonstall 2004:123). The Russians depended upon Alutiiq fish harvests as one way feed the colony. Commercial fishing has been the basis of the Kodiak Island economy since Alaska was purchased by the United States in 1867. In most Kodiak Island villages, commercial fishing has been an integral part of the mixed economy of rural Alaska– the cash and subsistence economy. The mixed economies of many coastal communities in Alaska, including Port Lions, rely on commercial fishing and subsistence harvests, which are mutually dependent.

In 2005, the ADCCED (2005) described the Port Lions economy as follows, "The economy of Port Lions is based primarily on commercial fishing and tourism. Twenty-four residents hold commercial fishing permits. All of the residents depend to some extent on subsistence food sources." In addition to commercial fishing, other forms of wage employment include positions in tribal and city government, tribal clinic, school, post office, logging operations at nearby Danger Bay and self-employment as hunting and fishing guides and lodge owners.

The economy of Port Lions has long been based on commercial fishing. Between 1980 and 1989 there were an average of 18 commercial salmon fishing permit holders in Port Lions and an average of 15 of those permits were fished during the 1980s (Alaska Department of Fish and Game, Commercial Fisheries Entry Commission [CFEC] 2005). In 1988, the year before the *Exxon Valdez* oil spill, commercial salmon prices were high. Kodiak sockeye salmon were worth an average of $2.71 per pound compared to an average of $1.01 in 1984. In 1989, the year of the oil spill, there were 16 commercial salmon permit holders in Port Lions but due to spill-related closures and other work related to the oil spill, only 1 of these permits was fished. In 1989, the average price of Kodiak sockeye salmon dropped from $2.71 to $1.79. With the exception of a slight rise in 1992, when the average price of Kodiak sockeye salmon rose to

$1.47, the price has steadily declined since 1988. Concurrently, the number of commercial salmon permits that were actually fished in Port Lions and other communities has declined. From 1990-1999, there were an average of 13 permit holders in Port Lions and an average of 12 of these permits were fished. From 2000-2003, there were an average of 14 permit holders in Port Lions with an average of 9 permits fished. In 2004, there were 14 commercial salmon permits in Port Lions and 9 were fished. The average price per pound for Kodiak sockeye in 2003 was 53 cents. The average price per pound for other Kodiak salmon in 2003 was Chinook, 46 cents; coho, 16 cents; chum, 11 cents; and pink, 7 cents (CFEC 2005). One Port Lions resident commented that each commercial fishing permit used to support a captain, a crew of 2-3 people and their families. She said that is no longer the case, and when just a few permit holders leave, the community feels the loss.

Subsistence harvests provide a significant portion of household economies. In 2003, the average Port Lions household used 599 pounds of wild foods, down from 980 pounds of wild foods during the previous study in 1993 (Fall and Mishler 1995:XVI-4). If we use five dollars per pound as the replacement cost of subsistence foods in 2003, a Port Lions household would have had to spend an average of $2,995.00 on food. This is a substantial amount in this community where the average annual family income is $42,656.00.

SUBSISTENCE RESOURCE HARVESTS AND USES

Participation in Hunting, Fishing and Gathering Activities

One characteristic of village subsistence economies in Alaska is the wide variety of subsistence resources that households use, harvest, and share (see Table I-10). In 2003, Port Lions households reported the use of an average of 13.8 different kinds of subsistence resources. In 2003, Port Lions households reported an average harvest of 8.4 different kinds of subsistence resources. The diversity of subsistence resources used is down from the previous survey year of 1993 when an average of 16 resources were used by Port Lions households (Fall and Mishler 1995:XVI-4). However, the amount of 13.8 types of subsistence resources used per household in 2003 is close to the pre-spill average of 14. The diversity of subsistence resources used by Port Lions residents in 2003 appears to have come very close to that recorded for pre-spill years based on surveys conducted in 1982 and 1986 (Scott et al. 2001).

Table XII-4 illustrates levels of participation in the harvest and use of wild resources by residents of Port Lions in 2003. Over 98% of Port Lions households were involved in subsistence activities. All Port Lions households (100%) said they used subsistence resources during the study year (2003) and 98.1 percent of households said they harvested subsistence resources in 2003. The “harvest” category refers to subsistence resources actually taken by a member of the surveyed household during the year covered in the survey. The “use” category includes all resources taken and given away by a household and resources “received” by one household from another after a harvest, either as gifts, by trade, or through hunting partnerships and meat given to hunting and fishing guides by their clients. In some cases, households may receive subsistence resources and use them but not actually harvest them. They may not harvest because of age, illness, lack of income for harvest gear or a wage job that does not allow them time to harvest. If they can, these households that receive and use subsistence resources they do not harvest, often provide cash or other assistance to those who harvest for them. In many cases, there are households who use, harvest, receive and give away or share. These households consume many of the resources they harvest, however they may harvest more than their household requires in order to share with, or provide for, households that did not harvest. Additionally, some households specialize in specific types of harvests such as marine mammals or waterfowl. These households may harvest the bulk of one type of subsistence resource in order to provide it for the entire community. This is increasingly the case for items like gull eggs. Because the high price of fuel prohibits many trips, one or more households may make a trip and harvest enough eggs for everyone. Sharing is not confined to need. Many people harvest their own salmon, for example, and still receive salmon from other households depending on who has it fresh that day or for variety because of different household processing methods. The "use" category was not confined to resources for human consumption, but incorporated all non-commercial uses of resources including fur and wood. The economic implications of sharing between households are considerable, in that sharing results in a wide distribution of wild foods.

In terms of broad categories of resources (see Table I-9), more people were involved in the use and harvest of fish and plants than in the harvest and processing of land and marine mammals, marine invertebrates and birds and eggs. Table XII-4 shows that more Port Lions households used fish than they used any other subsistence resource. Almost 82% percent of Port Lions households harvested fish and 100% of Port Lions households used fish for a total community harvest of 27,863.6 pounds of fish (approximately 392.4 pounds of fish per household). Of the fish harvested, 18,319.9 pounds was salmon and 9,553.7 pounds was non-salmon fish, mostly halibut. The most widely harvested category of wild resources was plants. Over 96% of Port Lions households harvested plants and 98.1% used plants. After plants and fish, land mammals were the third highest harvested and used subsistence resource category. Almost 52% of Port Lions households harvested land mammals, primarily deer, and they were eaten by 87.0% of households. As for other subsistence resources, 44.4% of households harvested marine invertebrates and 79.6% of households used marine invertebrates; 33.3% of households harvested birds and eggs and 55.6% used them; 16.7% of households harvested marine mammals and 27.8% used them.

Resource Harvest Quantities and Harvest Composition

Table XII-4**,** summarizes resource harvest and use, is organized first by general category and then by specific species. All resources have been recorded in usable pounds (see Appendix D for conversion factors).

In the study year of 2003, Port Lions' total community harvest of wild resources was 42,505.9 pounds usable weight. The average household harvest for all wild foods was 598.7 pounds or 221.4 pounds per person (see Tables XII-2 to XII-4). In 2003, the community harvested 27,863.6 pounds of fish (65.5 % of the total harvest); 8,217.2 pounds of land mammals (19.3%); 2,908.4 pounds of vegetation (6.8%); 2,262.2 pounds of marine invertebrates (5.3%), 819.9 pounds of marine mammals (1.9%), 444.2 pounds of birds and eggs (1.0%).

In terms of specific resources in 2003, salmon (18,319.9 pounds) and halibut (6,422.9 pounds) made up the largest components of the community's resource harvest, as measured by usable weight. Next in order of total pounds harvested were deer (6,304.8 pounds), berries (2,840.0 pounds), crab (1,204.8 pounds), seal (809.9 pounds), assorted ducks (329.6 pounds) and snowshoe hare, (291.9 pounds).

Salmon made up 43.1% of the total subsistence harvest in 2003. As noted above, Port Lions harvested 18,309.9 pounds of salmon in 2003. This is much lower than the 1993 salmon harvest of 37,280 pounds (Fall and Mishler 1995:XVI-22). The 2003 subsistence salmon harvest was composed of 51.2% sockeye salmon, 33.7% coho salmon, 9.2% Chinook salmon, 5.0% pink salmon, and <1% chum salmon (see Table XII-4). In 2003, 98.1% of Port Lions households reported using salmon, 77.8% of households harvested salmon, 68.5% of households said they shared salmon with other households and 77.8% received salmon from others. In 2003, the average harvest of salmon per household was 257.9 pounds, approximately 95.4 pounds per person.

The methods used by Port Lions residents to harvest salmon are rod and reel, 57% of households (4,613 pounds); followed by set net, 35% of households (9,170 pounds); and beach seine, 13% of households (2,626 pounds). Nine percent of Port Lions households removed 898 pounds of salmon from commercial harvests for home use. Figure XII-3 shows the decline in the amount of salmon retained for home use from commercial harvests in recent years.

Non-salmon fish species made up 22.5% of the total Port Lions subsistence harvest and were used by 92.6% of households. Port Lions residents harvested 9,553.7 pounds of non-salmon fish in 2003, much less than the 15,062 pounds harvested in 1993 (see Table XVI-22). The bulk of the 2003 non-salmon fish harvest was composed of halibut, 67.2% (6,422.9 pounds); distantly followed by cod, 15.0% (1,436.6 pounds); various types of rockfish, 6.2% (591.4 pounds); herring 3.5%, (331.3 pounds); Dolly Varden, 3.1%, (292.7 pounds), sablefish 2.5%, (240.5 pounds), and less than 100 pounds each of greenling, flounder, and steelhead. As shown in Table XII-4**,** 92.6% of Port Lions households used non-salmon fish, 63.0% percent of households harvested non-salmon fish, 55.6% of households shared non-salmon fish and 66.7% of Port Lions households received non-salmon fish. In 2003, the average harvest of non-salmon fish was 134.6 pounds per household, approximately 49.8 pounds per person.

Land mammals made up 19.3% of the total Port Lions subsistence harvest in 2003. The total 2003 subsistence large land mammal harvest for Port Lions was 8,217.2 pounds. The 2003 amount is less than the 1993 harvest of 13,275 pounds. The 2003 harvest was primarily composed of deer, 76.7% (6,304.8 pounds); elk, 10.8% (887.5 pounds); and moose, (harvested on the mainland) 8.6% (710.0 pounds). Eighty-seven percent of Port Lions households reported using land mammals, and 75.9% of Port Lions households used deer. Almost 32% of Port Lions households used elk. Almost 51% of Port Lions households reported harvesting land mammals, 31.5% of households shared land mammals and 72.2% received land mammals. In 2003, the average household harvest of land mammals was 115.7 pounds and the average amount harvested per person was 42.8 pounds. Over 7% of Port Lions households harvested 291.9 pounds of snowshoe hare and 13.0% of households used snowshoe hare.

Marine invertebrates constituted 5.3% of Port Lions' total 2003 subsistence harvest. The total harvest of marine invertebrates was 2,262.2 pounds, less than one-third of the 1993 harvest of 7,149 pounds. Crab were the most heavily used marine invertebrate, 53.3% (1,204.8 pounds). Of the crab harvested, 51.8% was Tanner crab (1,171.8 pounds). Most households, 41% removed crab from their own commercial catch or received crab primarily from commercial crab fishers. Over 72% of Port Lions households used crab, 59.3% of households received crab and only 22.2% of households harvested crab. Clams made up 19.9% (448.7 pounds) of the Port Lions marine invertebrate harvest. Of the clams harvested, razor clams were the most common; they comprised 69.2% of all clams harvested (310.6 pounds). Most razor clams were harvested on the Kenai and Alaska peninsulas. The Alaska Marine Highway provides Port Lions residents with fairly easy access to the Kenai Peninsula where many people said they harvested razor clams to avoid the paralytic shellfish poison (PSP) found in clams on Kodiak beaches. A few households harvested razor clams from the Alaska Peninsula while commercial fishing. Other marine invertebrate resources harvested include: chitons, 17.0% (383.9 pounds); octopus, 9.5% (215.6 pounds); and under five households reported harvesting less than 2 pounds each of sea urchins and snails. Almost 80% of households said they used marine invertebrates and 44.4% of households reported harvesting them. Thirty-seven percent of Port Lions households reported sharing marine invertebrates and 70.4% of households said they received them. The average 2003 household harvest of marine invertebrates was 31.9 pounds and the average harvest amount per person was 11.8 pounds.

Marine mammals comprised 1.9% of the total subsistence harvest in Port Lions in 2003. The total 2003 marine mammal harvest for Port Lions was 809.3 pounds; this is less than the 1993 harvest of 1,052 pounds. The 2003 harvest of marine mammals was all seal; no Port Lions households reported harvesting sea lions. More than 29% of Port Lions households used seal, 9.3% of households harvested them. Over 7% of Port Lions households said they shared seal and 14.8% of households said they received seal. In 2003, the average household harvest of seal was 11.4 pounds and the average amount harvested per person was 4.2 pounds.

Birds and eggs made up 1.0% of Port Lions' total 2003 subsistence harvest (see Table XII-4). The total harvest of birds and eggs was 444.6 pounds, lower than the 1993 harvest of 914 pounds. Ducks were the most commonly harvested bird at 74.1% (329.6 pounds). Mallards comprised 43.1% of all ducks harvested (143.2 pounds). Geese made up just 2.0% of the total bird harvest (18.9 pounds). Gull eggs were 8.7% of the total bird and egg harvest (38.7 pounds). Almost 56% of households said they used birds and eggs and 33.3% of households reported harvesting them. Almost 26% of Port Lions households reported sharing birds and eggs and 38.9% of households said they received them. The average 2003 household harvest of birds and eggs was 6.3 pounds and the average harvest amount per person was 2.3 pounds.

Almost 7% of Port Lions' total 2003 subsistence harvest included plants (2,908.4 pounds). The 2003 amount is lower than the 1993 harvest of 3,641 pounds. Berries included 97.6% of the plant harvest; in 2003, Port Lions residents harvested 2,840.0 pounds of berries. The other 2.4% of the plant harvest included 63.1 pounds of pushkies and petruskies, local greens used in fish soup and other dishes. Wood is included in the plant harvest and 264.3 cords were harvested by Port Lions residents in 2003. Wood is important for steam baths (banya), smoking fish and, to some extent, for home heating. Over 89% of households said they used plants and 96.3% of households reported harvesting them. Almost 78% of Port Lions households reported sharing plants and 50.0% of households said they received them. The average 2003 household harvest of plants was 41.0 pounds and the average harvest amount per person was 15.2 pounds.

Harvest Effort

On the 2003 survey, Port Lions residents were asked to assess the amount of effort it took to harvest wild resources as compared to five years ago. This question was asked about seven resource categories: salmon, non-salmon fish, marine invertebrates, land mammals, marine mammals, birds and eggs, and wild plants. Port Lions households who answered the question had varied opinions about the amounts of effort required to harvest subsistence resources in 2003 compared to five years ago (see Tables A-58 to A-81). For most categories, the responses were primarily “the same.” The response about effort to harvest marine invertebrates was very different from all other categories. Almost 65% of Port Lions households said they expended less effort to harvest marine invertebrates in 2003 compared to five years ago. Several households cited less abundance and the need to travel further as to why they expended less effort to harvest marine invertebrates. The categories of marine mammals and plants were the only two categories in which a majority of households answered with the same opinion. For marine mammals, 66.7% of households said their harvest effort was the same in 2003 as in 1998; for plants, 56.4% of Port Lions households said their harvest effort was the same. The responses for the other categories were less clear: for salmon, 40.5% said their effort was the same, 31.0% less and 28.6% more. For non-salmon species, 38.2% of Port Lions said their 2003 level of effort was the same as 1998, 29.4% said it was less and 32.4% said it was more. Mixed responses were also received for large land mammals, 47.2% said same, 36.1% said more, and 16.7% said less effort was required in 2003 than in 1998. The responses about birds and eggs were a little more clearly divided: 47.4% of Port Lions households said their level of effort was the same, 42.1% said it was less and only 10.5% said they used more effort in 2003 compared to 1998.

With the exception of the marine invertebrate category, the overall amount of harvest effort in 2003 compared to 1998 (five years ago) appeared to be the same according to many, but not a consistent majority of Port Lions households.

Comparisons of Uses and Harvests with Other Years

In 2003, Port Lions households were asked to assess their current harvest and use of subsistence resources compared to five years ago (see Tables A-1 to A-26) and to 1988, the year before the oil spill (see Tables A-28 to A-55). A near majority of Port Lions respondents, 46.8%, said that their overall 2003 subsistence harvest was the same as five years ago, and 34.0% said their overall subsistence harvest was less than five years ago. In contrast, 47.5% of Port Lions households reported that their overall subsistence harvests in 2003 were less than they were in 1988 and 37.5% said they were the same. In response to questions about the seven resource categories, for most of the categories, the majority of households said that their uses and harvests were the same as five years ago. Once again, however, marine invertebrates are the exception; 78.4% of Port Lions households said their harvests and uses of marine invertebrates are less than they were five years ago. When comparing harvests and uses in 2003 to 1988, Port Lions responses varied, but overall they indicated that most households felt their 2003 harvests were lower than their 1988 harvests.

In 2003, 47.7% of Port Lions households said their harvest of salmon was the same as five years ago and 38.6% said it was less than five years ago. Almost 43% of Port Lions households said their salmon harvests were less in 2003 compared to 1988 and 38.1% said they were the same as in 1988. Almost 48% of households said their harvest of non-salmon fish was the same as five years ago, 37.5% said it was less than five years ago. Port Lions opinions were divided about non-salmon harvests in 2003 compared to 1988; 45.7% thought they were the same and 45.7% thought they were less. The assessments of marine invertebrate harvests in Port Lions are very clear. As noted earlier, 78.4% of Port Lions households said their marine invertebrate harvests were less than five years ago and 81.6% said they were less in 2003 than they were in 1988. In 2003, harvest and use assessments of large land mammals were divided. Almost 43% of Port Lions households said that compared to 1998, they harvested and used less land mammals and 42.5% said they used the same amount. Compared to 1988, 56.8% of Port Lions households said they harvested less large land mammals in 2003. Most Port Lions residents, 63.6%, considered their harvests and uses of marine mammals in 2003 the same as five years ago; 58.3% thought their harvests and uses of marine mammals were the same as 1988. Exactly half of Port Lions households considered their harvest and use of birds and eggs the same as five years ago, however, 48.3% said it was less compared to 1988. Almost 66% of Port Lions households considered their 2003 plant harvests to be the same as five years ago, and 54.1% said they were the same as in 1988.

The data presented above indicate that most Port Lions households consider their 2003 harvests of all resource categories, except marine invertebrates, to be close to the same as five years ago. However, even in categories in which most households felt their harvests were the same as five years ago, the responses of "the same" were not over fifty percent in the category of salmon, non-salmon, and land mammals, and there were high numbers of households who felt their harvests in these categories were less than in 1998. It also indicates that most Port Lions residents consider their 2003 harvests to be less than they were in 1988, again, not only in the case of marine invertebrates but also salmon, non-salmon, land mammals, and birds and eggs.

In 1989, the year of the oil spill, the per capita average subsistence harvest in Port Lions dropped by about 160 pounds from the pre-spill average of 306.9 pounds per person to 146.7 pounds per person. Subsistence harvests in Port Lions appear to have temporarily rebounded but have not returned to pre-spill levels. Surveys conducted in 1993 indicate the average per capita subsistence harvest rose to 331.5 pounds, higher than the pre-spill level, then dropped in 2003 to 221.4 pounds. (see Table XII-2, Figure XII-1).

An examination of the seven individual resource categories indicate a rebound of subsistence resource use very close to but just below pre-spill levels. In Table XII-2, data from the 2003 survey is compared to previous surveys in 1982, 1986, 1989, and 1993. The 2003 per capita harvest averages in five of the seven resource categories, salmon, non-salmon fish, land mammals, marine mammals, and marine invertebrates, are less, some just slightly, than pre-spill per capita averages. In 2003, 95.4 pounds of salmon per person was harvested; prior to the oil spill, the per capita average was 129.2 pounds. In 2003, 49.8 pounds of non-salmon fish per person were harvested: prior to the oil spill, the per capita average was 77.1 pounds. In 2003, 42.8 pounds of land mammals per person were harvested: prior to the oil spill, the per capita average was 54.9 pounds. In 2003, 4.2 pounds of marine mammals per person were harvested; prior to the oil spill, the per capita average was 7.3 pounds. In 2003, 11.8 pounds of marine invertebrates per person were harvested; prior to the oil spill, the per capita average was 34.3 pounds. In one of the seven resource categories, plants, 2003 per capita resource level is much higher (15.2 pounds per person) than the pre-spill average of 3.6 pounds per person. In the category of birds and eggs, the pre-spill average and 2003 level are the same at 2.3 pounds per person. Subsistence resource harvests are always dynamic, however, the above data indicate only a slight difference in 2003 compared to pre-spill harvest levels. The 22.5 pound decline in the amount of marine invertebrates is offset by the increase in subsistence harvest plant use, however, this is not an equal exchange as this indicates an overall decrease in protein. This could also be said for the 27.3 pound decrease in the harvest of non-salmon fish. The decrease in per capita marine invertebrate harvests may appear small, however, as will be detailed later, marine invertebrates have high cultural significance and this decrease has not gone unnoticed by Port Lions residents. This point is probably better made by looking at the community harvest of marine invertebrates before 1988 and after. In 1982, harvest surveys indicate that the community of Port Lions harvested 10,358 pounds of marine invertebrates; in 1986, they harvested 9,712 pounds; in 1993, 7,149 pounds were harvested; and in 2003, the community harvested 2,262 pounds of marine invertebrates (Scott et al. 2001). In 1980 the population was 215 people, in 1990, 222 people and in 2003, approximately 191 people (Fall and Mishler 1995:XVI-8).

NATURAL RESOURCE CONDITIONS

Food Safety

One aspect of the *Exxon Valdez* Oil Spill Trustee Council (EVOSTC) recovery objectives for subsistence uses is that "people must be confident that the resources are safe to eat." In order to measure confidence in food safety, survey respondents were specifically asked if they thought clams, chitons, seal and herring were safe for their families to eat (see Tables A-458 to A-465). The majority of Port Lions respondents reported that they consider chitons, seal and herring safe for their families to eat. Over 70% said chitons were safe, 72.4% felt seals were safe–27.6% were unsure about the safety of seals, 63.0% felt herring were safe, and 37.0% were unsure about the safety of herring. The low percentage for herring is due to the fact that not many people harvested herring. In contrast, 90.7% of Port Lions households said they did not believe clams were safe. The majority of households, 40.8%, said they believe clams are not safe because of PSP and 16.3% said they thought clams were unsafe due to oil spill contamination.

Some Kodiak Island village residents believe there has been an increase in the frequency and toxicity of PSP in the last 15-20 years. There are different opinions as to what has led to the increase in PSP. It should be noted that right after the oil spill, clams and other invertebrates were some of the few species that public health officials specifically warned people not to eat due to the high concentrations of spill-related contaminants (Fall and Field 1996:819, 834-835). It is therefore easy to see how people would connect these post-spill warnings with a continued risk in consuming clams. This is especially the case in Port Lions, which was one of the Kodiak villages that was first and hardest hit with the spill oil. Many Port Lions households requested more research on clams and how to assess risk.

For the Native people of coastal Alaska, clams have been an important subsistence food for hundreds if not thousands of years. Middens in ancient Alutiiq village sites are full of clam shells. Alutiiq oral histories and Russian accounts indicate that when salmon or marine mammals were scarce, Alutiiq people relied on clams and other foods from the intertidal zone to prevent starvation. PSP is not a recent phenomenon in Alaska. Colonial Russian accounts and comments made during these surveys indicate that coastal Alaska Natives knew of beaches, times of year, tidal activity, antidotes and other empirical data about bivalves and PSP (Fortuine 1975). Many 2003 survey respondents commented that their traditional ecological knowledge (TEK) of clams and PSP had prevented deaths from PSP in their lifetimes and many said they had heard of illness but not death from PSP from their parents and grandparents. They were taught to only harvest clams in winter months, usually months with r's (in English) and to cut out certain parts ("the tip of the neck above the sand, the gills, and part of the belly.") They were told that if a clam or mussel was a particular color (brown or gray inside) not to eat it, how to clean them out by keeping them in fresh salt water and feeding them prior to consuming them. The Alaska Department of Environmental Conservation (ADEC) disputes the efficaciousness of any of these methods.

Several households commented, though, that much like ice conditions in northwest Alaska have begun to change, tidal and algal bloom conditions are much different today in the Kodiak area than they have been in living memory. People said the red tides come earlier in the spring and last later into the fall than they did in the past. One woman said, "We didn't have red tides as long in the past before the spill. Something in the environment that combated PSP died. Oil gets buried in the winter and then it bubbles up in the summer when warmer." Many households commented that they had not eaten clams since the oil spill. During this survey, it sounded like the TEK was being adapted to the new conditions. Some people said they had recently resumed eating clams. They said that in order to get clams that were PSP free, they had to get clams that are completely submerged, except during extreme minus tides, not the ones easily accessible from the beach. They said the "safe" clams had to come from "open water" locations with ocean currents and constantly flowing water, not bays or coves.

Most scientific researchers have said there is no connection between recent paralytic shellfish poisoning (PSP) outbreaks and the oil spill. When survey respondents said they firmly believed that the spill has caused more PSP, they were asked how they felt about the fact that scientists who study the topic say there is no relationship. One person said, "Science has been wrong before," and many repeatedly said, "We have not seen these same conditions and we know of no one, in our memory, who died from PSP." The conviction of these beliefs came through in the often stated, "I have not eaten clams since 1989." Currently, there is no scientific proof that the spill is linked to perceived increases in PSP. However, the fact that this link was so prevalent in many Kodiak Island communities illustrates the persistence of the perception that most food safety issues are related to the effects of the spill.

In the newsletter, *Red Tides*, produced by the Northwest Fisheries Science Center and University of Washington Sea Grant Program, there is an article titled "Harmful Algal Blooms and their Impacts on West Coast Tribes." In this article, the cultural significance of clams (and other intertidal bi-valves) for subsistence and cultural identity, for native people from California to Alaska is reviewed (NWFSC 2002:1). Perhaps the aspect of cultural identity should be emphasized when conclusions on research about the danger of consuming clams is publicized. Clams are extremely important to Kodiak Island village residents. Many people expressed sadness about the loss of the communal nature of the clam harvest because everyone had to go out at the same time to harvest during minus tides. Many people said the traditional life has not recovered after the spill because they still cannot have clams. Every culture has foods that its members consume, foods that the members believe make them who they are. Even if members do not get these foods regularly, they may get them ritually, only at certain times, and that can satisfy the need to consume foods that are culturally significant. Many survey respondents discussed fear of eating clams. Afterward they talked about the grief and loss related to not being able to confidently harvest clams the way they felt they could before the spill. After conducting the oil spill surveys for five weeks in three Kodiak Island communities, it seemed that if the report had to be summarized in one word, that word would be clams. DEC issues bulletins that simply state, do not eat clams, period. However, not eating clams is more than just a matter of food, it is a public health issue that affects the body and the mind of many Kodiak Island residents.

Status of Resource Populations

In response to the question, "Have subsistence resources recovered since the oil spill?", 59.6% of Port Lions households said no, 29.8% said they never changed and 10.6% said they had recovered. In addition to the answers "yes", "no", and "don't know", many people said they wanted to say "some resources have recovered and some haven't" (see Table A-82). When asked what could be done to help subsistence resources recover, most households said they "didn't know, only time will heal it" and others said it will not ever be the same (see Table A-83). There were many comments on this topic:

- Resources have not recovered since the oil spill because there was an overall change in the balance of nature. Herring seems to be coming back which should improve things.

- Resources have not recovered because fish prices and clams are still bad.

- Tell Exxon to clean it up [oil] instead of heating it up and melting it down into the rocks.

- Some have recovered, some have not, clams, fish prices and ducks have not recovered.

Port Lions residents were asked to assess changes in the availability and the population status, of all five species of salmon, three species of non-salmon fish (halibut, "black bass", and herring), five different marine invertebrates (clams, chitons, Dungeness crab, sea urchins and octopus), land mammals (deer), two species of marine mammals (harbor seals and sea lions), birds and eggs (sea ducks) and wild plants (berries).

Port Lions residents had varied opinions about the availability of salmon in 2003 compared to five years ago (see Tables A-135 to A-138). Survey results indicate that 64.7% of Port Lions residents considered the availability of chum salmon to be less (65%), coho salmon the same (55.2%), sockeye salmon less (45.5%), pink salmon the same (52.6%) and Chinook salmon, more (46.4%). The reason Port Lions residents said they thought more Chinook salmon were available in the last five years is probably because of an increase in Port Lions residents who guide sportfishers for cash income in response to low commercial salmon prices and the rise in the popularity of ocean trolling.

Port Lions residents had a multitude of comments about salmon. Many households said that the cycles of most salmon species were negatively affected by the spill[1]. Global warming, increasingly severe storms and ever-increasing sportfishing pressure from Kodiak City were cited as other reasons salmon seemed scarce or required more effort to harvest. Some people blamed the spill for attracting more sportfishers. The effects of the shutdown of the Litnik subsistence fishery (2003-2004) elicited many comments. Some households said it caused more people from other areas to fish in Port Lions' traditional fishing areas. Others blamed biologists'

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[1] The topic of a paper presented at the EVOSTC research symposium held in Anchorage in January 2005 included a discussion of immediate and delayed effects of embryonic exposure of pink salmon to hydrocarbons (Heintz et al. 2005:71). A similar discussion on the long-term effects of spilled oil on the long-term viability of salmon populations can be found in *Science* (Peterson et al. 2003:2082-2086).

fertilization of Afognak Lake for the closure. Some households said Dolly Varden had become too plentiful in the area. In regard to other areas, some households said that chum salmon runs had not returned since the Terror Lake Hydroelectric Plant (constructed in the 1980s), began "warming" nearby waters. Many households said they like the "planted" sockeye hatchery because there were more. Some households said they harvested less salmon because they stopped commercial fishing due to poor salmon prices and could not remove it from their commercial harvest like they did in the past. Others said they stopped commercial fishing, had to get a wage job and did not have the time to go out and harvest fish. Another former commercial salmon fisher said she rarely eats salmon now. She said she left salmon fishing because of poor prices and began to work as a Bering Sea crabber.

Most Port Lions households considered the availability of herring (45.5%) and black rockfish (72.2%) to be the same as it was five years ago. Only one household commented on the availability of cod and that household thought there were less cod than five years ago. The assessment of halibut availability was vastly different; 57.6% of Port Lions households said they believed there was less halibut available to harvest than there was five years ago (see Tables A-192 to A-195).

The concerns Port Lions residents expressed about non-salmon fish were primarily about halibut. Port Lions households reported that competition for halibut was fierce. They cited competition from Individual Fishing Quota (IFQ) holders and charter operators as factors that led to "more effort, more travel, and less halibut." Two households mentioned that they liked the new federal subsistence halibut regulations that allowed them to harvest more halibut in one trip. Unlike Ouzinkie, only one person mentioned draggers as an issue related to halibut or other fish. Several households said the halibut IFQ system forced them out of the commercial halibut fishery. Several households in Port Lions, Ouzinkie and Old Harbor commented that they used to fish salmon, crab, herring and a little halibut. They wished they had been more involved in halibut but said "I needed to be with my family some of the time; I could not do everything." They said when salmon prices went down and crab and herring disappeared, halibut kept them going, but when the IFQ system began, they were too small of an operation to fit into the IFQ system.

In regard to other non-salmon fish, several households said rockfish were scarce due to sportfishing and some said there were less rockfish due to the spill. A couple of households in Port Lions said that herring have slowly begun to recover. Several households said they were happy to see herring return because they are a keystone species. One household said there were less herring due to the spill because herring were spawning when the oil came. Another household wanted to know why the herring have not returned to the Gulf of Alaska, including Kodiak, Cook Inlet and Prince William Sound. He requested more research on herring. There were several former herring fishers that participated in the survey and they felt that EVOS was responsible for the downturn in that fishery. In 1980, there were 8 commercial herring permit holders in Port Lions; in 1988, there were 13; in 1989, the number dropped to 2; it rose to 4 in 1998; and remained at 4 in 2003 (CFEC 2005). One household commented, "1988 was the last year of herring and halibut fishing for this household, it stopped, no seasons, IFQs." Some people said most of the IFQs had gone to people from out of state. This was also noted in the *Anchorage Daily News*, "Over the last two decades, people living out of state have come to dominate Alaska's commercial fisheries…non-resident fishermen now account for the majority of both the weight and value of the catch… the shrinking number of small scale Alaska catchers is tough on coastal towns and villages long steeped in a commercial fishing tradition" (Loy

2004). This article in no way associates the decline in commercial salmon prices with the oil spill. However, it does indicate the same start date [after 1988] of the downward spiral in fish prices that residents of Kodiak Island villages reported: "Far fewer people are fishing commercially now. In 1988, the peak year for salmon value, nearly 50,000 state permit holders and crewmen were directly involved in harvesting Alaska seafood. By 2002, only about 27,000 people were still fishing, with Alaska residents accounting for most of the dropouts" (Loy 2004).

Most Port Lions households had varied opinions as to whether there were less marine invertebrates available to harvest in 2003 compared to five years ago, depending on the species (see Tables A-250 to A-253). When asked about the availability of clams, some people said, "What do you mean? There are lots of clams out there but we are afraid to harvest them because of PSP." Researchers then had to decide how to interpret this question in light of clams being there but not necessarily available. We asked people to answer as to the availability of clams they felt were safe to eat. In Port Lions, 85.4% of households thought the availability of "safe" clams was less than it was five years ago. In 2003, 33 households said clams were not safe because of PSP; 21 households said they believed the PSP was related to contamination caused by the spill. The report on 1993 harvest surveys in Port Lions also cites the association of oil contamination with fear of eating clams (Fall and Mishler 1995:XVI-6).

In 2003, 63.2% of households thought the availability of octopus was the same as five years ago. Almost 55% thought chiton availability was the same as five years ago although 40.9% of households thought chiton availability was less than five years ago. Many households considered the availability of other marine invertebrates to be less; Dungeness crab (93.1% less) and sea urchins (90.9% less) compared to five years ago. There were little or no reported harvests of King crab, shrimp or mussels in 2003. Total community harvests of these resources in 2003 were 9.1 pounds of King crab, no shrimp, and 2.6 gallons of mussels. However, based on survey data from 1982 and 1986 (prior to the spill), the community of Port Lions harvested an average of 3,455 pounds of King crab, 36 gallons of mussels and 244 pounds of shrimp. Port Lions households had many comments about marine invertebrates. By far, the most comments received were about clams. There were, however, plentiful substantive comments on other marine invertebrate species. These comments include many reasons, both spill- and non –spill-related as to why there seem to be less marine invertebrates in 2003 than before the oil spill.

Several households in Port Lions and around the island cited an overabundance of sea otters as one reason there were less marine invertebrates to harvest. Some people said they were not sure of how the oil spill and marine invertebrate populations were connected but since the spill, they expended less effort to harvest marine invertebrates because there were less to harvest.

The survey answers Port Lions households provided to yes or no questions about clams mirror the answers provided through comments. The comments listed below were recorded during the surveys. These comments were copied from 52 surveys that had comments. Each person may have made more than one type of comment:

17--There are less clams available now due to PSP (not spill-related).
16--There are less clams available now because of EVOS, PSP-red tide increased after the spill.
15--There are less clams available now because of PSP, (not sure if spill-related or not).
2--Problems with clams ended village togetherness, we no longer go out at minus tides.
15--There needs to be more research and reporting on PSP.
7--Sea otter predation has affected the amount of clams and other marine invertebrates.

6--I now harvest my clams from the mainland, Kenai and Alaska Peninsula.
7--More PSP, less clams due to global warming.
4--The traditional way of life has not recovered because we still cannot harvest clams.

Many households suspected more than one factor at work when they speculated about why PSP had increased. Some people said they thought the oil spill might have speeded up global warming in their area. Some Port Lions residents said that the spill indirectly led to less clams because preservationists have used it to protect sea otters. This household said that otters had become "the poster child of the oil spill" and are eating all of the marine invertebrates. Some people said that during the time of the survey, in the spring of 2003, they were still seeing tar balls and oil on the beaches and believed the presence of lingering oil was affecting marine invertebrate populations.[2] One person said that his dad told him that shellfish and bottomfish have a similar cycle to that of hare and lynx. He said in the 1970s halibut and cod were rare and there were a lot of shrimp and crab. In 2003, he said the cycle is reversed; halibut and cod are plentiful so there is less shellfish. He added, even though the effects of this 60-70 year cycle is why we have less shellfish now, nothing is going to be "normal" with industrial man in the picture.

An elder in Port Lions lamented the lack of marine invertebrates in much the same way as an elder in Old Harbor. He said that the traditional life has not recovered, "When there were minus tides, even in the dark, the whole community would be ten feet out with Coleman lanterns gathering steamers, octopus, sea urchins and chitons."

In regard to other marine invertebrates, especially sea urchins, many Port Lions households cited predation by sea otters as the reason for less availability. Many households said that chitons are smaller. Some people said they are afraid to eat them because they live in the intertidal area where they are exposed to PSP. Several suspected global warming has affected chitons.

In response to a question about crab abundance, over 20 households commented on the lack of Dungeness crab (see Tables A-250 to A-253). Most people said their numbers had decreased due to otter predation. Only one household associated the lack of Dungeness with the spill, though several said they have been absent from the Port Lions area for longer than five years. Two households said they think Dungeness have been affected by PSP. Many Port Lions households included former commercial crab fishers. In 1980, there were 17 commercial crab permit holders in Port Lions, in 1988, there were 16, in 1994, there were 9 and in 2003, there were 4 (CFEC 2005). Several households said they never thought they would see the day when there was no crab because it was always so plentiful. Many Kodiak Island crab fisheries have been closed due to resource shortages or to quote some survey respondents, "over-fishing". As noted earlier, many Port Lions households used or received crab removed from commercial catch, however much of this crab came from the Bering Sea, not the Kodiak area. In 2003, only two households mentioned a lack of King crab.

The fact that there was little or no harvest of mussels and shrimp in 2003 is discussed in other parts of this chapter. It should be noted that several households commented that mussels

[2] The topic of a paper presented at the EVOSTC research symposium held in Anchorage in January 2005 included a discussion of the high persistence of unweathered EVOS oil in intertidal areas (Short et al. 2005:68). A similar discussion on the long-term effects of EVOS oil in protected intertidal areas on the viability of marine invertebrate populations can be found in *Science* (Peterson et al. 2003:2082-2086).

are back. They said that although humans should not eat them because of PSP, this was good for sea ducks such as eiders that feed on mussels.

In 2003, 60.0% of Port Lions households said the amount of seal available to harvest was the same as five years ago (see Tables A-356 to A-359). Although no one in Port Lions reported harvesting sea lion in 2003, 40.0% of households said they thought there were the same amount available to harvest as five years ago, 33.3% thought there were less and 26.7% thought there were more. Compared to other Kodiak Island communities, there were very few comments on marine mammals in Port Lions.

Port Lions households had diverse opinions on the availability of deer to harvest in 2003 compared to five years ago (see Tables A-299 to A-302). Almost 39% said they thought the amount of deer available to harvest in 2003 was the same, 33% thought it was less and 28.2% thought there were more. Respondents were not asked about the availability of elk which are harvested by permit and through a federal subsistence hunt on nearby Raspberry Island.

Many Port Lions households complained about competition from ferry passengers for deer. They said mainland Alaskans come on the ferry to get deer and advised, "when the ferry comes, stay home or you might get shot." According to some residents, the arrival of the ferry was like an invasion with people camping on the sides of the roads and practically in people's yards. Several years ago, the City of Port Lions passed an ordinance that prohibited people from camping in the city of Port Lions. Some residents believe this has been effective at slowing down the competition, others do not. One person said they harvest less deer because they had to quit commercial fishing and get a wage job which means they do not get the time to go and hunt anymore. Three households said they are still nervous about eating deer because they saw them die from eating oiled kelp on the beach shortly after the spill. They said they are still nervous about eating anything that comes from, or eats from, the sea.

Fifty percent of Port Lions households thought sea ducks were less available to harvest in 2003 compared to five years ago and 46.7% thought their availability was the same as five years ago (see Tables A-407 to A-409). Most Port Lions households did not comment about the availability of geese to harvest in 2003 compared to five years ago.

Many Port Lions residents commented about the decline of sea ducks, especially scoters.[3] Some thought the spill might have caused this decline through an effect on the food chain, others were not sure. Additionally, people in Port Lions said there are more people out hunting ducks now and there is more competition for them, which means they had to expend more effort to hunt birds. The competition includes other local subsistence hunters and trophy bird hunters. One household said they expended less effort to harvest birds because their son worked for a duck trophy charter business where he would dress the birds for the clients and bring home the meat. Two households commented on the abundance of parakeet auklets; one household was relieved they had finally come back; and another thought they were still absent. Both households associated their disappearance or decline with the spill.

Most households, 80.5% said that the availability of berries was the same as five years ago (see Tables A-451 to A-453). However, eight households said competition for berries had

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[3] The topic of a paper presented at the EVOSTC research symposium held in Anchorage in January 2005 included a discussion of the effects of EVOS oil on sea ducks in Prince William Sound. Scoters were among the species in Prince William Sound whose populations had not returned to pre-spill levels (Irons et al. 2005:70). A similar discussion on the long-term effects of EVOS oil on sea duck populations was presented in *Science* (Peterson et al. 2003:2082-2086).

increased. Six households specifically mentioned that competition had increased because people were harvesting berries to sell since a winery in Kodiak City, that produces wines made from Kodiak Island berries began buying berries. One person said that some residents were "raiding" the berry patches and another said he now leaves the village in his skiff to pick berries where there is less competition.

Habitat Changes

In 2003, 69.2% of Port Lions residents said they had not noted changes in the habitat or environment of subsistence resources while 30.8% said they did see changes (see Tables A-456 to A-457). Of those who said there had been changes, 50.0% said the change they saw was more subsistence resources. Nineteen percent said the change they noted was the increased incidence of PSP. Many households commented that global warming was negatively affecting the habitat of many subsistence species, especially marine invertebrates and salmon.

SOCIAL AND ECONOMIC CONDITIONS

Food Purchases

Almost 53% of Port Lions households responded "yes" and 47.1% answered "no" to the question, "Were there subsistence foods you had to buy because you could not harvest them or obtain them through sharing?" (see Tables A-475 to A-478). Almost 60% of the households said they had to buy food to replace food they could not harvest because of PSP. Twenty-six Port Lions households reported that they purchased clams. Several households said they still missed the broth they could make when they steamed their own clams and a couple said they thought purchased crab did not taste the same as the kind they harvested in the past.

Sharing of Subsistence Resources

As seen in the section on Subsistence Resource Harvests and Uses, sharing is a major aspect of the subsistence economy in Port Lions (as well as in other rural communities around Alaska). One aspect of the EVOSTC recovery objectives is that "cultural values provided by gathering, preparing, and sharing food need to be reintegrated into community life." In 2003, 42.9% of Port Lions households reported that the level of subsistence food sharing was the same as it was five years ago, 24.5% said there was less sharing in 2003 and 32.7% said there was more sharing in 2003 than five years ago (see Tables A-472 to A-474).

As noted earlier, all Port Lions households, 98.0% reported receiving a subsistence resource, and 90.7% said they gave one or more resources away. Households gave away an average of 5.5 different kinds of resources and received an average of 7.5 different kinds of resources (see Table I-10).

Young Adults' Involvement in Subsistence Activities

Port Lions residents were almost evenly divided as to whether or not young adults are learning enough subsistence skills, 55.8% thought they were and 44.2% thought they were not (see Tables A-466 to A-468). The most commonly cited reason for why youth were not learning enough skills was a perceived lack of interest on the part of youth. However, many households said it all depended on the family, and most youth, who wanted to learn subsistence skills were learning them from relatives or from older friends. Several households praised Alutiiq Week as a very positive way that youth were learning subsistence skills. Several people said there were too many distractions for youth, and one person said she used to see kids get up early and go hunting before school but she does not see that anymore. One person said, “Youth are learning but it is more of a sport-hunting ethic than subsistence, they are not learning it the traditional way. They are learning enough to eat but not to live.” She felt this was occurring because, with the decline in commercial salmon prices, many youth and their families are now working as sportfishing or hunting guides.

Elders’ Influence

Most Port Lions residents, 52.4%, said elders’ influence in 2003 had decreased compared to five years ago. Thirty-three percent of households said that elders’ influence was the same in 2003 as it was five years ago (see Tables A-469 to A-471). Almost 82% of Port Lions households who responded to this question said many of the elders had passed away. One household said, “Elders’ influence has decreased. They used to show by example. There is a blend of cultures in Port Lions and the subsistence-cash balance has shifted [toward cash.]” Other households said the influence of elders is increasing because they are “speaking up,” getting involved and participating in culture weeks.

Status of the Traditional Way of Life

Eighty-two percent of Port Lions residents said that the traditional way of life had been affected by the oil spill. Almost 64% felt that the traditional way of life had not recovered, 21.4% thought it had recovered, and 19.0% were not sure if it had recovered or not. (see Tables A-479 to A-480). When asked what should be done to help the traditional way of life recover, the most common response, 24.0%, was that nothing could be done. Of those who did think something could be done, 8.0% thought there should be more education and spirit camps (see Table A-481).

Most people commented that things would never be the same and there was a lot of uncertainty about this question. People felt that some aspects of the traditional way of life had recovered and others had not. Older respondents often said “after the tidal wave” and then quickly said, “Oh, I mean the oil spill.” While both of these catastrophic events may occupy the same place in the hierarchy of disasters that have occurred, several Port Lions residents characterized them differently. One woman succinctly put what others tried to explain, “The tidal wave brought us together; the oil spill tore us apart.” In listening to other people think out loud about this question, it seemed that what would not change was a new sense of vulnerability to outside forces that may not have permeated so deeply compared to previous contacts and events. Subsistence, unlike some aspects of Alutiiq religion and language is one of the most enduring aspects of Alutiiq culture that has survived cataclysmic social and environmental events such as the Russian conquest, huge American commercial fishing operations, World War II, and the 1964 earthquake. (The earthquake was an especially significant event for Port Lions since the whole village had to be relocated.) Survey respondents said subsistence is what makes them

Alutiiq. The threat of the loss of subsistence, to question the safety and availability of the food that makes a group of people who they are, is the ultimate threat to their survival.

Comments from Port Lions households about the status of the traditional way of life include:

- Has the traditional way of life recovered? It can not, there was a lapse, continuity was broken, uncertainty was created. The government and environmentalists tried to use it [the spill] as a way to stop subsistence.

- How do you go back to a lifestyle that was lost when a whole generation learned a whole different way of life.

- The traditional way of life has not recovered, clams and commercial fishing have disappeared.

- Has traditional way of life recovered? The commercial fishing prices never recovered.

- Only a miracle will help the traditional way of life recover.

EVALUATION OF THE GEM PROGRAM

The last questions on the survey had to do with people's knowledge of the Gulf Ecosystem Management Program (GEM). When asked if they were informed about the Trustee Council and GEM program activities, 76.3% of Port Lions households said they were not informed and 24% said they were not informed (see Tables A-482 and A-283). Most people did not recognize the GEM program but when surveyors explained it was related to the EVOSTC they still said they had not heard much lately. Of the people who responded to the question, "How should communication be improved?" most suggested newsletters or mailings. Many people said they would like to see the results of EVOSTC-funded research and a couple said they want the Trustee Council to show up in person (see Table A-485).

DISCUSSION AND CONCLUSIONS

As noted earlier, the mixed subsistence-cash economy of coastal Alaskan communities is dependent on commercial fishing and subsistence which are mutually dependent. The seeming paradox of this mutually dependent economy is that people can no longer live a subsistence lifestyle without cash. Many traditional methods and means were long ago outlawed, laws and regulations require modern harvest gear and most importantly, subsistence is about efficient harvest, and most people would be at a severe disadvantage if they did not use the most modern equipment.

During the period of this survey, 2003, salmon prices were the lowest they have been since 1988 and many people said the commercial fishing industry is in an irreversible decline. In turn, this lack of cash income appears to have reduced access to subsistence resources in two ways. First, many people said they do not have the cash to buy gas, ammunition and equipment for subsistence harvests. Second, some people said they cannot afford to commercial fish anymore. This means they are not out on the land or the water as often as they used to be and, consequently, are not harvesting subsistence resources as they did in the past. Some people in Port Lions have begun to turn to sportfishing and sport hunting-related tourism. Several families have moved to other communities. Many people are riding out the current economic downturn because they have no choice or because they would not want to live anywhere else.

One person in Port Lions stated what seems to be another aspect of the mixed cash-subsistence economy in coastal Alaska:

"I expend less effort to harvest berries, deer and fish, I have less time. I do not commercial fish anymore. I have a wage job now and I can not get away to harvest." Commercial fishing and subsistence were complementary; year-round wage employment and subsistence lifestyle are often oppositional. Commercial fishing provided access to cash, to fish and to other resources while "out" on the water. With the exception of sharing, a wage position can limit access to subsistence resources.

This person also brought up another point upon which several Port Lions residents were adamant: they believe that the decline in commercial salmon prices is directly related to the oil spill. These households acknowledged the effects of farmed salmon on wild salmon markets. However, there are many theories as to how the spill allowed farmed salmon to get a head start in the U.S. and other markets without any opposition from the U.S. commercial fishing lobby. Whether it was a bad coincidence or not, the fact is that commercial salmon prices were at a high in 1988 and have not returned to those levels since. The list of comments below are from Port Lions households. These beliefs are not limited to Port Lions. The same types of comments were made across Kodiak Island and in other spill-affected communities. In Kodiak Island villages, these comments were always elicited by the same question: "Was the traditional lifestyle affected by the oil spill?"

- EVOS directly affected the economy of Port Lions. Families are moving out of the community to seek work. Twelve to thirteen families have moved because of no fishing, these were post-spill moves because of bad fish prices. There are only six active fishing vessels in Port Lions now. There used to be twelve boats, each boat had a three person crew which meant there were 36 people employed in commercial fishing.

- Fish prices have not recovered from EVOS, fishing is a hobby now, I fish just to make my boat payments, nothing else.

- For commercial fishers, EVOS changed our resolve, our whole way of life. There was a mass exodus from Port Lions. The whole head of steam of the town fell apart. The 1990s were dark, communities were hit in an irrevocable way. The emergency [EVOS] left us unable to lobby congress to impose tariffs on farmed salmon. Instead of a gradual increase in farmed salmon, it got a quick jump into the US-Japanese marked because of EVOS.

- The fishing life is gone because we lost the market share after EVOS, salmon prices never recovered after farmed salmon slipped in the year after EVOS.

Fifteen years after the oil spill, Port Lions residents see both aspects of their economy as damaged by the spill. Port Lions reported that, in several significant categories, especially marine invertebrates and non-salmon fish, there are less subsistence resources available in 2003. They cited the oil spill as one possible factor and competition, in the form of other harvesters, commercial and sport, as increasing pressure on subsistence resource populations. The price of salmon, the other aspect of the economy upon which they depend, has dropped to the point at which many people cannot afford to fish. As noted throughout the comments in the presentation of data, it is clear that many people conducted subsistence harvests while commercial fishing and this no longer occurs at pre-spill levels. In the past, the mixed economy appeared to provide a level of flexibility; if one part of the economy faltered, people could depend on the other. Now, both aspects of the economy are in decline. While there are probably many causes, the spill is certainly a watershed event that is emblematic of the beginning of major economic and cultural change. The populations of all Kodiak Island villages have declined in recent years. The people who have stayed are venturing into ecotourism and increased guiding and outfitting of fishing and hunting tourists from outside. This type of economic activity allows people to stay in their home community and on the water. While some village residents complain about the influx of outsiders and the pressure they put on local resources, this may be the price of continuing to live a rural way of life.

Table XII-1. Population Profile, Port Lions, 2003 Study Year

AGE	MALE			FEMALE			TOTAL		
	Number	Percent	Cum. Percent	Number	Percent	Cum. Percent	Number	Percent	Cum. Percent
0 - 4	3.94	3.95%	3.95%	9.20	10.14%	10.14%	13.15	6.90%	6.90%
5 - 9	10.52	10.53%	14.47%	6.57	7.25%	17.39%	17.09	8.97%	15.86%
10 - 14	6.57	6.58%	21.05%	7.89	8.70%	26.09%	14.46	7.59%	23.45%
15 - 19	9.20	9.21%	30.26%	5.26	5.80%	31.88%	14.46	7.59%	31.03%
20 - 24	5.26	5.26%	35.53%	1.31	1.45%	33.33%	6.57	3.45%	34.48%
25 - 29	0.00	0.00%	35.53%	5.26	5.80%	39.13%	5.26	2.76%	37.24%
30 - 34	6.57	6.58%	42.11%	3.94	4.35%	43.48%	10.52	5.52%	42.76%
35 - 39	9.20	9.21%	51.32%	3.94	4.35%	47.83%	13.15	6.90%	49.66%
40 - 44	5.26	5.26%	56.58%	7.89	8.70%	56.52%	13.15	6.90%	56.55%
45 - 49	7.89	7.89%	64.47%	7.89	8.70%	65.22%	15.78	8.28%	64.83%
50 - 54	10.52	10.53%	75.00%	9.20	10.14%	75.36%	19.72	10.34%	75.17%
55 - 59	6.57	6.58%	81.58%	11.83	13.04%	88.41%	18.41	9.66%	84.83%
60 - 64	5.26	5.26%	86.84%	3.94	4.35%	92.75%	9.20	4.83%	89.66%
65 - 69	5.26	5.26%	92.11%	2.63	2.90%	95.65%	7.89	4.14%	93.79%
70 - 74	1.31	1.32%	93.42%	2.63	2.90%	98.55%	3.94	2.07%	95.86%
75 - 79	1.31	1.32%	94.74%	1.31	1.45%	100.00%	2.63	1.38%	97.24%
80 - 84	2.63	2.63%	97.37%	0.00	0.00%	100.00%	2.63	1.38%	98.62%
85 - 89	1.31	1.32%	98.68%	0.00	0.00%	100.00%	1.31	0.69%	99.31%
90 - 94	1.31	1.32%	100.00%	0.00	0.00%	100.00%	1.31	0.69%	100.00%
95 - 99	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
100+	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
Missing	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
TOTAL	99.93	52.41%		90.72	47.59%		190.65		

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table XII-2. Subsistence Harvests in Pounds Usable Weight per Person by Resource Category, Port Lions

	Pounds per Person				
	1982	1986	1989	1993	2003
Salmon	98.4	160.2	60.5	157.7	95.4
Other Fish	98.7	55.4	33.3	63.7	49.8
Land Mammals	36.3	73.5	26.1	56.2	42.8
Marine Mammals	8.1	6.5	0.5	4.5	4.2
Birds & Eggs	2.6	2.0	2.6	3.9	2.3
Marine Invertebrates	35.8	32.8	16.4	30.2	11.8
Wild Plants	*	3.6	7.3	15.4	15.2
All Resources	279.8	333.9	146.7	331.5	221.4

*Data not collected for 1982.

SOURCE: Scott et al. 2001; Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table XII-3. Composition of Resource Harvests by Resource Category, Port Lions

	Percentage of Total Harvest				
	1984	1986	1989	1993	2003
Salmon	35.2%	48.0%	41.2%	47.6%	43.1%
Other Fish	35.3%	16.6%	22.7%	19.2%	22.5%
Land Mammals	13.0%	22.0%	17.8%	16.9%	19.3%
Marine Mammals	2.9%	1.9%	0.4%	1.3%	1.9%
Birds & Eggs	0.9%	0.6%	1.8%	1.2%	1.0%
Marine Invertebrates	12.8%	9.8%	11.2%	9.1%	5.3%
Wild Plants	*	1.1%	5.0%	4.6%	6.8%

*Data not collected for 1982.

SOURCE: Scott et al. 2001; Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table XII-4. Estimated Harvest and Use of Fish, Game and Plant Resources, Port Lions, 2003 Study Year

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
All Resources	100.0	98.1	98.1	98.1	90.7	42,505.90	598.67	221.43				33.82%
Fish	100.0	81.5	81.5	83.3	72.2	27,863.59	392.44	145.15				21.16%
Salmon	98.1	77.8	77.8	77.8	68.5	18,309.93	257.89	95.38	4,049.24		57.03	14.47%
Chum Salmon	16.7	9.3	9.3	7.4	3.7	146.34	2.06	0.76	27.61		0.39	52.41%
Coho Salmon	81.5	55.6	55.6	44.4	42.6	6,176.67	87.00	32.18	1,074.20		15.13	16.68%
Chinook Salmon	81.5	44.4	42.6	61.1	35.2	1,683.80	23.72	8.77	228.78		3.22	25.85%
Pink Salmon	50.0	31.5	31.5	22.2	22.2	919.45	12.95	4.79	355.00		5.00	32.63%
Sockeye Salmon	92.6	61.1	61.1	57.4	53.7	9,383.66	132.16	48.88	2,363.64		33.29	16.23%
Landlocked Salmon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Salmon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Non-Salmon Fish	92.6	64.8	63.0	66.7	55.6	9,553.66	134.56	49.77				19.41%
Herring	9.3	7.4	5.6	3.7	3.7	331.33	4.67	1.73	55.22	GAL	0.78	67.84%
Herring Roe	1.9	0.0	0.0	1.9	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Herring Roe/Unspecified	1.9	0.0	0.0	1.9	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Herring Sac Roe	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Herring Spawn on Kelp	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Smelt	1.9	0.0	0.0	1.9	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Eulachon (hooligan, candlefish)	1.9	0.0	0.0	1.9	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Unknown Smelt	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Bass	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sea Bass	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Cod	57.4	37.0	35.2	29.6	18.5	1,436.57	20.23	7.48	467.42		6.58	26.62%
Pacific Cod (gray)	57.4	37.0	35.2	29.6	18.5	1,390.55	19.59	7.24	434.55		6.12	27.61%
Pacific Tom Cod	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Walleye Pollock (whiting)	1.9	1.9	1.9	0.0	0.0	46.02	0.65	0.24	32.87		0.46	97.23%
Eel	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Flounder	3.7	3.7	3.7	0.0	1.9	35.50	0.50	0.18	11.83		0.17	67.90%
Starry Flounder	3.7	3.7	3.7	0.0	1.9	35.50	0.50	0.18	11.83		0.17	67.90%
Unknown Flounder	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Greenling	9.3	7.4	7.4	1.9	3.7	78.89	1.11	0.41	19.72		0.28	66.37%
Lingcod	9.3	7.4	7.4	1.9	3.7	78.89	1.11	0.41	19.72		0.28	66.37%
Unknown Greenling	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Halibut	92.6	55.6	51.9	59.3	53.7	6,422.87	90.46	33.46	6,422.87	LBS	90.46	24.63%
Rockfish	37.0	20.4	20.4	16.7	14.8	591.42	8.33	3.08	326.07		4.59	31.47%
Black Rockfish	29.6	20.4	20.4	9.3	14.8	426.00	6.00	2.22	284.00		4.00	34.69%
Red Rockfish	14.8	3.7	3.7	11.1	0.0	163.04	2.30	0.85	40.76		0.57	79.96%
Unknown Rockfish	1.9	1.9	1.9	0.0	0.0	2.38	0.03	0.01	1.31		0.02	97.23%
Sablefish (black cod)	7.4	5.6	5.6	1.9	1.9	240.48	3.39	1.25	77.57		1.09	57.57%
Sculpin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Irish Lord	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Irish Lord	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Sculpin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%

(Continued)

Table XII-4. Estimated Harvest and Use of Fish, Game and Plant Resources, Port Lions, 2003 Study Year

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Shark	1.9	1.9	1.9	0.0	1.9	11.83	0.17	0.06	1.31		0.02	97.23%
Unknown Shark	1.9	1.9	1.9	0.0	1.9	11.83	0.17	0.06	1.31		0.02	97.23%
Skates	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sole	3.7	3.7	3.7	0.0	0.0	3.94	0.06	0.02	3.94		0.06	71.38%
Unknown Sole	3.7	3.7	3.7	0.0	0.0	3.94	0.06	0.02	3.94		0.06	71.38%
Wolffish	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Char	13.0	11.1	11.1	3.7	1.9	311.09	4.38	1.62	222.20		3.13	59.14%
Dolly Varden	13.0	11.1	11.1	3.7	1.9	292.68	4.12	1.52	209.06		2.94	62.88%
Lake Trout	1.9	1.9	1.9	0.0	0.0	18.41	0.26	0.10	13.15		0.19	97.23%
Sturgeon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Sturgeon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Trout	11.1	7.4	7.4	5.6	1.9	89.74	1.26	0.47	44.70		0.63	51.66%
Rainbow Trout	3.7	3.7	3.7	1.9	1.9	34.97	0.49	0.18	24.98		0.35	78.71%
Steelhead	3.7	1.9	1.9	1.9	0.0	36.35	0.51	0.19	6.57		0.09	97.23%
Unknown Trout	3.7	1.9	1.9	1.9	0.0	18.41	0.26	0.10	13.15		0.19	97.23%
Land Mammals	87.0	51.9	51.9	72.2	31.5	8,217.20	115.74	42.81	308.98		4.35	17.88%
Large Land Mammals	87.0	50.0	50.0	72.2	31.5	7,902.30	111.30	41.17	151.20		2.13	18.37%
Brown Bear	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Caribou	9.3	0.0	0.0	9.3	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Deer	75.9	46.3	46.3	48.1	27.8	6,304.80	88.80	32.84	145.94		2.06	21.65%
Elk	31.5	5.6	5.6	27.8	5.6	887.50	12.50	4.62	3.94		0.06	54.02%
Goat	1.9	0.0	0.0	1.9	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Moose	31.5	5.6	1.9	29.6	1.9	710.00	10.00	3.70	1.31		0.02	97.27%
Small Land Mammals	18.5	11.1	11.1	11.1	5.6	314.90	4.44	1.64	157.78		2.22	81.14%
Beaver	3.7	1.9	1.9	1.9	1.9	23.01	0.32	0.12	2.63		0.04	97.23%
Fox	3.7	3.7	3.7	0.0	1.9	0.00	0.00	0.00	7.89		0.11	71.38%
Red Fox	3.7	3.7	3.7	0.0	1.9	0.00	0.00	0.00	7.89		0.11	71.38%
Hare	13.0	7.4	7.4	9.3	3.7	291.89	4.11	1.52	145.94		2.06	87.49%
Snowshoe Hare	13.0	7.4	7.4	9.3	3.7	291.89	4.11	1.52	145.94		2.06	87.49%
Land Otter	1.9	1.9	1.9	0.0	0.0	0.00	0.00	0.00	1.31		0.02	97.23%
Weasel	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Feral Animals	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Reindeer - Feral	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Marine Mammals	27.8	16.7	16.7	18.5	11.1	809.93	11.41	4.22	48.65		0.69	42.93%
Porpoise	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Seal	20.4	9.3	9.3	14.8	7.4	809.93	11.41	4.22	14.46		0.20	42.93%
Harbor Seal	20.4	9.3	9.3	14.8	7.4	809.93	11.41	4.22	14.46		0.20	42.93%
Harbor Seal (saltwater)	20.4	9.3	9.3	14.8	7.4	809.93	11.41	4.22	14.46		0.20	42.93%
Sea Otter	14.8	13.0	13.0	1.9	5.6	0.00	0.00	0.00	34.19		0.48	36.26%
Steller Sea Lion	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Whale	3.7	0.0	0.0	3.7	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Whale	3.7	0.0	0.0	3.7	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Birds and Eggs	55.6	33.3	33.3	38.9	25.9	444.62	6.26	2.32				18.76%
Migratory Birds	55.6	29.6	29.6	35.2	18.5	348.57	4.91	1.82	428.63		6.04	23.08%
Ducks	55.6	29.6	29.6	31.5	16.7	329.64	4.64	1.72	412.85		5.81	24.40%
Bufflehead	5.6	3.7	3.7	1.9	3.7	8.41	0.12	0.04	21.04		0.30	69.69%
Eider	1.9	1.9	1.9	0.0	0.0	2.91	0.04	0.02	1.31		0.02	97.23%

(Continued)

Table XII-4. Estimated Harvest and Use of Fish, Game and Plant Resources, Port Lions, 2003 Study Year

	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
Resource Name	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Common Eider	1.9	1.9	1.9	0.0	0.0	2.91	0.04	0.02	1.31		0.02	97.23%
Gadwall	1.9	1.9	1.9	0.0	0.0	1.05	0.01	0.01	1.31		0.02	97.23%
Goldeneye	38.9	22.2	20.4	20.4	11.1	68.37	0.96	0.36	85.46		1.20	28.43%
Unknown Goldeneye	38.9	22.2	20.4	20.4	11.1	68.37	0.96	0.36	85.46		1.20	28.43%
Harlequin	9.3	7.4	7.4	1.9	0.0	15.78	0.22	0.08	31.56		0.44	55.30%
Mallard	35.2	16.7	16.7	18.5	13.0	143.18	2.02	0.75	159.09		2.24	57.07%
Merganser	3.7	1.9	1.9	1.9	1.9	7.10	0.10	0.04	7.89		0.11	97.23%
Common Merganser	3.7	1.9	1.9	1.9	1.9	7.10	0.10	0.04	7.89		0.11	97.23%
Long-tailed Duck (Oldsquaw)	3.7	3.7	3.7	0.0	3.7	12.62	0.18	0.07	15.78		0.22	67.46%
Northern Pintail	1.9	0.0	0.0	1.9	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Scaup	1.9	0.0	0.0	1.9	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Scaup	1.9	0.0	0.0	1.9	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Scoter	24.1	14.8	14.8	11.1	11.1	65.08	0.92	0.34	72.31		1.02	27.87%
Black Scoter	20.4	13.0	13.0	9.3	11.1	35.50	0.50	0.18	39.44		0.56	35.69%
Surf Scoter	11.1	7.4	7.4	3.7	1.9	13.02	0.18	0.07	14.46		0.20	56.02%
White-winged Scoter	11.1	5.6	5.6	7.4	3.7	16.57	0.23	0.09	18.41		0.26	83.41%
Unknown Scoter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Teal	7.4	5.6	5.6	1.9	1.9	5.13	0.07	0.03	17.09		0.24	75.79%
Green Winged Teal	7.4	5.6	5.6	1.9	1.9	5.13	0.07	0.03	17.09		0.24	75.79%
Wigeon	1.9	0.0	0.0	1.9	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
American Wigeon	1.9	0.0	0.0	1.9	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Ducks	7.4	0.0	0.0	7.4	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Geese	9.3	3.7	3.7	5.6	3.7	18.93	0.27	0.10	15.78		0.22	67.46%
Brant	1.9	0.0	0.0	1.9	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Canada Geese	5.6	1.9	1.9	3.7	1.9	9.47	0.13	0.05	7.89		0.11	97.23%
Unknown Canada Geese	5.6	1.9	1.9	3.7	1.9	9.47	0.13	0.05	7.89		0.11	97.23%
Emperor Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
White-fronted Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Geese	1.9	1.9	1.9	0.0	1.9	9.47	0.13	0.05	7.89		0.11	97.23%
Shorebirds	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Common Snipe	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Seabirds & Loons	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Auklet	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Parakeet Auklet	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Gulls	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Gull	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Murre	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Common Murre	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Puffins	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Horned Puffin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tufted Puffin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Puffin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Other Birds	9.3	9.3	9.3	0.0	5.6	57.06	0.80	0.30	81.52		1.15	47.57%
Upland Game Birds	9.3	9.3	9.3	0.0	5.6	57.06	0.80	0.30	81.52		1.15	47.57%

(Continued)

Table XII-4. Estimated Harvest and Use of Fish, Game and Plant Resources, Port Lions, 2003 Study Year

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Ptarmigan	9.3	9.3	9.3	0.0	5.6	57.06	0.80	0.30	81.52		1.15	47.57%
Bird Eggs	13.0	11.1	11.1	5.6	11.1	38.98	0.55	0.20	135.43		1.91	40.52%
Duck Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Duck Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Geese Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Geese Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Seabird & Loon Eggs	13.0	11.1	11.1	5.6	11.1	38.98	0.55	0.20	135.43		1.91	40.52%
Gull Eggs	13.0	11.1	11.1	5.6	11.1	38.66	0.54	0.20	128.85		1.81	40.89%
Unknown Gull Eggs	13.0	11.1	11.1	5.6	11.1	38.66	0.54	0.20	128.85		1.81	40.89%
Puffin Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tern Eggs	1.9	1.9	1.9	0.0	1.9	0.33	0.00	0.00	6.57		0.09	97.23%
Unknown Seabird Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Marine Invertebrates	79.6	46.3	44.4	70.4	37.0	2,262.20	31.86	11.78				23.17%
Chitons (bidarkis, gumboots)	29.6	22.2	22.2	9.3	13.0	383.93	5.41	2.00	95.98	GAL	1.35	66.37%
Red (large) Chitons	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Black (small) Chitons	29.6	22.2	22.2	9.3	13.0	383.93	5.41	2.00	95.98	GAL	1.35	66.37%
Clams	27.8	20.4	18.5	18.5	9.3	448.68	6.32	2.34	149.56	GAL	2.11	30.74%
Butter Clams	5.6	5.6	3.7	3.7	3.7	78.89	1.11	0.41	26.30	GAL	0.37	67.48%
Horse Clams (Gaper)	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Pacific Littleneck Clams (Steamers)	3.7	5.6	3.7	0.0	0.0	59.17	0.83	0.31	19.72	GAL	0.28	71.41%
Pinkneck Clams	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Razor Clams	24.1	14.8	14.8	16.7	7.4	310.63	4.38	1.62	103.54	GAL	1.46	43.07%
Unknown Clams	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Cockles	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Unknown Cockles	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Crabs	72.2	25.9	22.2	59.3	20.4	1,204.76	16.97	6.28	770.48		10.85	37.67%
Dungeness Crab	20.4	3.7	3.7	16.7	3.7	23.93	0.34	0.12	34.19		0.48	77.29%
King Crab	31.5	5.6	1.9	27.8	5.6	9.07	0.13	0.05	3.94		0.06	97.27%
Unknown King Crab	1.9	1.9	0.0	0.0	1.9	0.00	0.00	0.00	0.00		0.00	0.00%
Tanner Crab	59.3	24.1	22.2	44.4	18.5	1,171.76	16.50	6.10	732.35		10.31	38.69%
Tanner Crab, Bairdi	57.4	22.2	20.4	44.4	18.5	675.29	9.51	3.52	422.06		5.94	34.68%
Unknown Tanner Crab	3.7	3.7	3.7	0.0	0.0	496.47	6.99	2.59	310.30		4.37	83.19%
Unknown Crab	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Geoducks	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Jingles	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Jingles	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Limpets	1.9	1.9	1.9	0.0	0.0	1.97	0.03	0.01	1.31	GAL	0.02	97.23%
Mussels	1.9	1.9	1.9	0.0	0.0	3.94	0.06	0.02	2.63	GAL	0.04	97.23%
Unknown Mussels	1.9	1.9	1.9	0.0	0.0	3.94	0.06	0.02	2.63	GAL	0.04	97.23%
Octopus	31.5	22.2	22.2	13.0	14.8	215.63	3.04	1.12	53.91		0.76	30.72%
Scallops	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Weathervane Scallops	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Sea Cucumber	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Sea Urchin	1.9	1.9	1.9	0.0	0.0	1.31	0.02	0.01	2.63	GAL	0.04	97.23%
Shrimp	1.9	0.0	0.0	1.9	0.0	0.00	0.00	0.00	0.00	LBS	0.00	0.00%

(Continued)

Table XII-4. Estimated Harvest and Use of Fish, Game and Plant Resources, Port Lions, 2003 Study Year

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Snails	3.7	1.9	1.9	1.9	0.0	1.97	0.03	0.01	1.31	GAL	0.02	97.23%
Vegetation	98.1	96.3	96.3	50.0	77.8	2,908.37	40.96	15.15				18.72%
Berries	96.3	92.6	92.6	46.3	70.4	2,840.00	40.00	14.79	710.00	GAL	10.00	18.56%
Plants/Greens/Mushrooms	14.8	14.8	14.8	0.0	3.7	63.11	0.89	0.33	15.78	GAL	0.22	42.95%
Seaweed/Kelp	3.7	1.9	1.9	1.9	0.0	5.26	0.07	0.03	1.31	GAL	0.02	97.23%
Unknown Seaweed	3.7	1.9	1.9	1.9	0.0	5.26	0.07	0.03	1.31	GAL	0.02	97.23%
Wood	66.7	61.1	61.1	11.1	22.2	0.00	0.00	0.00	264.28	CORDS	3.72	18.93%

Note: Harvest amount in individual units unless otherwise specified.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Figure XII-1. Harvests of Wild Resources, Pounds Usable Weight per Person, Port Lions

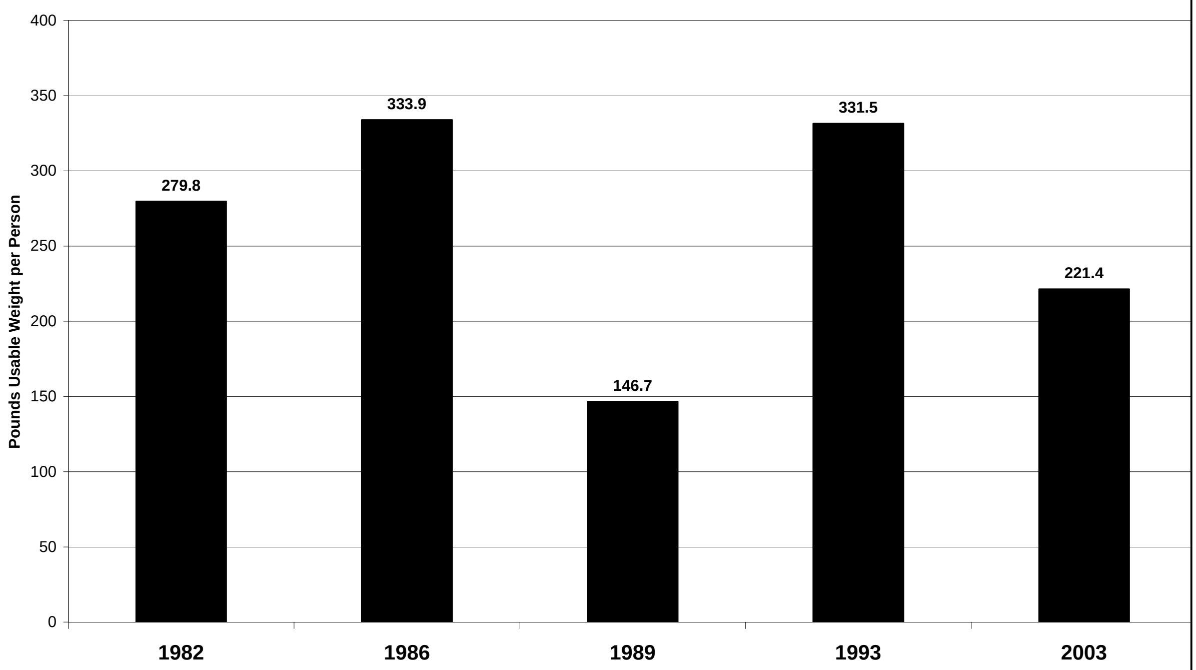
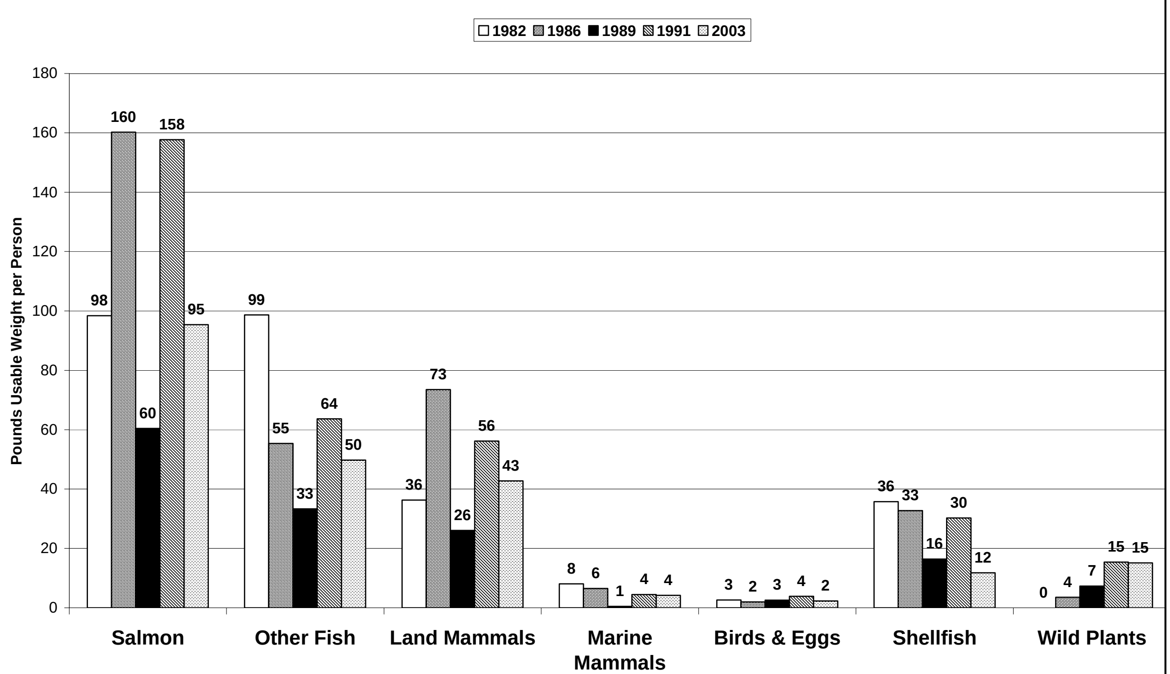


Figure XII-2. Harvests of Wild Resources by Resource Category, Pounds Usable Weight per Person, Port Lions



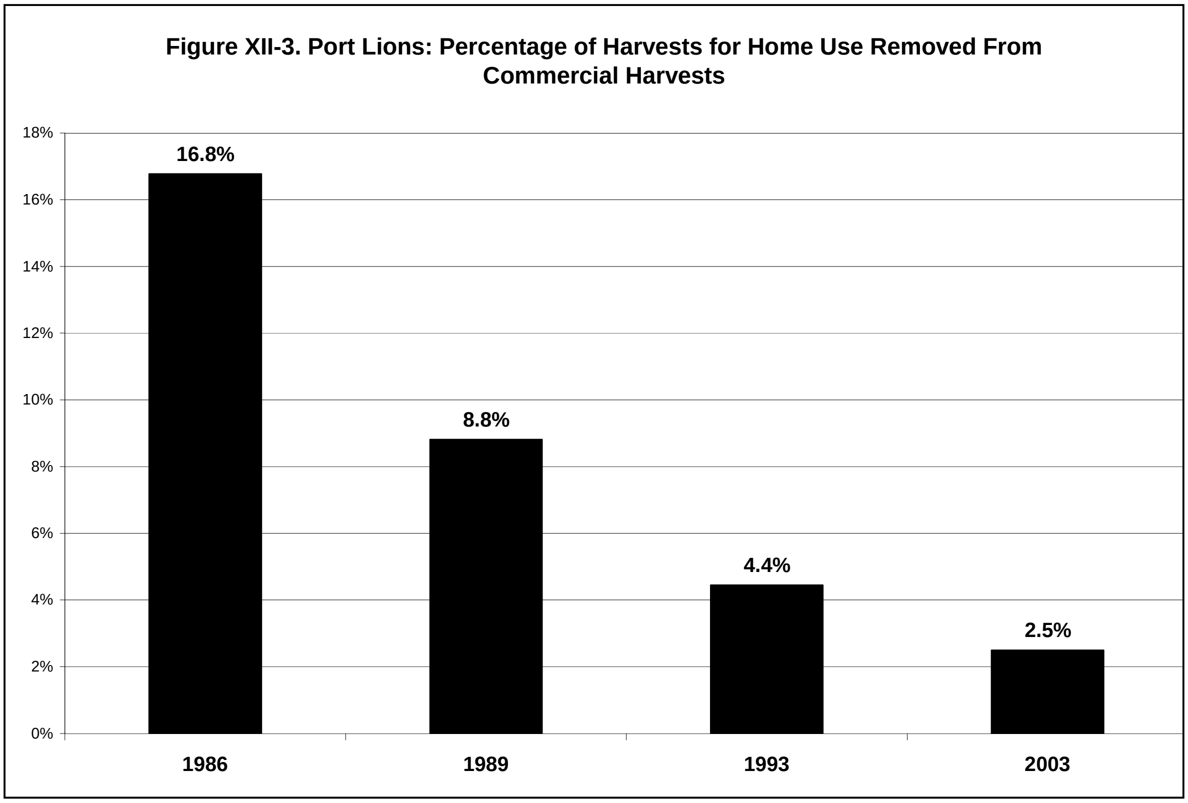


Figure XII-3. Port Lions: Percentage of Harvests for Home Use Removed From Commercial Harvests
18%
16%
14%
12%
10%
8%
6%
4%
2%
0%
16.8%
8.8%
4.4%
2.5%
1986
1989
1993
2003

CHAPTER XIII: CHIGNIK BAY

by

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COMMUNITY BACKGROUND

Community History

The community of Chignik, or Chignik Bay as it is also known, is located approximately 180 air miles (290 km) southwest of King Salmon at the head of Anchorage Bay. Anchorage Bay is a small bay on the south side of the greater Chignik Bay area of the Gulf of Alaska. The community of Chignik Lagoon is located approximately 5.5 miles by air west-northwest of Chignik Bay and approximately 10.5 miles by water. The community of Chignik Lake is located on the lake with the same name and is approximately 14.5 miles by air west-southwest of Chignik Bay or approximately 20.5 miles by water. Residents of both Chignik Lake and Chignik Lagoon travel by boat to the deep water port of Chignik Bay to buy heating fuel, diesel fuel, and gasoline, and in the past traveled there to shop at the local stores. The grocery store was not operating during the survey year. Sometimes the cannery opens a store in summer.

Chignik Bay was first listed in census records in 1880. In 1888, a salmon saltery was established and in 1896 two canneries were built at Chignik Bay. The influx of foreign workers brought in to work in the canneries and to fish resulted in cross-cultural marriages with the local Alaska Native population. The influence of those immigrants is evident in the surnames of the families living in the area today. Initially, Alaska Natives were not hired to work in the commercial fishing industry, but by 1900 this had started to change so that Alaska Natives were fishing and working in the canneries.

Although ownership of commercial fishing rights, processing methods and additional fisheries have developed over the years, the economy of Chignik Bay remains reliant on commercial fishing as the hub of the commercial fishing industry in the Chignik Bay Management Area (Fall and Utermohle 1995:XVII-1–XVII-2).

Demography

For Chignik Bay, the 1990 U.S. Census recorded a population of 188 people in 46 households and 79 people in 29 households in 2000. The estimated community population in 2003, based on this study, was approximately 78 people in 29 households (see Table I-8). Chignik Bay is a fishing community with a seasonal population. In 1990, the U.S. Census reported that 28 individuals lived in group quarters associated with fish-processing facilities (Fall and Utermohle 1995:XVII-5). The 2003 surveys did not include part-time residents of Chignik Bay. There were no part-time residents living in housing provided by fish processing facilities when the surveys were conducted in February 2004, and at least in recent years, this housing was used only in summer.

The 2000 U.S. Census reported 48% of the population of Chignik Bay was Alaska Native. The median age of all residents was 36.3 years, and 52.2% was male while 46.8% female. The 2003 oil spill survey recorded that 66.1% of the population was Alaska Native (see

Table I-8). The median age was 38.0 years, and 54.2% was male and 45.8% female (see Table XIII-1).

Economic Overview

Commercial fishing provides the primary income for residents of Chignik Bay. A unique, co-operative commercial salmon fishery was created in 2002, and was in effect for the three seasons between the years 2002 and 2004. Under that arrangement, designated permit holders fished for the total number of permit holders in the management area who signed up for the co-op, to save on operating expenses and to improve marketing. See Chapter XVI for an overview of the Chignik Area co-op fishery. The median income in Chignik Bay was $16,166, compared to a statewide median per capita income of $22,660 (U.S. Bureau of the Census 2005).

SUBSISTENCE RESOURCE HARVEST AND USES

Participation in Hunting, Fishing and Gathering Activities

Table I-9 indicates that 81.4% of Chignik Bay residents attempted to harvest at least one wild resource in 2003, and 27.1% of the people hunted and 45.8% processed large land mammals and marine mammals. The levels of participation in harvesting and processing were as high or higher for fish and plant resources, but only 3.4% of people in the community reported attempting to harvest furbearers.

Table I-10 indicates that Chignik Bay households used an average of 14.6 wild resources during the year, and 100% used at least one wild resource. There was also a high level of sharing. In 2003, households received an average of 8.3 different wild resources, and 86.4% gave to other households an average of 4.9 wild resources. In Chignik Bay, the average household harvest was 934.1 pounds usable weight of wild resources (321.1 pounds per capita).

Table XIII-2 indicates that salmon was used and harvested at higher levels than any other category of wild resource: 100% of interviewed Chignik Bay households used salmon, 95.5% attempted to harvest, and 95.5% harvested salmon. Non-salmon fish were used by 95.5% of households and harvested by 63.6%. The next most commonly used and harvested resources were vegetation and marine invertebrates, used by 81.8% and 90.9% of households, respectively. Birds and eggs were used by 54.5% of households and harvested by 31.8% of households. Land mammals were used by 72.7% of households and harvested by 9.1%, who then distributed caribou and moose to many other households. Finally, 13.6% of households used marine mammals, and 4.5% of households harvested marine mammals.

Resource Harvest Quantities and Harvest Composition

In 2003, salmon was just over 40% of the total Chignik Bay harvest of all resources, in pounds usable weight (see Tables XIII-3 and XIII-4). Sockeye salmon was harvested at the highest level (88.5 pounds per capita) compared to all other wild resources (see Table XIII-2). Sockeye salmon was over two thirds of the salmon harvest (an estimated 1,545 fish) (Fig. XIII-1). Coho salmon was 13.4% (236 fish), chinook salmon 12.6% (133 fish), 3.7% was spawned out sockeye (179 fish), and 1% or less of the salmon harvest was comprised of pink salmon (40 fish), chum salmon (3 fish) and landlocked salmon (1 fish).

Non-salmon fish (such as halibut and trout) comprised one third of the total community harvest in pounds usable weight (see Table XIII-4). Halibut was almost three quarters of the total non-salmon fish harvest, the second highest level (73.8 pounds per capita) compared to all other wild resources (see Table XIII-2). Dolly Varden, black rockfish, gray cod, rainbow trout, red rockfish, steelhead, greenling, sablefish (black cod) and walleye pollock were harvested at lower levels (less than 14 pounds per capita) than halibut.

Shellfish was 13.3% of the total harvest of all resources, in pounds usable weight (see Table XIII-4). Tanner crab was harvested at a high level compared to other wild resources, 15.9 pounds per capita (over 800 crab total for the community) (see Table XIII-2). Butter clams, chitons and octopus, as well as several other species of shellfish, were harvested at lower levels.

For 2003, Chignik Bay residents reported moose, caribou, and deer harvests. Combined, they comprise 8.8% of the community harvest in pounds usable weight (see Table XIII-4). Approximately four moose, 1.3 caribou and 1.3 deer were harvested (see Table XIII-2). Moose at 25.3 pounds per capita were taken at the third-highest level compared to all wild resources, after sockeye salmon and halibut. Deer are not available locally.

Wild plants, birds and eggs, and marine mammals comprised smaller portions (less than 3%) of the total harvest when compared to other categories of wild resources (see Table XIII-4). Most of the wild plant harvest was berries, and an estimated 52.7 cords of wood were harvested but not included in the usable plant estimate (see Table XIII-2). Over one half of the birds harvested were ptarmigan and one third were ducks. An estimated 141 ptarmigan and 98 ducks were harvested. An estimated three seals were harvested by residents of Chignik Bay in 2003. No other marine mammal was reported in the harvest.

Harvest Effort

Chignik Bay residents described the effort used by people in their households to harvest wild resources during the 2003 study year compared to five years ago, 1998 (see Tables A-58 to A-81). The majority of responding households reported using more, rather than less, effort to harvest wild resources. However, some people did not harvest particular resources, such as marine mammals and birds and eggs, and were not asked these questions.

For most resources, the number one reason for increased effort was decreased abundance. People often reported traveling further compared to five years ago to harvest resources that are experiencing low abundance or more competition to harvest. For example, a boat harbor, built after 1998, destroyed a large section of clam habitat. The tidal flats around Chignik Bay hold many species of shellfish, and many people from Chignik Bay were active harvesters, especially in areas adjacent to the community. Some people reported going to Mud Bay to harvest clams instead, but the abundance of clams in Mud Bay was down, possibly because of sea otter predation. People reported that a berry-picking area near the airport was covered with backfill from construction of the boat harbor. Afterwards, competition for berries increased as pickers crowded into more distant harvesting areas. Also, berry abundance was down due to dry weather, especially in 2002. Increased effort was reported to harvest octopus (see Table A-64). According to respondents, cannery employees over harvested octopus from the local beaches, making them harder to find. Increased effort was reported in obtaining halibut and black bass, also (see Table A-61). This was due to competition from non-local commercial boats in the bay catching both of these species, and harvesting black bass at the "reefs."

Other reasons were mentioned for increased effort. One family preferred halibut to salmon, while another put more effort into harvesting halibut to replace the salmon it did not or could not harvest. There were comments concerning increased effort to harvest seal, sea lion and sea otter (see Table A-70). One comment was that populations of marine mammals have rebounded from the effects of the oil spill. However, sea lion hunting for flippers and sea otter for pelts decreased since the advent of "increased enforcement." Reportedly, someone in Chignik Lagoon received a jail sentence in the recent past for killing a seal lion.

Comparisons of Uses and Harvests with Other Years

The per capita levels of subsistence harvests, in pounds usable weight, by Chignik Bay residents changed from 187.9 pounds in 1984, 208.9 pounds in 1989, and 357.5 pounds in 1991, to 321.1 pounds in 2003 (Table XIII-3 and Figures XIII-2 and XIII-3). Most of the decline from 1991 to 2003 was salmon. Most of the increase from 1984 to 2003 was non-salmon fish, primarily halibut.

When asked to assess changes in harvests and uses of different species of wild resources, most people responded that their households harvested and used a majority of resources less, rather than more compared to five years ago, 1998 (see Tables A-1 to A-27). The overall response rate was high for these questions. For some categories of resources (salmon, non-salmon fish, large land mammals, and wild plants) the most common reasons for less harvest and use were lower resource abundance and economic reasons. Economic reasons included smaller family sizes or less extended family to share subsistence-caught foods, less time available to hunt and fish due to employment or other time constraints, no longer removing Chinook salmon from commercial catches because of changes that came with the commercial cooperative fishery, and lacking means, such as boats and other equipment. Several respondents reported less harvest and use of marine invertebrates because of paralytic shellfish poisoning (PSP) and local pollution in the bay from boats and cannery waste. Several people harvested clams in Mud Bay instead because it was deemed cleaner. Both of the two responses about the safety and condition of shellfish, such as clams, octopus, and Dungeness crab, were also deemed spill-related, evidenced by fewer observations of these species after 1989.

People were asked to assess changes in harvests and uses of wild resources since before the oil spill, 1988 (see Tables A-28 to A-57). The majority indicated less rather than more harvest and use since 1988 for most resources. Again, the most common reasons for decreased harvests and uses were less resource abundance and economic reasons, described above. There was one spill-related response; decreased harvests of birds and eggs because of decreased abundance.

NATURAL RESOURCE CONDITIONS

Food Safety

Survey respondents in Chignik Bay were asked if it was safe for their families to eat herring, seal, chitons and clams. For all except clams, no person responded that a resource was unsafe (see Tables A-458 to A-465). Varying numbers of households were unsure about the safety of each of these species: herring, 46.7% were unsure; seal, 29.4%; and chitons, 11.1%. It is likely that this is because some people do not use or know about these species. The remainder felt confident about eating these species. For clams, 9.5% of households described clams as unsafe to eat, and 9.5% were unsure about clam safety. Of the two households considering clams unsafe for their families to eat, one said the reason was PSP and the other did not provide a reason.

Status of Resource Populations

Of the two thirds of Chignik Bay households responding, almost half said subsistence resources had recovered from the oil spill, about one third said subsistence resources had not been damaged, and about one fifth said subsistence resources had not recovered (see Table A-82). No recommendations were offered as to what should be done to help resources recover.

People were asked to assess changes in wild resource availability compared to five years ago, since 1998. However, those who did not harvest were often not asked these questions. Around one half of those interviewed responded. Chum, coho, and sockeye salmon were available less rather than more, compared to 1998 (see Table A-91). Pink and chinook salmon were likely to be available less and more, equally, compared to 1998. As to the reasons, most responses were nonspecific (see Tables A-92 and A-93). A few said the decreased availability of salmon was due to management and regulations and for personal reasons. The responses that involved personal reasons for coho, pink, and sockeye salmon were all oil spill-related, due to "changed fishing patterns," such as not retaining Chinook caught on commercial vessels. It was noted that fishing had changed in the past five years for all species, mainly due to regulations for the cooperative commercial fishery (see overview in Chapter XVI). One "independent" fisherman said he had more commercial fishing time now, but sometimes he would rather be subsistence fishing. In the view of some respondents, the oil spill was the reason for this situation to some degree because the spill was ultimately responsible for the development of support for the co-op. After the oil spill, there was a perception that salmon from the area were tainted, and this perception contributed to the rapid decline in the price of salmon in the Japanese market, according to this view. Farmed salmon became more desirable. The local co-op was developed because the competitive fishery was not providing enough income for fishers.

Many households reported less availability of halibut due to competition with commercial vessels fishing in Chignik Bay, leading to less abundance, and one household mentioned contamination from the spill (see Tables A-151, A-153, and A-154). Several respondents said decreased availability of herring was related to spill-related contamination.

Ninety percent of people responding to the question observed less availability of caribou compared to 1998 (see Table A-264). The reasons were most often environmental and due to competition (see Table A-266). Almost 50% of respondents said there was less moose but the overall response rate was low for that question. For sea ducks, 37.5% of households said that sea duck availability was less than five years ago and due to oil spill related contamination and other environmental reasons (see Tables A-370, A-372, and A-373). Most people did not respond to these questions, however.

A few people said an observed increase in the availability of harbor seals was due to an increase in the local population compared to 1998 (see Tables A-314 and A-315). Oil spill related contamination was indicated by a few households as a reason for a decrease in availability of seals compared to five years ago, 1998 (see Tables A-316 and A-317). A few households said availability of sea lions decreased because of local pollution and decreased abundance in Chignik Bay.

All people responding said there was less availability of clams, and concerns also existed for Dungeness crab and octopus (see Table A-204). For clams, lower abundance due to the building of the boat harbor mentioned above, and oil spill-related contamination were mentioned by people most frequently (see Tables A-205 and A-206). Dungeness crab decreased abundance was, in part, blamed on oil spill-related contamination; however, more commonly mentioned was competition with cannery workers and decreased abundance due to commercial fishing operations locally called "draggers" (trawlers), visible from the community. Oil spill related population decreases were partly responsible for decreased availability of clams, Dungeness crab and sea urchins.

Almost one half of respondents said berries were less available in 2003 than in 1998 (see Table A-419). All said this was due to the habitat destruction that occurred near the airport when backfill from harbor construction was dumped on a popular berry-harvesting area. One or two households mentioned construction of the new land fill had destroyed berry habitat. Dry weather was also mentioned.

Habitat Changes

Respondents from the majority of Chignik Bay households (61.1%) observed changes in local habitats (see Table A-456). The most commonly-reported habitat change was adjacent to the village where a new boat harbor was built, replacing and disturbing clam habitat. Also mentioned were the following observations:

- The backfill from construction of the boat harbor was dumped near the airport, damaging a popular berry picking area;
- ATVs were damaging vegetation in some areas;
- A local pond where ducks nested was filled in;
- Pollution in the bay from boats and fish waste from the canneries was increasing;
- After the oil spill, some oil tanks were dumped into a local swamp, and ducks still did not return to nest;
- The mouth of the lagoon was getting smaller, making it more difficult for boats to enter and leave;
- Co-op members removed boulders from near the mouth of the Chignik River resulting in erosion and riverbed disturbance; and
- Construction of the new landfill destroyed berry habitat.

SOCIAL AND ECONOMIC CONDITIONS

Food Purchases

Almost all Chignik Bay respondents indicated that no one in their households had to purchase subsistence foods in 2003 because they could not get them through subsistence harvesting or sharing (see Table A-475). Over half said someone in the household did buy store food (usually beef, pork, and poultry) to replace caribou (see Tables A-477 and A-478).

Sharing of Subsistence Resources

The majority of people said sharing of wild resources by their households had not changed (see Table A-472). One quarter of respondents reported sharing less because they harvested less and had less to share (see Table A-474). Salmon was mentioned specifically several times.

Young Adult's Involvement in Subsistence Activities

Residents of Chignik Bay were split in their opinions as to whether or not young adults were learning enough subsistence skills (see Table A-466). Young adults were learning subsistence skills mainly from family members (see Table A-468). School programs and elders were also mentioned. Those people who thought otherwise said there was not enough interest in these skills on the part of young people (see Table A-467).

Elders' Influence

Two thirds of Chignik Bay respondents said elders had less influence in the community compared to five years ago (see Table A-469). Most said the reason was demographic (see Table A-471). For instance, some elders found it necessary to move to communities with grocery stores and readily available health care. Part of the reason for this was attributed to less income, in general, for most people. Others said the elders were doing less clamming and berry picking since local harvesting areas in front of the community and near the airport had been "destroyed, dug up, and contaminated." One person said the elders needed to persist in their desire to participate in local education through the public school.

Status of the Traditional Way of Life

Almost two thirds of the Chignik Bay respondents said traditional ways were affected by the oil spill (see Table A-479). There were many different kinds of suggestions to help the traditional way of life recover, such as responding to social disruptions as a result of the spill when some people chose not to commercial fish during the spill year, after which some dropped out of the fishery altogether. This effectively denied their children the experience and education needed to enter the commercial fishery, and therefore, many young people were not subsistence salmon fishing either. Other suggestions to help the traditional way of life recover were creating new jobs and new sources of income to slow emigration from the community, increasing resource populations, continuing studies on spill impacts, more education and spirit camps, and increasing elder involvement in community life.

EVALUATION OF THE GEM PROGRAM

Most Chignik Bay respondents said people in their households were not informed about the activities of the EVOS Trustee Council and the Gull Ecosystem Management Program (GEM) (see Table A-482). The most common suggestion offered for improving communication to the community was mailing information to every household and the traditional council (see Table A-483). Also mentioned were making the Trustee Council responsible for delivering information directly to the tribal council, including a report of Trustee Council activities in community meetings, and adding a representative from Chignik Bay to the Trustee Council.

DISCUSSION AND CONCLUSIONS

In Chignik Bay, subsistence harvest levels increased from 1984 to 1991, followed by a small decrease from 1991 to 2003, based on four harvest surveys conducted by the Division of Subsistence (see Tables XIII-2 and XIII-3). From the 1980s to 1990s there was an upward harvest level trend for many species, especially non-salmon fish, significantly affecting the trend (see Table XIII-3 and Fig. XIII-3). This was largely due to an increase in the harvest level of halibut.

Increased levels of land mammals harvested from 1984 to 2003, in pounds usable weight, represent changes in the mixture of species harvested (Fig. XIII-3). In 1991, an estimated 20 caribou and 27 deer were harvested (Scott et al. 2001). In 2003, however, the bulk of land mammals harvested, in pounds usable weight, was moose, representing over three times the usable poundage of caribou or deer (see Table XIII-2). Two things happened to effect this trend. First, many people present in the community in 1991 were not there in 2003. After 1988, people returned to Chignik Bay in response to the spill, many of them appearing to have connections to Kodiak Island where they harvested deer, probably from boats along the coastline. The high level of deer harvested in 1991 was an anomaly and was probably not repeated. Second, the Northern Alaska Peninsula Caribou Herd population peaked in 1991, then declined rapidly. Opportunity to harvest caribou was further restricted by regulations, and by 2003, only one caribou harvest was reported by Chignik households. The effort to harvest moose increased, partially in response to the missing caribou in the harvest. Also, without as many commercial fishing boats in the water, people were accessing hunting areas less often.

The decreased harvest of all resources from 1991 to 2003 was due, in large part, to decreased salmon harvests.

In Chignik Bay, it was observed that the populations of most wild resources were below pre-spill levels, with a corresponding increase in harvest effort. Noticed by almost every household in the area, populations of sockeye salmon and caribou were down. These are both important parts of the diet of Chignik Bay residents, as reported in previous subsistence surveys. Environmental reasons were offered for the lower populations but these were not considered oil spill-related by more than a few people. Herring was the resource population most effected by oil spill contamination. Many people reported less availability of halibut due to competition with commercial fishing boats that were responsible for lower abundance. Some respondents observed fewer sea ducks and related this observation to oil spill contamination and other environmental reasons, such as natural population fluctuations. Some people related lowered populations of clams, Dungeness crab, and sea urchins to oil spill-related contamination. Other reasons were mentioned just as frequently, such as destruction of habitat and over harvesting. The scarcity of berries was caused by dry weather and habitat destruction.

People had the opportunity to speak out about the safety of eating herring, seal, chitons, and clams, which were all generally considered safe to eat by Chignik Bay residents. There was still significant concern by almost one half of households about herring, less concern about seal, and still less about chitons. Several people said clams were unsafe to eat due to PSP.

Concern was voiced that elders were migrating out because there was no store and only basic health care in the community. It was said that many found it difficult to stay in Chignik Bay because of the lack of employment opportunities and income. Reduced income from commercial fishing was mainly to blame, and the drastic drop in the prices paid for salmon was responsible. It was reported that this downward trend in prices was strengthened by the spill, when the fear of oil-tainted salmon was a disincentive for Japanese market buyers to buy wild Alaska salmon and opted instead for farmed fish from other countries.

Another concern was that the knowledge of all types of fishing was slowly being lost as were commercial fishing opportunities. The coastal fishing culture in Chignik Bay has been greatly influenced by the commercial fishing industry, introduced over a century ago. The steady decline in commercial fishing affected a fisherman's ability to pass on knowledge about the fishery to his children, who then, in turn, participate less in all fisheries over time.

Table VIII-1. Population Profile, Chenega Bay, 2003 Study Year

AGE	MALE			FEMALE			TOTAL		
	Number	Percent	Cum. Percent	Number	Percent	Cum. Percent	Number	Percent	Cum. Percent
0 - 4	2.50	7.69%	7.69%	5.00	21.05%	21.05%	7.50	13.33%	13.33%
5 - 9	3.75	11.54%	19.23%	1.25	5.26%	26.32%	5.00	8.89%	22.22%
10 - 14	2.50	7.69%	26.92%	0.00	0.00%	26.32%	2.50	4.44%	26.67%
15 - 19	5.00	15.38%	42.31%	2.50	10.53%	36.84%	7.50	13.33%	40.00%
20 - 24	1.25	3.85%	46.15%	0.00	0.00%	36.84%	1.25	2.22%	42.22%
25 - 29	1.25	3.85%	50.00%	2.50	10.53%	47.37%	3.75	6.67%	48.89%
30 - 34	2.50	7.69%	57.69%	1.25	5.26%	52.63%	3.75	6.67%	55.56%
35 - 39	5.00	15.38%	73.08%	2.50	10.53%	63.16%	7.50	13.33%	68.89%
40 - 44	2.50	7.69%	80.77%	0.00	0.00%	63.16%	2.50	4.44%	73.33%
45 - 49	0.00	0.00%	80.77%	1.25	5.26%	68.42%	1.25	2.22%	75.56%
50 - 54	1.25	3.85%	84.62%	3.75	15.79%	84.21%	5.00	8.89%	84.44%
55 - 59	1.25	3.85%	88.46%	1.25	5.26%	89.47%	2.50	4.44%	88.89%
60 - 64	3.75	11.54%	100.00%	0.00	0.00%	89.47%	3.75	6.67%	95.56%
65 - 69	0.00	0.00%	100.00%	1.25	5.26%	94.74%	1.25	2.22%	97.78%
70 - 74	0.00	0.00%	100.00%	0.00	0.00%	94.74%	0.00	0.00%	97.78%
75 - 79	0.00	0.00%	100.00%	0.00	0.00%	94.74%	0.00	0.00%	97.78%
80 - 84	0.00	0.00%	100.00%	1.25	5.26%	100.00%	1.25	2.22%	100.00%
85 - 89	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
90 - 94	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
95 - 99	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
100+	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
Missing	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
TOTAL	32.50	57.78%		23.75	42.22%		56.25		

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Survey, 2004

Table XIII-2. Estimated Harvest and Use of Fish, Game and Plant Resources, Chignik Bay, 2003 Study Year

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
All Resources	100.0	95.5	95.5	100.0	86.4	27,088.56	934.09	321.09				62.96%
Fish	100.0	72.7	68.2	86.4	59.1	20,005.44	689.84	237.13				36.74%
Salmon	100.0	59.1	59.1	77.3	50.0	10,955.72	377.78	129.86	2,177.64		75.09	24.79%
Chum Salmon	18.2	18.2	13.6	9.1	4.5	95.78	3.30	1.14	18.45		0.64	52.71%
Coho Salmon	50.0	31.8	31.8	31.8	18.2	1,462.92	50.45	17.34	235.95		8.14	46.87%
Chinook Salmon	59.1	27.3	27.3	40.9	18.2	1,380.62	47.61	16.37	133.14		4.59	59.44%
Pink Salmon	18.2	13.6	13.6	4.5	4.5	112.31	3.87	1.33	39.55		1.36	69.00%
Sockeye Salmon	100.0	54.5	54.5	77.3	40.9	7,461.91	257.31	88.45	1,544.91		53.27	25.72%
Landlocked Salmon	4.5	4.5	4.5	0.0	0.0	39.55	1.36	0.47	26.36		0.91	99.82%
Spawnouts	22.7	18.2	18.2	9.1	13.6	402.64	13.88	4.77	179.27		6.18	55.44%
Spawning Coho	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Spawning Sockeye	22.7	18.2	18.2	9.1	13.6	402.64	13.88	4.77	179.27		6.18	55.44%
Unknown Salmon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Non-Salmon Fish	95.5	68.2	63.6	81.8	40.9	9,049.71	312.06	107.27				32.03%
Herring	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Herring Roe	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Herring Roe/Unspecified	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Herring Sac Roe	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Herring Spawn on Kelp	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Smelt	22.7	0.0	0.0	22.7	9.1	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Eulachon (hooligan, candlefish)	18.2	0.0	0.0	18.2	9.1	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Rainbow Smelt	4.5	0.0	0.0	4.5	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Cod	36.4	22.7	22.7	22.7	13.6	511.72	17.65	6.07	162.14		5.59	50.97%
Pacific Cod (gray)	36.4	22.7	22.7	22.7	13.6	506.18	17.45	6.00	158.18		5.45	51.48%
Pacific (Silver) Hake	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Pacific Tom Cod	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Walleye Pollock (whiting)	4.5	4.5	4.5	0.0	0.0	5.54	0.19	0.07	3.95		0.14	99.82%
Flounder	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Starry Flounder	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Flounder	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Greenling	27.3	18.2	18.2	13.6	0.0	42.18	1.45	0.50	10.55		0.36	46.60%
Lingcod	27.3	18.2	18.2	13.6	0.0	42.18	1.45	0.50	10.55		0.36	46.60%
Unknown Greenling	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Halibut	95.5	63.6	59.1	68.2	27.3	6,221.82	214.55	73.75	6,221.82	LBS	214.55	33.84%
Rockfish	31.8	22.7	22.7	22.7	18.2	676.89	23.34	8.02	391.94		13.52	45.13%
Black Rockfish	27.3	18.2	18.2	18.2	13.6	534.52	18.43	6.34	356.35		12.29	55.28%
Red Rockfish	22.7	9.1	9.1	13.6	9.1	142.36	4.91	1.69	35.59		1.23	92.13%
Unknown Rockfish	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sablefish (black cod)	18.2	4.5	4.5	13.6	0.0	32.69	1.13	0.39	10.55		0.36	99.82%
Sculpin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Irish Lord	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Irish Lord	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Sculpin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%

(Continued)

Table XIII-2. Estimated Harvest and Use of Fish, Game and Plant Resources, Chignik Bay, 2003 Study Year

Resource Name	Percentage of Households: Use	Att	Harv	Recv	Give	Pounds Harvested: Total	Mean HH	Per Capita	Amount Harvested: Total	Units	Mean HH	Conf Limit 95% (+/-): Harvest
Shark	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Shark	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Skates	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sole	4.5	0.0	0.0	4.5	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Sole	4.5	0.0	0.0	4.5	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tuna/Mackerel	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Mackerel	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Char	36.4	31.8	31.8	4.5	13.6	1,142.60	39.40	13.54	816.14		28.14	40.75%
Dolly Varden	36.4	31.8	31.8	4.5	13.6	1,142.60	39.40	13.54	816.14		28.14	40.75%
Trout	40.9	40.9	40.9	4.5	9.1	421.82	14.55	5.00	301.30		10.39	46.61%
Rainbow Trout	36.4	36.4	36.4	4.5	9.1	418.13	14.42	4.96	298.66		10.30	46.92%
Steelhead	4.5	4.5	4.5	0.0	0.0	3.69	0.13	0.04	2.64		0.09	99.82%
Unknown Trout	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Land Mammals	72.7	31.8	9.1	72.7	9.1	2,392.76	82.51	28.36	7.91		0.27	64.61%
Large Land Mammals	72.7	31.8	9.1	72.7	9.1	2,390.13	82.42	28.33	6.59		0.23	64.52%
Brown Bear	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Caribou	59.1	13.6	4.5	59.1	9.1	197.73	6.82	2.34	1.32		0.05	100.05%
Deer	4.5	4.5	4.5	4.5	4.5	56.95	1.96	0.68	1.32		0.05	99.82%
Moose	40.9	27.3	9.1	36.4	9.1	2,135.45	73.64	25.31	3.95		0.14	72.23%
Small Land Mammals	4.5	4.5	4.5	0.0	4.5	2.64	0.09	0.03	1.32		0.05	99.82%
Beaver	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Fox	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Red Fox	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Hare	4.5	4.5	4.5	0.0	4.5	2.64	0.09	0.03	1.32		0.05	99.82%
Snowshoe Hare	4.5	4.5	4.5	0.0	4.5	2.64	0.09	0.03	1.32		0.05	99.82%
Land Otter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Lynx	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Mink	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Porcupine	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Weasel	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Wolf	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Wolverine	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Marine Mammals	13.6	9.1	4.5	13.6	9.1	147.64	5.09	1.75	2.64		0.09	99.94%
Seal	13.6	9.1	4.5	13.6	9.1	147.64	5.09	1.75	2.64		0.09	99.94%
Harbor Seal	13.6	9.1	4.5	13.6	9.1	147.64	5.09	1.75	2.64		0.09	99.94%
Harbor Seal (saltwater)	13.6	9.1	4.5	13.6	9.1	147.64	5.09	1.75	2.64		0.09	99.94%
Sea Otter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Steller Sea Lion	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Whale	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Whale	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Birds and Eggs	54.5	36.4	31.8	31.8	9.1	188.10	6.49	2.23				26.88%
Migratory Birds	27.3	22.7	22.7	9.1	4.5	89.37	3.08	1.06	110.73		3.82	33.75%
Ducks	22.7	18.2	18.2	9.1	0.0	67.75	2.34	0.80	97.55		3.36	37.60%
Bufflehead	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Canvasback	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Gadwall	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%

(Continued)

Table XIII-2. Estimated Harvest and Use of Fish, Game and Plant Resources, Chignik Bay, 2003 Study Year

	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
Resource Name	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Goldeneye	9.1	4.5	4.5	4.5	0.0	1.05	0.04	0.01	1.32		0.05	99.82%
Unknown Goldeneye	9.1	4.5	4.5	4.5	0.0	1.05	0.04	0.01	1.32		0.05	99.82%
Harlequin	13.6	13.6	13.6	0.0	0.0	22.41	0.77	0.27	44.82		1.55	74.84%
Mallard	9.1	9.1	9.1	0.0	0.0	3.56	0.12	0.04	3.95		0.14	71.60%
Merganser	4.5	4.5	4.5	4.5	0.0	7.12	0.25	0.08	7.91		0.27	99.82%
Common Merganser	4.5	4.5	4.5	4.5	0.0	7.12	0.25	0.08	7.91		0.27	99.82%
Long-tailed Duck (Oldsquaw)	4.5	4.5	4.5	0.0	0.0	15.82	0.55	0.19	19.77		0.68	99.82%
Northern Pintail	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Scaup	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Scaup	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Scoter	4.5	4.5	4.5	4.5	0.0	17.80	0.61	0.21	19.77		0.68	99.82%
Black Scoter	4.5	4.5	4.5	4.5	0.0	17.80	0.61	0.21	19.77		0.68	99.82%
Surf Scoter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
White-winged Scoter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Scoter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Teal	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Green Winged Teal	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Wigeon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
American Wigeon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Ducks	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Geese	4.5	4.5	4.5	0.0	4.5	21.62	0.75	0.26	13.18		0.45	99.82%
Brant	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Canada Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Canada Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Emperor Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Snow Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
White-fronted Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Geese	4.5	4.5	4.5	0.0	4.5	21.62	0.75	0.26	13.18		0.45	99.82%
Shorebirds	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Common Snipe	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Seabirds & Loons	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Auklet	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Parakeet Auklet	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Gulls	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Gull	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Murre	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Common Murre	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Puffins	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Puffin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Other Birds	45.5	27.3	22.7	27.3	9.1	98.73	3.40	1.17	141.05		4.86	49.97%
Upland Game Birds	45.5	27.3	22.7	27.3	9.1	98.73	3.40	1.17	141.05		4.86	49.97%
Ptarmigan	45.5	27.3	22.7	27.3	9.1	98.73	3.40	1.17	141.05		4.86	49.97%
Bird Eggs	4.5	0.0	0.0	4.5	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Duck Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Duck Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Geese Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%

(Continued)

Table XIII-2. Estimated Harvest and Use of Fish, Game and Plant Resources, Chignik Bay, 2003 Study Year

	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
Resource Name	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Unknown Geese Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Seabird & Loon Eggs	4.5	0.0	0.0	4.5	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Gull Eggs	4.5	0.0	0.0	4.5	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Glaucous Winged Gull Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Herring Gull Eggs	4.5	0.0	0.0	4.5	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Puffin Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tern Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Seabird Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Marine Invertebrates	90.9	77.3	77.3	81.8	59.1	3,595.34	123.98	42.62				34.47%
Chitons (bidarkis, gumboots)	54.5	40.9	40.9	22.7	31.8	607.68	20.95	7.20	154.23	GAL	5.32	49.77%
Red (large) Chitons	18.2	13.6	13.6	9.1	4.5	27.68	0.95	0.33	9.23	GAL	0.32	71.41%
Black (small) Chitons	54.5	40.9	40.9	22.7	31.8	580.00	20.00	6.88	145.00	GAL	5.00	52.05%
Clams	86.4	68.2	68.2	45.5	40.9	1,004.45	34.64	11.91	334.82	GAL	11.55	23.62%
Butter Clams	77.3	63.6	63.6	40.9	40.9	735.55	25.36	8.72	245.18	GAL	8.45	29.81%
Horse Clams (Gaper)	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Pacific Littleneck Clams (Steamers)	27.3	22.7	22.7	9.1	4.5	114.68	3.95	1.36	38.23	GAL	1.32	46.35%
Pinkneck Clams	4.5	4.5	4.5	0.0	0.0	7.91	0.27	0.09	2.64	GAL	0.09	99.82%
Razor Clams	31.8	27.3	27.3	9.1	9.1	142.36	4.91	1.69	47.45	GAL	1.64	47.04%
Unknown Clams	4.5	4.5	4.5	0.0	0.0	3.95	0.14	0.05	1.32	GAL	0.05	99.82%
Cockles	27.3	27.3	27.3	4.5	13.6	221.45	7.64	2.63	73.82	GAL	2.55	46.86%
Unknown Cockles	27.3	27.3	27.3	4.5	13.6	221.45	7.64	2.63	73.82	GAL	2.55	46.86%
Crabs	81.8	27.3	27.3	77.3	45.5	1,394.64	48.09	16.53	916.14		31.59	40.33%
Dungeness Crab	59.1	13.6	13.6	45.5	18.2	55.36	1.91	0.66	79.09		2.73	63.92%
King Crab	4.5	0.0	0.0	4.5	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown King Crab	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tanner Crab	77.3	22.7	22.7	72.7	40.9	1,339.27	46.18	15.88	837.05		28.86	41.88%
Tanner Crab, Bairdi	77.3	22.7	22.7	72.7	40.9	1,297.09	44.73	15.38	810.68		27.95	43.50%
Unknown Tanner Crab	4.5	4.5	4.5	0.0	0.0	42.18	1.45	0.50	26.36		0.91	99.82%
Unknown Crab	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Limpets	4.5	4.5	4.5	0.0	4.5	3.95	0.14	0.05	2.64	GAL	0.09	99.82%
Mussels	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Unknown Mussels	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Octopus	63.6	40.9	40.9	36.4	18.2	332.18	11.45	3.94	83.05		2.86	31.76%
Scallops	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Weathervane Scallops	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Sea Cucumber	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Sea Urchin	45.5	36.4	36.4	18.2	4.5	30.98	1.07	0.37	61.95	GAL	2.14	43.41%
Shrimp	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	LBS	0.00	0.00%
Snails	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Vegetation	81.8	81.8	81.8	31.8	40.9	759.27	26.18	9.00	242.55		8.36	27.41%
Berries	77.3	77.3	77.3	31.8	36.4	732.91	25.27	8.69		GAL		27.39%
Plants/Greens/Mushrooms	18.2	18.2	18.2	0.0	0.0	26.36	0.91	0.31	6.59	GAL	0.23	46.46%
Seaweed/Kelp	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Seaweed	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Wood	31.8	27.3	27.3	9.1	13.6	0.00	0.00	0.00	52.73	CORDS	1.82	53.98%

Note: Harvest amount in individual units unless otherwise specified.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table XIII-3. Estimated Harvests of Wild Resources by Resource Category, Chignik Bay

	Pounds per Person			
	1984	1989	1991	2003
Salmon	136.8	111.9	171.0	129.9
Other Fish	22.0	54.8	109.9	107.3
Land Mammals	14.1	15.8	24.4	28.4
Marine Mammals	5.9	3.1	2.6	1.8
Birds & Eggs	1.8	3.7	4.4	2.2
Marine Invertebrates	7.4	15.6	38.9	42.6
Wild Plants	*	4.0	6.4	9.0
All Resources	187.9	208.9	357.5	321.1

*Data not collected for 1984.

SOURCE: Scott et al. 2001; Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table XIII-4. Percentage of Total Harvest by Resource Category, Chignik Bay

	Percentage of Total Harvest			
	1984	1989	1991	2003
Salmon	72.8%	53.6%	47.9%	40.4%
Other Fish	11.7%	26.2%	30.7%	33.4%
Land Mammals	7.5%	7.6%	6.8%	8.8%
Marine Mammals	3.1%	1.5%	0.7%	0.5%
Birds & Eggs	1.0%	1.8%	1.2%	0.7%
Marine Invertebrates	3.9%	7.5%	10.9%	13.3%
Wild Plants	*	1.9%	1.8%	2.8%

*Data not collected for 1984.

SOURCE: Scott et al. 2001; Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Figure XIII-1. Percentage of Salmon Harvested for Home Use, Pounds Usable Weight, by Species, Chignik Bay, 2003

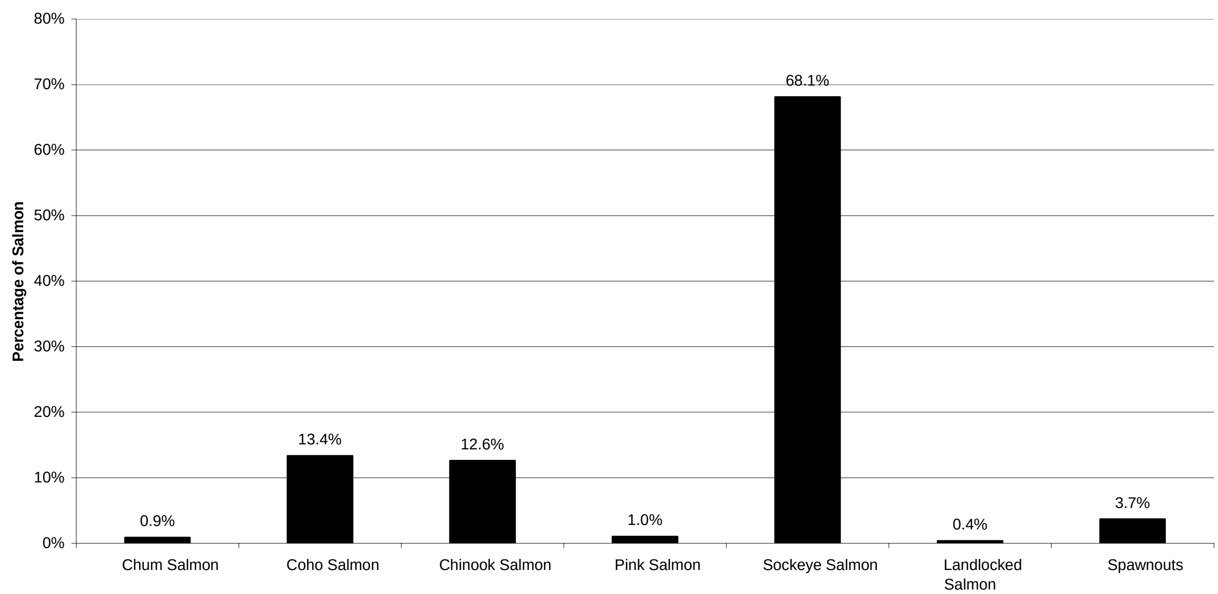


Figure XIII-2. Harvests of Wild Resources, Pounds Usable Weight per Person, Chignik Bay, 2003

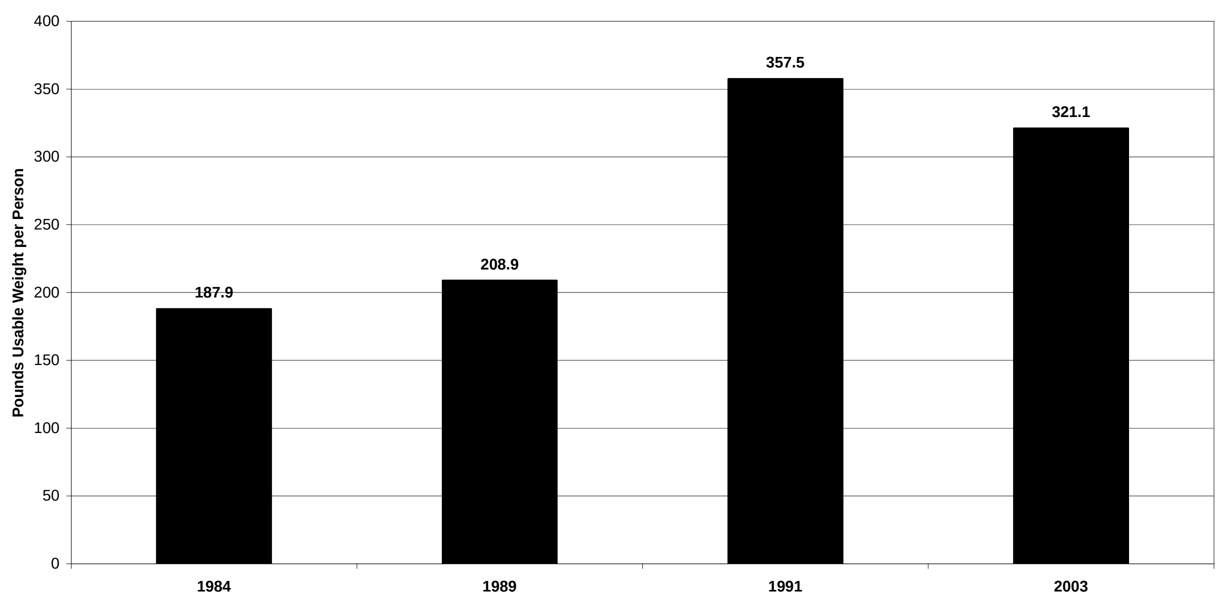
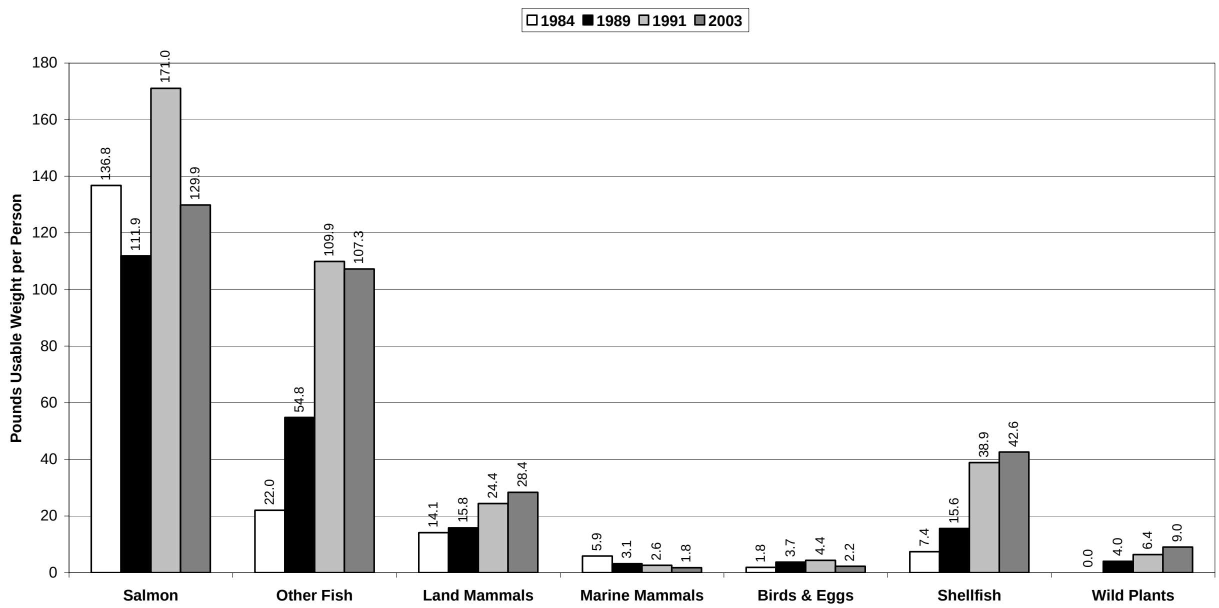


Figure XIII-3. Harvests of Wild Resources by Resource Category, Pounds Usable Weight per Person, Chignik Bay, 2003



CHAPTER XIV: CHIGNIK LAGOON

by

Philippa Coiley-Kenner and Theodore Krieg

COMMUNITY BACKGROUND

Community History

The community of Chignik Lagoon is located on the body of water of the same name flowing into Chignik Bay. Chignik Lagoon is 5.5 miles west of the community of Chignik Bay and 13 miles down river from Chignik Lake. Chignik Lagoon consists of two parts. All year-round households and the school are on the south side of the lagoon, locally known as "the flat side." Two miles across the lagoon on the north side is the abandoned Columbia Ward Fisheries (CWF) fish-processing facility. Chignik Lagoon is an unincorporated place and is governed by a village council (Fall et al. 1995:13-17).

Chignik Lagoon's history is not well documented, and the first U.S. Census was conducted in 1960. An early Native settlement, Old Village, was located on the northeastern shore of the lagoon, and may have been a fish camp that grew into a year-round settlement with the arrival of the salmon industry in 1889 (Morris 1987:33). Morris (1987:34) noted that two other settlements in the general vicinity may have been significant in the history of Chignik Lagoon. Mitrofania, a village of sea otter hunters located between Chignik and Kuiukta Bays, was reportedly founded in 1880 by a Russian and populated with people from Kodiak (Tuten 1977). In early literature, a second village was mentioned, Sutkhoon or Sutkum, located on Sutwik Island (Tuten 1977). Both sites were locations of small trading stores in the late-1800s. Davis (1986:69) states that, in the past, some people moved from Mitrofania to Chignik Lagoon.

The contemporary community stems from the intermarriage between local Native women and European men mainly coming into the area in conjunction with the commercial fishing industry. In addition to fishing, many of the local families were involved with commercial fur farming. Families lived on islands or bays, such as Nachemak, during part of the year on fur farms and moved to the lagoon for the fishing season (Morris 1987:34).

Demography

The U.S. Census indicates that Chignik Lagoon's population declined from 108 people in 1960 to 53 people in 1990 (U.S. Bureau of the Census). In January 1990, the Division identified 15 year-round households with 41 people (Scott et al. 2001). Chignik Lagoon had one of the most seasonal human populations compared to other study communities (Fall et al. 1995:17).

The U.S. Census indicates that in 2000 the population of Chignik Lagoon was 103 people in 33 households. Eighty-four people, 81.6% of the population, were Alaska Native. The median age was 26.3 years. The average household size was 3.1 people. Males made up 57.3% and females 42.7% of the population.

The 2003 Chignik Lagoon oil spill subsistence survey estimated there were 70 people living in 22 households, with 80.4% of the population Alaska Native. The median age was 30.0

years old, with 54.9% males and 45.1% females. The average household size was 3.2 people (see Table I-8 and Table XIV-1).

Economic Overview

Commercial fishing provides the primary income for residents of Chignik Lagoon. A unique, co-operative commercial salmon fishery was created in 2002, and was in effect for the three seasons between the years 2002 and 2004. Under that arrangement, designated permit holders fished for the total number of permit holders in the management area who signed up for the co-op, to save on operating expenses and to improve marketing. See Chapter XVI for an overview of the Chignik Area co-op fishery. The median per capita income was $28,940 compared to a statewide median per capita income of $22,660 (U.S. Bureau of the Census 2005).

SUBSISTENCE RESOURCE HARVEST AND USES

Participation in Hunting, Fishing and Gathering Activities

For Chignik Lagoon, 90.2% of residents attempted to harvest at least one wild resource in 2003, 43.1% of people hunted, and 54.9% processed large land mammals and marine mammals (see Table I-9). The levels of participation in hunting and processing were as high or higher for the fish and vegetation resources, but only 2% of people in the community reported attempting to harvest furbearers.

On average, Chignik Lagoon households used 12.8 wild resources during the year, and 100% used at least one wild resource (see Table I-10). There was also a high level of sharing. In 2003, 93.8% of interviewed households received an average of 4.7 different wild resources, and 87.5% gave to other households an average of 4.9 wild resources. In Chignik Lagoon, the average household harvest was 1,263.3 pounds usable weight of wild resources, 388.7 pounds per capita.

Table XIV-2 indicates that 100% of interviewed households in Chignik Lagoon used salmon, 87.5% attempted to harvest, 87.5% harvested, 50.0% received, and 50.0% gave away salmon to other households in the study year. Most resource categories were used and harvested by over 50.0% of interviewed households: salmon, non-salmon fish, large land mammals, birds and eggs, marine invertebrates and vegetation. There was no reported use, harvest, or sharing of small land mammals or marine mammals.

Resource Harvest Quantities and Harvest Composition

In 2003, the estimated per capita harvest by Chignik Lagoon residents was 388.7 pounds usable weight of wild resources (see Table XIV-2). Of that total, 50.2% was salmon (195.2 pounds per capita), 17.8% was land mammals (69.2 pounds per capita), 15.9% was marine invertebrates (61.8 pounds per capita), 12.2% was non-salmon fish (47.5 pounds per capita), 3.4% was vegetation (13.3 pounds per capita), and 0.4% was birds and eggs (1.7 pounds per person). No small land mammals or marine mammals were reported in the Chignik Lagoon harvest (see Tables XIV-3 and XIV-4).

Sockeye salmon was harvested at the highest level of any wild resource, 133.2 pounds per capita (1,972 fish), in 2003 (see Table XIV-2). Chinook was also harvested at a high level, 52.1 pounds per capita (359 fish), with much smaller levels of coho (28 fish) and pink salmon (99 fish) harvested. No chum salmon was reported in the harvest.

Halibut was also harvested at a relatively high level, 35.5 pounds per capita, when compared to all wild resources (see Table XIV-2). Other species of fish were harvested, but at much lower levels, including black and red rockfish, Pacific cod, rainbow trout, herring and other species. Moose (51.9 pounds per capita, 7 moose) and caribou (17.3 pounds per capita, 8 caribou) were both harvested at high levels compared to other wild resources. No other land mammal species was harvested. Ptarmigan and ducks, mostly bufflehead and also mallard, oldsquaw, northern pintail, and green winged teal, were harvested. No other birds or eggs were reported in the Chignik Lagoon harvest.

Of the 61.8 pound per capita marine invertebrate harvest, 29 pounds was clams, mostly butter and razor clams, and 28.6 pounds was tanner crab (see Table XIV-2). Other shellfish harvested at higher levels were steamer clams and octopus. The final resource category is vegetation, which consisted almost entirely of berries.

Table XIV-5 indicates that while almost 90% of the chinook salmon harvest was retained from commercial catches, almost 90% of the sockeye salmon harvest was taken with subsistence methods. In Chignik Lagoon, the ratio of sockeye retained from commercial harvests compared to harvests using subsistence methods has tended to decrease, compared to 1984 and 1989 survey results. Conversely, Chinook harvests have shown an opposite trend. Subsistence methods were responsible for 50.0% of the Chinook harvest in 1984 compared to none in 1989 and 2003.

Harvest Effort

Chignik Lagoon residents described the effort used by people in their households to harvest wild resources during the study year, 2003, compared to five years ago, 1998 (see Tables A-58 to A-81). The majority of responding households reported using more rather than less effort to harvest wild resources. Additionally, in all cases, at least 20% said effort had not changed since 1998. However, many people did not answer this question regarding some categories of resources, particularly marine mammals, because of no use. Increased effort was commonly linked to having to travel further, less abundance, and more competition for resources. The responses concerning birds and eggs (see Tables A-76, A-77 and A-78) and marine mammals (see Tables A-70, A-71 and A-72) followed a different pattern where all reasons for decreased effort to harvest concerned having to travel further and more competition, not less abundance.

Comparisons of Uses and Harvests with Other Years

Table XIV-3 and Figure XIV-1 show that the per capita harvest of wild resources by residents of Chignik Lagoon rose from 220.3 pounds in 1984 and 211.4 pounds in 1989, to 388.7 pounds in 2003. Figure XIV-2 indicates that the per capita harvest of almost all resource categories was higher in 2003 than in previous survey years. The two exceptions to this are marine mammals and birds and eggs, which decreased from what were small but important contributions to the total harvest. The largest increases over the 1989 survey results exist in the salmon category, almost doubling from 1989, and shellfish, tripling 1989 harvest levels. The 1984 harvest levels for these resources were similar to 1989 levels.

Tanner crab was used and received by higher percentages of households than in both previous harvest assessments (Scott et al. 2001). Additionally, in 1989, the entire harvest of tanner crab was retained from commercial catches, and in 2003, about 4% was, with the total harvest climbing from 165 crabs to 1,279 crabs, respectively. For 2003, it was reported that pots to catch tanner crab were often set and the harvest shared with all households in the community. For clams and tanner crab, harvest levels grew from single digits to over 28 pounds per capita in the past decade.

Another trend was the absence of any small land mammal harvests in the 2003 harvest, a trend in many communities in response to lower fur prices and other factors (see Table XIV-2). There were also no reported marine mammal harvests in 2003. Reportedly, someone from Chignik Lagoon received a jail sentence in the recent past for killing a sea lion, which has led to the mistaken belief that it is illegal for Alaska Natives to harvest them. There was also confusion about the legality of Alaska Natives harvesting sea otters.

When asked to assess changes in harvests and uses of different species of wild resources, most people responded that their households harvested and used a majority of resources less, rather than more, compared to five years ago, 1998 (see Tables A-1 to A-24). The household response rate was especially low for three resources. This is because around 50% of those interviewed reported no effort to harvest marine mammals and small land mammals, and about 30% reported no effort to harvest birds and eggs in 2003.

For salmon, the reasons for less use and harvest were resource access (28.6%) and time constraints (28.6%), both with more responses than decreased resource abundance (14.3%) (see Table A-2). However, decreased resource abundance was a common response regarding decreased harvest and uses of non-salmon fish (see Table A-5), marine invertebrates (see Table A-8), and land mammals (see Table A-11). Economic reasons were often indicated for all resource categories except non-salmon fish and birds and eggs (see Table A-20), that is, people were employed or could not afford the methods and means necessary to participate in some subsistence activities.

Birds and eggs was the only category that was harvested and used less because of the condition of the resource or reasons of food safety. Some people said these reasons were oil spill related; however, the overall response rate to these questions was low (see Table A-21).

Almost three quarters of households said harvests and uses of wild resources overall was less than before the oil spill (see Table A-55). This may be due to false perceptions on the part of respondents, or those respondents who reported harvesting and using more are harvesting and using a great deal more. Another possibility is that the single pre-spill harvest estimate for Chignik Lagoon may have been atypically low.

Many people said they harvested and used marine mammals (see Table A-43), birds and eggs (see Table A-46) and small land mammals (see Table A-40) less than before the spill. But there were also high non-response rates for these resource categories. Therefore, high levels or percentages for these categories represent fewer households than the same high levels in the other categories.

In 1984, Chignik Lagoon residents harvested 76 small land mammals, compared to 21 in 1989, and 0 in 2003. While the per capita harvest for these years is about 1 pound, 0, and 0, respectively, the actual harvest has made a steeper descent, possibly involving many households (Scott et al. 2001).

NATURAL RESOURCE CONDITIONS

Food Safety

Concerning food safety, over 50% of Chignik Lagoon respondents were unsure if herring, seal, or chitons were safe to eat: no one reported that herring were unsafe; one respondent said seal were unsafe, and one respondent said chitons were unsafe (see Tables A-460 to A-465). The responses to the food safety questions regarding these resources coincided with low to no reported harvest and use. This probably means that respondents had no opinion about food safety, rather than that they were uncertain. Most respondents (66.7%) said that clams were safe to eat. When respondents said that resources were unsafe, they cited as reasons that the resources caused illness or paralytic shellfish poisoning (PSP) (see Tables A-458 and A-459).

Status of Resource Populations

In Chignik Lagoon, respondents most often (64.3% of the time) said that subsistence resources had not recovered from the oil spill. Another 28.6% said that populations were not affected (see Table A-82). Only one respondent offered a recovery suggestion: better harvest regulation and management (see Table A-83).

Chignik Lagoon respondents were asked questions about changes in the availability of wild resources compared to five year ago. There was a high non-response rate to these questions. Often these questions were not asked if there was no harvest of a resource. Of those who did respond, people often declined to give reasons for the change in availability of resources. The responses to those particular questions represent only a few households in most cases. Given that, the responses suggest several points. Many respondents said the availability of herring and halibut decreased from 1998 (see Table A-155). Four respondents indicated the cause of decrease in herring availability was spill-related contamination (see Table A-158). Some also said it was due to other environmental reasons, such as population cycles, for both species (see Table A-157). In the case of halibut, several respondents also mentioned management and regulations were the cause of decline.

For sea ducks, all households that responded to the question (about twelve) said the availability had decreased since 1998 (see Table A-374). Only a couple of people offered reasons, and about two said spill contamination was responsible (see Tables A-375 and A-376). Every one responded when asked about changes in the availability of moose and caribou (see Table A-267). Many said both of these species were less available, and reasons were almost evenly split between competition with other hunters and environmental factors (see Table A-269).

Three quarters of households noticed a decreased availability of Dungeness crab (see Table A-211). Several households said this was related to spill contamination and the same number said the cause was environmental but not related to contamination (see Tables A-213 and A-214). Finally, about one third of households said the availability of harbor seal and sea lion had decreased (see Table A-318). Of the few households giving reasons, several said this was due to oil spill contamination (see Table A-321).

Habitat Changes

The majority of Chignik Lagoon respondents (56.3%) had observed changes in the habitat of local resources (see Table A-456). Reasons given for the changes included more resources (44.4 percent of respondents), less resources (33.3% of respondents), contamination/pollution/PSP (22.2% of respondents), and predation (11.1% of respondents) (see Table A-457).

SOCIAL AND ECONOMIC CONDITIONS

Food Purchases

Several Chignik Lagoon respondents said they purchased subsistence foods during the study year (see Table A-475). No reason was offered. Seventy-five percent of respondents purchased food from the store to replace subsistence foods during the study year (see Table A-477). The most common activity was purchasing beef to replace moose and caribou (see Table A-478). For others who purchased food, no reason was offered.

Sharing of Subsistence Resources

Most Chignik Lagoon respondents (62.5%) said their levels of sharing of wild resources were the same as in 1998 (see Table A-472). Among the 25.0% saying they shared less, several reasons were given. Three respondents reported that their households shared less than five years ago because they had fewer resources to share (see Table A-474). One respondent said his or her household shared more because of fewer resources. He or she said larger groups of people were hunting together and sharing all harvests. Several respondents said some of their extended families moved out of the community, and even though they still shared, they shared less than five years ago when more family members were living in the community.

Young Adult's Involvement in Subsistence Activities

To the question, are young adults learning enough subsistence skills, 40.0% of Chignik Lagoon households said "yes" and 60.0% said "no" (see Table A-466). Of those saying no, most (44.4%) said this was due to change in the community way of life (see Table A-467). Other respondents said there was no interest, a lack of teachers and no time. There were two responses to the question, "how are young adults learning subsistence skills?" One response said from family members and one said from elders (see Table A-468).

Elders' Influence

Most Chignik Lagoon respondents said that the influence of elders in the community was less (57.1%) or the same (35.7%) than five years before (see Table A-469). Of those saying less, 75% said the reason was demographic, that is, fewer elders (see Table A-471).

Status of the Traditional Way of Life

A large majority (almost 90%) of Chignik Lagoon households said that their traditional way of life was still affected by the oil spill (see Table A-479). Only a few people had recommendations to help the recovery (see Table A-481). Several said that the co-op (see the overview in Chapter XVI on the co-op) disrupted their traditional way of life by changing salmon harvest and processing patterns and should be stopped. One said,

> Need to go back to the way subsistence was two years ago, before the co-op. You didn't have to worry about our subsistence way of life before the co-op. Now we have to plan months ahead what we are going to do and where we are going to get our subsistence [salmon]. We have to call Fish and Game and ask if we can subsistence. We have to ask permission to do our Native right to subsistence. We have to get our way of life back.

One person described the social disruption caused by the oil spill in 1989 when boats crowded into the lagoon to commercial fish. Some people quit commercial fishing that year and their children do not commercial or subsistence fish.

EVALUATION OF THE GEM PROGRAM

Of the Chignik Lagoon informants with an opinion, all said they were not informed about the activities of the *Exxon Valdez* Oil Spill Trustee Council and Gulf Ecosystem Management Program (GEM) (see Table A-482). The majority (54.5%) said receiving newsletters would improve communication (see Table A-483). Of those with an opinion, 80.0% said the Tribal Council was not adequately involved in the research and monitoring projects (see Table A-484). Only a few households offered a recommendation for improving this, and all said improving communication was the key (see Table A-485).

DISCUSSION AND CONCLUSIONS

The residents of Chignik Lagoon used high levels of wild resources in 2003. The per capita harvest in 2003, 388.7 pounds, is well within the range of other communities in the area, from about 300 pounds at Chignik Lake to about 500 pounds at Perryville (see Table I-10). Several trends in the harvest levels between three survey years, 1984, 1989, and 2003, were noted. First, the salmon harvest level in 2003 doubled from the 1989 level. The portion of the salmon caught using subsistence methods also increased, except in the case of Chinook. Second, marine invertebrates were harvested at a level in 2003 three times the 1989 level, caused by the increasing tanner crab harvest levels. Third, there were no reported marine mammal harvests in 2003. Confusion about the legality of harvesting marine mammals was reported and may have affected the harvest level.

When asked, two thirds of households said clams were safe to eat, while most were unsure about herring, seal, and chitons, which may be because people generally used less of these resources. There was more information and research on clam edibility and ongoing PSP education and people may be more aware of the status of clams and contamination.

Observed decreases in availability of some wild resources since 1998 were reported, such as moose and caribou, sea ducks, herring, and halibut. In most cases, several households responded that the decreases were spill-related, specifically contamination. Another common response was that the decrease in availability was related to other environmental factors. When asked, two thirds of households said wild resources had not recovered from the oil spill, and near 90% said the traditional way of life had not recovered from the oil spill. Over half said the environment and habitat have changed. Several households referred to some kind of contamination.

Other issues affecting the harvest of wild resources were mentioned. Incidental bottomfish caught while commercial fishing for cod were illegal to retain for personal use and for that reason one respondent refused to give the numbers of those fish that he used. He also explained that the regulation was unreasonable and senseless. Another respondent had observed more killer whales in the area, especially in the last year.

Respondents from Chignik Lagoon during this research used the survey as a vehicle to voice concerns about the commercial salmon co-op (see Chapter XVI), and many comments included something on this topic. At the time of the survey, two fishing seasons had passed using new commercial fishing regulations to run the co-op fishery. There were major changes in the fisheries, both commercial and subsistence. The co-op gave rise to tensions between the "independent" (those not participating in the co-op) and co-op fishers. According to the Division of Commercial Fisheries of ADF&G, in 2003, 11 of the 24 independent fishermen registered for the area were from Chignik Lagoon, and only 9 of 77 co-op fishermen were from Chignik Lagoon. One common sentiment was,

> The independents don't realize, or won't admit, that with the low returns of sockeye the last few years, without the co-op there would not have been enough fish to go around and many of the permits holders would have made no money at all.

Some were concerned because in their view the co-op fishing time was getting priority over other users, independent and subsistence fishers. For instance, co-op fishing was the first to open after the arrival of salmon in spring. They said that the way openers for the independents were determined and announced did not allow time for people to put up subsistence fish as they traditionally did and still be ready to commercial fish on "short notice." Other traditional patterns were disrupted. Some reported the new regulations did not allow enough subsistence fishing time in early June as was allowed before the co-op. Early June was considered the best time to harvest and process salmon for home use. In the past, subsistence salmon harvesting and processing was done over a three-week period, but most of the work occurred in the first two days. Salmon were taken from the lagoon until each family or work group had a total of 200-300 sockeye salmon and about 10 Chinook salmon. After June 10, commercial fishers were not allowed to harvest subsistence salmon again and the commercial season in the lagoon began. People continued to split, dry, smoke, salt, and can salmon until finished, up to three weeks later (Hutchinson-Scarbrough 2003). Recently-enacted commercial fishing regulations disturbed this pattern, according to survey respondents.

Another concern was the leads, nets that some respondents described as basically fish traps, that co-op members legally placed at the mouth of the Chignik River. The leads restricted the movement of salmon upstream, bunching them for ease of harvest. But respondents said that by cutting off the run of salmon into the river, there were fewer salmon at upstream locations where people traditionally harvested and processed salmon. There were also concerns that restricting the upstream migration of salmon was detrimental to proper management and therefore future returns. Another issue concerning the leads and fishing in that area of the mouth of the Chignik River was that co-op members removed large rocks from the streambed to prevent hung nets. One respondent felt that the rocks aided Chinook salmon to spawn, and that changing the stream flow by removing the rocks was detrimental to the river and lagoon hydrology, and therefore, was detrimental to the ecosystem.

Table XIV-1. Population Profile, Chignik Lagoon, 2003 Study Year

AGE	MALE			FEMALE			TOTAL		
	Number	Percent	Cum. Percent	Number	Percent	Cum. Percent	Number	Percent	Cum. Percent
0 - 4	1.38	3.57%	3.57%	0.00	0.00%	0.00%	1.38	1.96%	1.96%
5 - 9	2.75	7.14%	10.71%	1.38	4.35%	4.35%	4.13	5.88%	7.84%
10 - 14	1.38	3.57%	14.29%	2.75	8.70%	13.04%	4.13	5.88%	13.73%
15 - 19	2.75	7.14%	21.43%	5.50	17.39%	30.43%	8.25	11.76%	25.49%
20 - 24	5.50	14.29%	35.71%	2.75	8.70%	39.13%	8.25	11.76%	37.25%
25 - 29	5.50	14.29%	50.00%	1.38	4.35%	43.48%	6.88	9.80%	47.06%
30 - 34	1.38	3.57%	53.57%	5.50	17.39%	60.87%	6.88	9.80%	56.86%
35 - 39	4.13	10.71%	64.29%	1.38	4.35%	65.22%	5.50	7.84%	64.71%
40 - 44	1.38	3.57%	67.86%	1.38	4.35%	69.57%	2.75	3.92%	68.63%
45 - 49	4.13	10.71%	78.57%	4.13	13.04%	82.61%	8.25	11.76%	80.39%
50 - 54	1.38	3.57%	82.14%	0.00	0.00%	82.61%	1.38	1.96%	82.35%
55 - 59	2.75	7.14%	89.29%	1.38	4.35%	86.96%	4.13	5.88%	88.24%
60 - 64	0.00	0.00%	89.29%	2.75	8.70%	95.65%	2.75	3.92%	92.16%
65 - 69	1.38	3.57%	92.86%	0.00	0.00%	95.65%	1.38	1.96%	94.12%
70 - 74	0.00	0.00%	92.86%	0.00	0.00%	95.65%	0.00	0.00%	94.12%
75 - 79	1.38	3.57%	96.43%	1.38	4.35%	100.00%	2.75	3.92%	98.04%
80 - 84	0.00	0.00%	96.43%	0.00	0.00%	100.00%	0.00	0.00%	98.04%
85 - 89	1.38	3.57%	100.00%	0.00	0.00%	100.00%	1.38	1.96%	100.00%
90 - 94	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
95 - 99	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
100+	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
Missing	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
TOTAL	38.50	54.90%		31.63	45.10%		70.13		

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table XIV-2. Estimated Harvest and Use of Fish, Game and Plant Resources, Chignik Lagoon, 2003 Study Year

	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
Resource Name	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
All Resources	100.0	93.8	93.8	93.8	87.5	27,792.61	1,263.30	388.71				88.54%
Fish	100.0	93.8	93.8	62.5	75.0	17,353.57	788.80	242.71				52.53%
Salmon	100.0	87.5	87.5	50.0	50.0	13,959.24	634.51	195.23	2,574.00		117.00	32.61%
Chum Salmon	6.3	6.3	0.0	0.0	6.3	0.00	0.00	0.00	0.00		0.00	0.00%
Coho Salmon	25.0	18.8	18.8	12.5	6.3	170.50	7.75	2.38	27.50		1.25	55.34%
Chinook Salmon	81.3	75.0	75.0	18.8	37.5	3,721.53	169.16	52.05	358.88		16.31	29.08%
Pink Salmon	31.3	31.3	31.3	0.0	6.3	281.16	12.78	3.93	99.00		4.50	43.65%
Sockeye Salmon	100.0	81.3	81.3	43.8	37.5	9,523.55	432.89	133.20	1,971.75		89.63	23.76%
Landlocked Salmon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Spawnouts	18.8	12.5	12.5	6.3	6.3	262.50	11.93	3.67	116.88		5.31	94.46%
Spawning Coho	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Spawning Sockeye	18.8	12.5	12.5	6.3	6.3	262.50	11.93	3.67	116.88		5.31	94.46%
Unknown Salmon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Non-Salmon Fish	93.8	93.8	87.5	43.8	62.5	3,394.33	154.29	47.47				35.86%
Herring	6.3	6.3	6.3	0.0	0.0	16.50	0.75	0.23	2.75	GAL	0.13	107.78%
Herring Roe	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Herring Roe/Unspecified	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Herring Sac Roe	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Herring Spawn on Kelp	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Smelt	18.8	6.3	0.0	18.8	18.8	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Eulachon (hooligan, candlefish)	12.5	6.3	0.0	12.5	12.5	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Rainbow Smelt	6.3	0.0	0.0	6.3	6.3	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Cod	43.8	37.5	31.3	18.8	18.8	193.60	8.80	2.71	60.50		2.75	40.76%
Pacific Cod (gray)	43.8	37.5	31.3	18.8	18.8	193.60	8.80	2.71	60.50		2.75	40.76%
Pacific (Silver) Hake	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Pacific Tom Cod	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Walleye Pollock (whiting)	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Flounder	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Starry Flounder	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Flounder	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Greenling	37.5	18.8	18.8	18.8	12.5	66.00	3.00	0.92	16.50		0.75	64.75%
Lingcod	37.5	18.8	18.8	18.8	12.5	66.00	3.00	0.92	16.50		0.75	64.75%
Unknown Greenling	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Halibut	93.8	87.5	81.3	31.3	37.5	2,538.25	115.38	35.50	2,538.25	LBS	115.38	26.01%
Rockfish	25.0	25.0	25.0	0.0	6.3	479.88	21.81	6.71	221.38		10.06	41.61%
Black Rockfish	25.0	25.0	25.0	0.0	6.3	243.38	11.06	3.40	162.25		7.38	59.09%
Red Rockfish	18.8	18.8	18.8	0.0	6.3	236.50	10.75	3.31	59.13		2.69	75.60%
Unknown Rockfish	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sablefish (black cod)	6.3	0.0	0.0	6.3	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sculpin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Irish Lord	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Irish Lord	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Sculpin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Shark	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Shark	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Skates	6.3	6.3	6.3	0.0	6.3	6.88	0.31	0.10	1.38		0.06	107.78%

(Continued)

Table XIV-2. Estimated Harvest and Use of Fish, Game and Plant Resources, Chignik Lagoon, 2003 Study Year

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Sole	6.3	6.3	6.3	0.0	0.0	2.75	0.13	0.04	2.75		0.13	107.78%
Unknown Sole	6.3	6.3	6.3	0.0	0.0	2.75	0.13	0.04	2.75		0.13	107.78%
Tuna/Mackerel	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Mackerel	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Char	6.3	6.3	6.3	0.0	0.0	7.70	0.35	0.11	5.50		0.25	107.78%
Dolly Varden	6.3	6.3	6.3	0.0	0.0	7.70	0.35	0.11	5.50		0.25	107.78%
Trout	12.5	12.5	12.5	0.0	6.3	82.78	3.76	1.16	59.13		2.69	86.86%
Rainbow Trout	12.5	12.5	12.5	0.0	0.0	78.93	3.59	1.10	56.38		2.56	91.46%
Steelhead	6.3	6.3	6.3	0.0	6.3	3.85	0.18	0.05	2.75		0.13	107.78%
Unknown Trout	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Land Mammals	75.0	62.5	37.5	62.5	43.8	4,950.00	225.00	69.23	15.13		0.69	51.21%
Large Land Mammals	75.0	62.5	37.5	62.5	43.8	4,950.00	225.00	69.23	15.13		0.69	51.21%
Brown Bear	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Caribou	62.5	43.8	25.0	50.0	31.3	1,237.50	56.25	17.31	8.25		0.38	48.79%
Deer	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Moose	50.0	50.0	18.8	37.5	25.0	3,712.50	168.75	51.92	6.88		0.31	67.65%
Small Land Mammals	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Beaver	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Fox	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Red Fox	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Hare	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Snowshoe Hare	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Land Otter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Lynx	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Mink	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Porcupine	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Weasel	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Wolf	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Wolverine	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Marine Mammals	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Seal	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Harbor Seal	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Harbor Seal (saltwater)	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sea Otter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Steller Sea Lion	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Whale	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Whale	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Birds and Eggs	56.3	56.3	50.0	18.8	25.0	121.00	5.50	1.69				45.80%
Migratory Birds	37.5	37.5	31.3	6.3	12.5	46.89	2.13	0.66	85.25		3.88	27.60%
Ducks	37.5	37.5	31.3	6.3	12.5	46.89	2.13	0.66	85.25		3.88	27.60%
Bufflehead	25.0	25.0	25.0	0.0	12.5	18.15	0.83	0.25	45.38		2.06	59.31%
Canvasback	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Gadwall	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%

(Continued)

Table XIV-2. Estimated Harvest and Use of Fish, Game and Plant Resources, Chignik Lagoon, 2003 Study Year

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Goldeneye	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Goldeneye	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Harlequin	0.0	6.3	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Mallard	37.5	37.5	31.3	6.3	6.3	21.04	0.96	0.29	23.38		1.06	41.49%
Merganser	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Common Merganser	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Long-tailed Duck (Oldsquaw)	6.3	6.3	6.3	0.0	0.0	2.20	0.10	0.03	2.75		0.13	107.78%
Northern Pintail	6.3	6.3	6.3	0.0	0.0	2.20	0.10	0.03	2.75		0.13	107.78%
Scaup	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Scaup	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Scoter	0.0	6.3	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Black Scoter	0.0	6.3	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Surf Scoter	0.0	6.3	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
White-winged Scoter	0.0	6.3	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Scoter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Teal	6.3	6.3	6.3	0.0	6.3	3.30	0.15	0.05	11.00		0.50	107.78%
Green Winged Teal	6.3	6.3	6.3	0.0	6.3	3.30	0.15	0.05	11.00		0.50	107.78%
Wigeon	0.0	6.3	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
American Wigeon	0.0	6.3	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Ducks	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Brant	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Canada Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Canada Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Emperor Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Snow Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
White-fronted Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Shorebirds	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Common Snipe	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Seabirds & Loons	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Auklet	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Parakeet Auklet	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Gulls	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Gull	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Murre	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Common Murre	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Puffins	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Puffin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Other Birds	25.0	25.0	25.0	12.5	25.0	74.11	3.37	1.04	105.88		4.81	69.20%
Upland Game Birds	25.0	25.0	25.0	12.5	25.0	74.11	3.37	1.04	105.88		4.81	69.20%
Ptarmigan	25.0	25.0	25.0	12.5	25.0	74.11	3.37	1.04	105.88		4.81	69.20%

(Continued)

Table XIV-2. Estimated Harvest and Use of Fish, Game and Plant Resources, Chignik Lagoon, 2003 Study Year

	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
Resource Name	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Bird Eggs	6.3	6.3	6.3	0.0	0.0	0.00	0.00	0.00	8.25		0.38	107.78%
Duck Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Duck Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Geese Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Geese Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Seabird & Loon Eggs	6.3	6.3	6.3	0.0	0.0	0.00	0.00	0.00	8.25		0.38	107.78%
Gull Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Glaucous Winged Gull Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Herring Gull Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Puffin Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tern Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Seabird Eggs	6.3	6.3	6.3	0.0	0.0	0.00	0.00	0.00	8.25		0.38	107.78%
Marine Invertebrates	100.0	87.5	81.3	81.3	62.5	4,420.21	200.92	61.82				56.74%
Chitons (bidarkis, gumboots)	18.8	18.8	18.8	0.0	6.3	44.00	2.00	0.62	11.00	GAL	0.50	68.54%
Red (large) Chitons	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Black (small) Chitons	18.8	18.8	18.8	0.0	6.3	44.00	2.00	0.62	11.00	GAL	0.50	68.54%
Clams	87.5	87.5	81.3	25.0	31.3	2,070.75	94.13	28.96	690.25	GAL	31.38	33.63%
Butter Clams	87.5	81.3	81.3	12.5	31.3	1,315.88	59.81	18.40	438.63	GAL	19.94	32.67%
Horse Clams (Gaper)	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Pacific Littleneck Clams (Steamers)	43.8	43.8	43.8	0.0	6.3	276.38	12.56	3.87	92.13	GAL	4.19	62.54%
Pinkneck Clams	6.3	6.3	6.3	0.0	6.3	41.25	1.88	0.58	13.75	GAL	0.63	107.78%
Razor Clams	62.5	68.8	62.5	12.5	12.5	437.25	19.88	6.12	145.75	GAL	6.63	59.39%
Unknown Clams	6.3	0.0	0.0	6.3	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Cockles	6.3	0.0	0.0	6.3	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Unknown Cockles	6.3	0.0	0.0	6.3	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Crabs	81.3	37.5	37.5	81.3	43.8	2,051.09	93.23	28.69	1,282.88		58.31	92.46%
Dungeness Crab	25.0	6.3	6.3	25.0	6.3	1.93	0.09	0.03	2.75		0.13	107.78%
King Crab	12.5	6.3	6.3	6.3	0.0	3.16	0.14	0.04	1.38		0.06	107.78%
Unknown King Crab	6.3	6.3	6.3	0.0	0.0	3.16	0.14	0.04	1.38		0.06	107.78%
Tanner Crab	75.0	31.3	31.3	75.0	43.8	2,046.00	93.00	28.62	1,278.75		58.13	92.16%
Tanner Crab, Bairdi	75.0	25.0	25.0	75.0	43.8	1,969.00	89.50	27.54	1,230.63		55.94	95.97%
Unknown Tanner Crab	6.3	6.3	6.3	0.0	0.0	77.00	3.50	1.08	48.13		2.19	107.78%
Unknown Crab	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Limpets	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Mussels	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Unknown Mussels	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Octopus	25.0	25.0	25.0	6.3	6.3	253.00	11.50	3.54	63.25		2.88	81.47%
Scallops	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Weathervane Scallops	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Sea Cucumber	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Sea Urchin	12.5	12.5	12.5	0.0	0.0	1.38	0.06	0.02	2.75	GAL	0.13	71.13%
Shrimp	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	LBS	0.00	0.00%
Snails	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%

(Continued)

Table XIV-2. Estimated Harvest and Use of Fish, Game and Plant Resources, Chignik Lagoon, 2003 Study Year

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Vegetation	93.8	93.8	93.8	37.5	43.8	947.83	43.08	13.26				22.90%
Berries	93.8	93.8	93.8	31.3	43.8	909.33	41.33	12.72	227.33	GAL	10.33	22.93%
Plants/Greens/Mushrooms	12.5	12.5	12.5	0.0	6.3	38.50	1.75	0.54	9.63	GAL	0.44	91.82%
Seaweed/Kelp	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Unknown Seaweed	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Wood	31.3	31.3	31.3	6.3	6.3	0.00	0.00	0.00	34.38	CORDS	1.56	55.01%

Note: Harvest amount in individual units unless otherwise specified.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table XIV-3. Subsistence Harvests in Pounds Usable Weight per Person by Resource Category
Chignik Lagoon

	Pounds per Person		
	1984	1989	2003
Salmon	119.75	100.24	195.23
Other Fish	19.26	44.54	47.47
Land Mammals	58.51	36.49	69.23
Marine Mammals	2.94	0.00	0.00
Birds & Eggs	4.61	5.20	1.69
Marine Invertebrates	15.18	20.76	61.82
Wild Plants	*	4.20	13.26
All Resources	220.25	211.43	388.70

* Data not collected for 1984.

SOURCE: Scott et al. 2001; Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table XIV-4. Composition of Resource Harvests by Resource Category, Chignik Lagoon

	Percentage of Total Harvest		
	1984	1989	2003
Salmon	54.4%	47.4%	50.2%
Other Fish	8.7%	21.1%	12.2%
Land Mammals	26.6%	17.3%	17.8%
Marine Mammals	1.3%	0.0%	0.0%
Birds & Eggs	2.1%	2.5%	0.4%
Marine Invertebrates	6.9%	9.8%	15.9%
Wild Plants	*	2.0%	3.4%

* Data not collected for 1984.

SOURCE: Scott et al. 2001; Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table XIV-5. Percentage of Salmon Harvested by Gear Type, Chignik Lagoon, 1984, 1989, 2003

Survey Year	Geartype	Percent of Pounds Usable Weight		
		All Salmon	Chinook	Sockeye
1984	Commercial	56.2%	12.4%	53.6%
	Rod and Reel	1.5%	37.6%	0.0%
	Other	42.4%	50.0%	46.4%
1989	Commercial	36.9%	44.8%	46.9%
	Rod and Reel	11.1%	55.2%	0.0%
	Other	52.0%	0.0%	53.1%
2003	Commercial	35.6%	88.1%	14.8%
	Rod and Reel	4.1%	11.9%	0.0%
	Other	60.4%	0.0%	85.2%

SOURCE: Scott et al. 2001; Alaska Department of Fish and Game, Division o
Subsistence, Household Surveys, 2004.

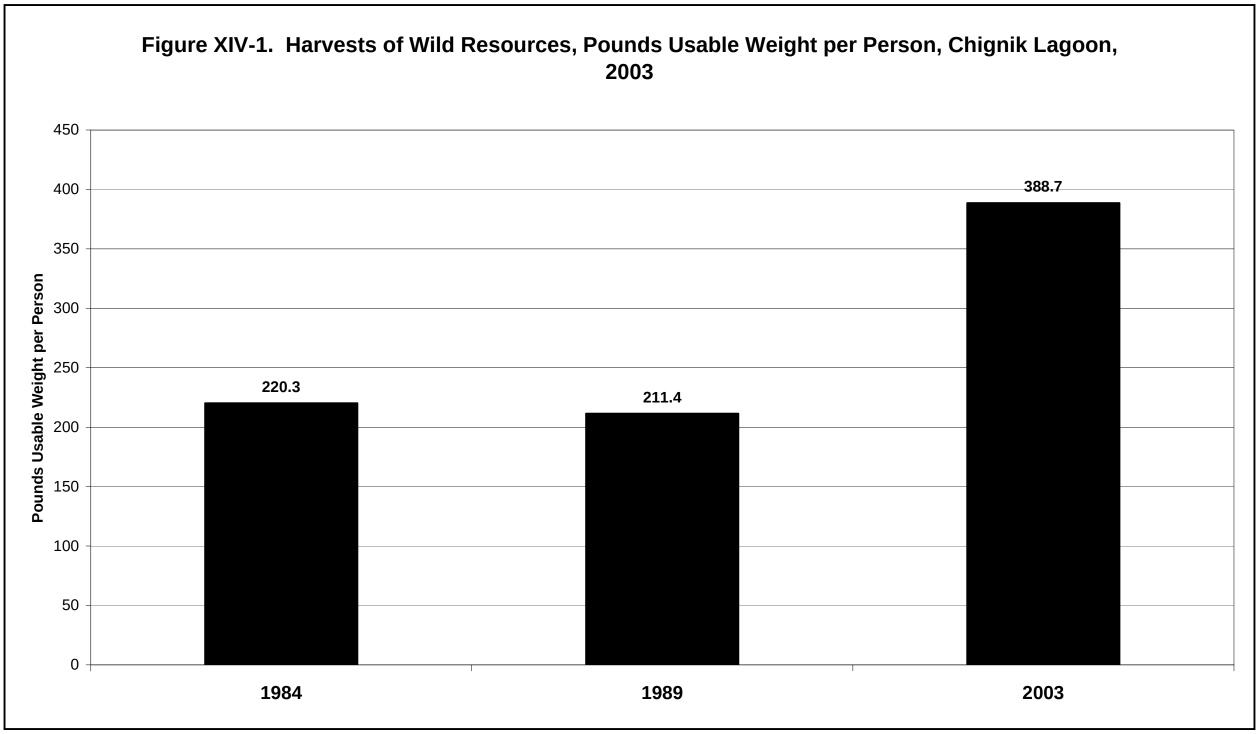


Figure XIV-1. Harvests of Wild Resources, Pounds Usable Weight per Person, Chignik Lagoon, 2003
Pounds Usable Weight per Person
0
50
100
150
200
250
300
350
400
450
220.3
211.4
388.7
1984
1989
2003

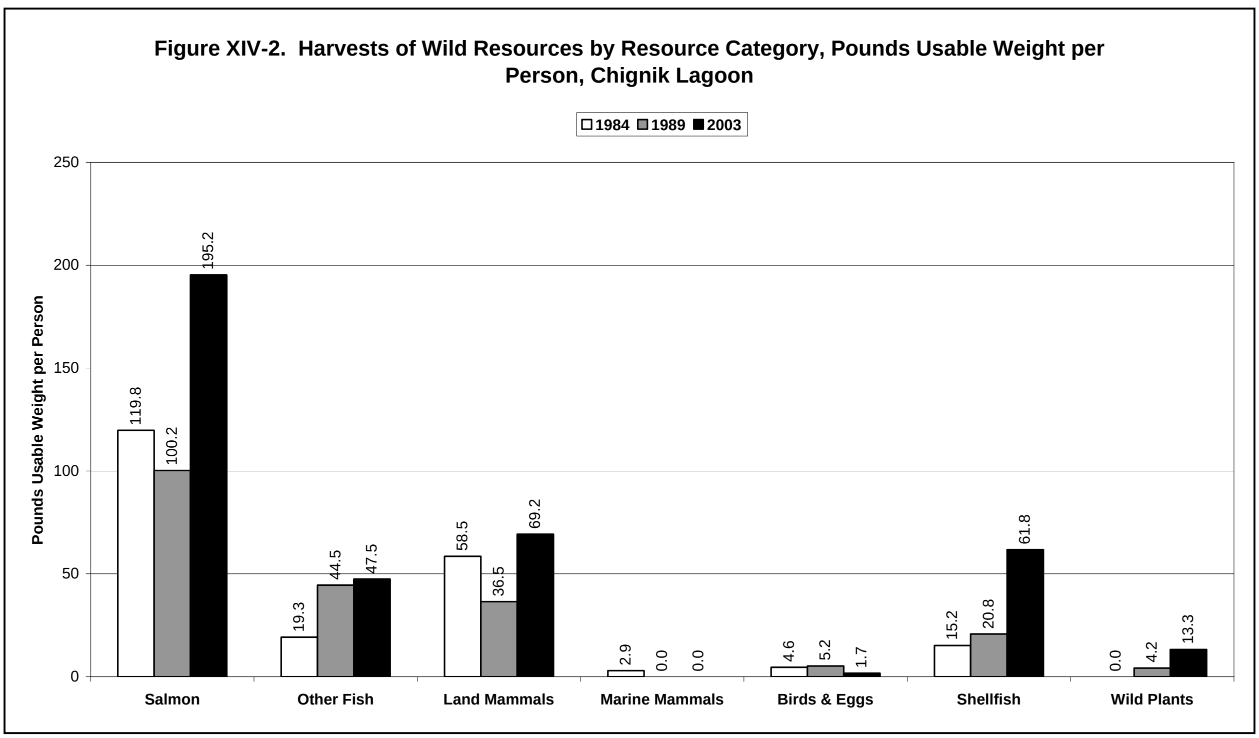


Figure XIV-2. Harvests of Wild Resources by Resource Category, Pounds Usable Weight per Person, Chignik Lagoon
1984
1989
2003
Pounds Usable Weight per Person
0
50
100
150
200
250
119.8
100.2
195.2
19.3
44.5
47.5
58.5
36.5
69.2
2.9
0.0
0.0
4.6
5.2
1.7
15.2
20.8
61.8
0.0
4.2
13.3
Salmon
Other Fish
Land Mammals
Marine Mammals
Birds & Eggs
Shellfish
Wild Plants

CHAPTER XV: CHIGNIK LAKE

by

Brian Davis

COMMUNITY BACKGROUND

The Division of Subsistence, in cooperation with project partner, Bristol Bay Native Association (BBNA), arranged with the tribal council in Chignik Lake for a local assistant to help with the data collection. (See Table I-3) In early February, the Division of Subsistence staff traveled to Chignik Lake and began work with the local assistant designated by the tribe. Working together, they conducted household harvest surveys between February 8 and February 17. The community's annual church fundraiser, the St. Nicholas Ball, was going on February 10-12, which made it difficult to reach some people at home with time to participate in the survey.

The goal was to survey every household in the village that had spent eight months or more in Chignik Lake during the study year (January–December 2003), and did not claim residency elsewhere. The list of households was provided by personnel at the tribal office, with input from the local assistant, determining which households fit the residency criteria. In total, 21 full-time Chignik Lake households were surveyed, a representative sample of approximately 68% of the community's total 31 households (see Table I-4).

Community History

The community of Chignik Lake is located on the Alaska Peninsula, approximately 190 miles (306 km) southwest of King Salmon near the mouth of the lake that shares its name (Fig. I-1). Chignik Lake sits within a narrow pass that leads through the volcanic Aleutian Range from Bristol Bay on the north to the Pacific Ocean side of the Alaska Peninsula on the south.

The Aleutian Range is the primary landform throughout the Alaska Peninsula, containing a dozen volcanoes rising to elevations of 4,000 to 8,000 feet. The region also has many hydrological features, including lakes, streams, rivers, ponds, wetland bogs, bays, lagoons, and tidal flats. These features, combined with high brush and alpine tundra, create the rich habitats that support fresh and saltwater fish, marine and land animals, waterfowl and plants.

The climate of the area is maritime to transitional and influenced by the Pacific Ocean to the south and the Bering Sea to the north. The winds blow almost constantly off of these water bodies and into the pass. The area is named Chignik, which approximately means "windy place" in the local Alutiiq language. Chignik Lake has cool summers and relatively warm, rainy winters. Summer temperatures range from 39 to 60 degrees Fahrenheit. Winter temperatures range from 21 to 50 degrees Fahrenheit. Extreme temperatures, ranging from a low of -12 to a high of 76 degrees Fahrenheit, have been recorded. Precipitation averages 127 inches annually, with an average annual snowfall of 58 inches (Alaska Department of Commerce, Community and Economic Development, 2005).

Demography

In 2003, Chignik Lake had 31 occupied households and the average household included 3.6 individuals (see Table I-8). The total population in 2003 for the community was an estimated 111 people, calculated using the information gathered from the sample of 68% of community households. The 2000 U.S. Census estimate for Chignik Lake was 145, significantly higher than the estimate made during this survey project; it is possible that 30 or more people have moved away from the community over those three years, as many local residents reported, for a variety of reasons, including better job opportunities and access to health care. The 1991 study estimated the population was 131 people, while according to the 1990 U.S. Census the population was 133 people (Figures XVII-1 and XVII-2).

The 2003, Chignik Lake population had an average age of 30.9 years; the oldest person surveyed was 83 years old. The percentage of females in the population was 53.3%, higher than the 46.7% represented by males (see Table XV-1). The 2000 U.S. Census had 51.7% female to 48.3% male, while the 1992 study found the population nearly 50%-50%, male-female.

Economic Overview

Commercial fishing provides the primary income for residents of Chignik Lake. A unique, co-operative commercial salmon fishery was created in 2002, and was in effect for the three seasons between the years 2002 and 2004. Under that arrangement, designated permit holders fished for the total number of permit holders in the management area who signed up for the co-op, to save on operating expenses and to improve marketing. In 2003 there were 6 Chignik Lake households that fished in the co-op. See Chapter XVI for an overview of the Chignik Area co-op fishery.

The school in Chignik Lake also employs a number of people in the community. Other employers include the Bristol Bay Area Health Corporation and the local village corporation. The 2000 U.S. Census stated that the median household wage and salary income was $41,458 with per capita income of $13,843 (U.S. Bureau of the Census 2005).

In addition to the importance of the commercial salmon fishery, most Chignik Lake residents depend on these salmon runs as part of their annual subsistence harvest. Besides salmon, subsistence resources include other saltwater and freshwater fishes, marine invertebrates, marine mammals, waterfowl, land mammals (primarily caribou and moose) and a variety of wild plants and berries.

SUBSISTENCE RESOURCE HARVEST AND USES

Participation in Hunting, Fishing, and Gathering Activities

All of the Chignik Lake households surveyed used at least one wild food resource in 2003, whether they harvested it themselves or received it from someone else (see Table I-10). Chignik Lake households used an average of 18.6 resources per household. The most resources used by a single household was 37, and the lowest number was 3 resources. The average household in the 1991 study used a total of 24 different resources, so the 2003 figures indicate a narrowing of the range of wild resources used for food (Fall et al. 1995). See below, Comparison with Other Years, for more on harvest diversity and range of resources used.

In 2003, about 95.2% of households said that they attempted to harvest at least one wild resource themselves, and the same percentage said that they successfully harvested some wild foods (see Table I-10).

Table XV-2 shows the percentage of households that harvested each particular resource. Berries were harvested by a greater number of households than any other specific resource type; 81% of households harvested at least some berries in 2003. Sockeye salmon (before spawning) were harvested by 66.7% of households, while spawning sockeye, also called “redfish” or “fall fish,” were harvested by 57.1%. Butter clams were another resource harvested by a large number of households(61.9%). Halibut were harvested by 57.1% and wood was harvested by 52.4%. Other resources harvested by more than one-quarter of households included Chinook salmon, caribou, northern pintail ducks, ptarmigan, black chitons (gumboots or bidarkis), and wild green plants.

The “use” of resources by households takes into consideration the fact that some people, who do not harvest themselves, but receive subsistence foods from others. Chignik Lake harvesters shared with other households at a high rate; about 91% of households said that they gave away part of their harvest and 100% of households in Chignik Lake received at least some wild food from someone else (see Table I-10). This extensive sharing of wild foods is common in communities with long traditions of subsistence and household interdependence. The average household received about 13.5 different kinds of wild food resources (see Table I-10). One household reported receiving 27 different resources, the most of any household in the community; one household only received 3 different kinds. The average number of resources given away to others was 9.2; at least one harvesting household gave away none and one reported giving away 20 different kinds of wild food.

Considering the participation of individuals in subsistence activities (as opposed to households), 86.7% of the population attempted to harvest resources (see Table I-9). The participation of individuals in fishing activities was 62.7%, and 29.3% hunted game animals in 2003. Individuals that did not go fishing or hunting themselves participated in the processing of fish and game; 70.7% helped process game meat, and 72% of the people in Chignik Lake helped process fish. Only 2.7% of people went trapping or hunting for small game (a category including wolves, hare, porcupine, wolverine, etc.), and 2.7% helped to process furs or small game meat. The most popular subsistence activity among Chignik Lake residents was plant and berry gathering; 69.3% of the population attempted to harvest wild plants and 65.3% helped process plant foods (see Table I-9).

Resource Harvest Quantities and Harvest Composition

The total harvest of wild food for the community was 29,800.9 pounds (usable weight). With 31 households in the community, the average household harvested 961.3 pounds. With an estimated 2003 population of 111 people, the harvest per capita totaled 255.5 pounds of usable weight. Most of the harvest, as measured in pounds usable weight, was fish. Total per capita harvest for 2003 was 255.5 pounds (see Table XV-3 and Fig. XV-1), of the total harvest, 138 pounds were salmon and 25.7 pounds were other, non-salmon fish (Fig. XV-2). Other important kinds of resources were large land mammals, such as moose and caribou, which constituted 60.6 pounds per capita (23.7% of the total harvest); marine invertebrates contributed 15 pounds per capita (6% of the total); wild plant harvest totaled 8.0 pounds per capita (3% of the total);

marine mammal harvest totaled 4.3 pounds per capita (1.6% of the total); and the bird and egg harvest totaled 3.9 pounds per capita (1.5% of the total) (see Table XV-4 and Fig. XV-2).

The community's total salmon catch for 2003 was estimated at 16,139.6 pounds, for a total of 520.6 pounds per household, or 138.4 pounds per person. Salmon composed 84.7% of the total fish harvest, and 54.2% of the total pounds harvested of all resources. Sockeye salmon made up most (73%) of the salmon harvest, totaling 11,821.5 pounds, or 101.4 pounds per capita (see Table XV-2). Other species of salmon were harvested at these levels: coho 3.4 pounds per person, pink 1.9 pounds per person, Chinook 4.5 pounds per person. No chum salmon were reported by any households. In addition, 3,176.2 pounds (27.3 pounds per capita) of spawning sockeye, or "redfish" were harvested late in the year when the fish are dark red and are moving toward their spawning grounds. The other sockeye, reported above, were caught earlier in the summer before the fish start to change color.

Some fish were removed for home use from commercial catches in 2003 (see Table XV-5). People used commercial nets to harvest a total of 2,624.4 pounds of subsistence fish, totaling 13.8% of all the fish harvested, or 8.8% of all resources combined. Approximately 29% of Chignik Lake households removed salmon from their commercial catch for home use (see Table XV-6). Seventy-one percent of Chignik Lake households used subsistence methods to harvest salmon, the most popular method of obtaining salmon for home use (see Table XV-6). Rod and reel was used by one-third of the households to harvest salmon. Of the fish removed from commercial catches for home use, approximately 74% was sockeye salmon, with the rest split between Chinook salmon, pink salmon, flounder and halibut. More information on subsistence salmon harvest methods follows.

The harvest of fish other than salmon totaled 2,934 pounds, or 25.2 pounds of fish per person. The great majority of this was halibut, of which 2,494.8 total pounds were harvested in 2003 (21.4 pounds per capita). An estimated 103.9 pounds of Pacific cod (gray cod) was also harvested. Each of the following species was harvested in quantities of less than 100 pounds: black rockfish, flounder, Dolly Varden, rainbow trout, and steelhead.

After fish, the second most widely used subsistence resource category was large land mammals. The 7,071 pounds of usable weight contributed approximately 61 pounds per person (Fig. XV-3). Of that per capita total, 27 pounds were moose, 25 pounds were caribou, and 8.6 pounds were brown bear.

Marine invertebrate harvests totaled 1,780.3 pounds usable weight (15.3 pounds per person), approximately 6% of the total wild food harvest. Tanner crab was the most popular marine invertebrate species, contributing 7 pounds per capita. Butter and steamer clams were also harvested, as well as chitons (bidarkis) and octopus.

Chignik Lake households harvested 927.1 pounds of plants and berries in 2003, equaling 8 pounds of vegetable matter per capita. Most of this harvest was berries (6.6 pounds per capita) with green plants composing the remainder. Marine mammals were hunted by Chignik Lake households. An estimated 8.9 harbor seals were harvested, 4.3 pounds per capita; and no sea lions harvest was reported in 2003. The bird and egg harvest was an estimated 452.9 pounds, 3.9 pounds per capita, in 2003. People mostly hunted ducks (all species combined equaled 2.3 pounds per capita) and ptarmigan (1.5 pounds per capita). Other bird harvests included geese and herring gull eggs. Among small, fur bearing mammals, an estimated 3 wolves were taken and used for fur only; no harvests of beaver, fox or hare were reported.

Commercial fishing has been an integral part of the Chignik Lake subsistence salmon fishery for decades. In the past, many households prepared for commercial fishing and subsistence fishing at the same time, and the summer season was organized around both activities. During 2002, 2003, and 2004, the Chignik area commercial salmon fishery was reorganized as a co-operative (Chapter XVI). When the co-op was in operation, coordination between the commercial and subsistence fishing ventures began to break down, and it was difficult for some households to conduct their subsistence fishing alongside, or in conjunction with, the new commercial fishing schedules. Under the co-op agreement some families were no longer actively fishing their commercial permits, and some of these lost the opportunity to combine their pre-season preparations for commercial fishing with their early-season subsistence. The co-op has been controversial throughout its existence, on political, biological, economic and sociological levels, and some Chignik Lake households felt that their subsistence patterns were negatively affected by the arrangement.

Within that historical context, the methods of subsistence salmon harvest can be considered for Chignik Lake residents. These methods included using commercial fishing nets to obtain salmon for home use, subsistence nets (beach seine and set gillnet) and rod-and-reel methods (see Tables XV-5 and XV-6). Measured in pounds of usable weight, most salmon were caught using subsistence set gillnets in 2003 (69.4% of all salmon species). The second most important method was removal from commercial catches (15.9%), followed by subsistence seine (9.4%). Rod and reel fishing contributed 5.3% of the weight of the salmon harvest.

A total of 11,821.5 pounds of sockeye salmon were harvested in 2003 using these methods. Most sockeye were harvested using subsistence set gillnet gear; 8,527.5 pounds were harvested using this method, which constitutes 52.8% of the entire salmon harvest. An estimated 1,939.4 pounds of sockeye salmon was removed from commercial catches for home use, 12% of the entire salmon harvest (all methods).

Participation in removing salmon from commercial catches decreased in the decade leading up to this study. In 2003, 28.6% of households removed salmon from their commercial catches, whereas in 1991 66.7% of households did. Changing and decreasing salmon runs, establishment of the co-op fishery, and the resulting changes in the way the commercial salmon fishery was organized were largely responsible for this decline in participation in this method.

The subsistence salmon fishery had to adjust itself to new biological situations and new management plans. The community seemed to be mostly in favor of, or indifferent to, the co-op fishery, but there were those households that believed the co-op hurt their subsistence salmon fishing to the point that they could no longer harvest what they needed. In many instances, those who reported a decrease in salmon availability were households that were not involved in the co-op fishery, whereas those who see salmon availability increasing were part of the co-op.

Harvest Effort

Changing levels of harvest and use may indicate adjustments to changes in the amount of effort necessary to harvest a particular resource, and vice versa. To better explain the changes in harvest and use, the survey asked respondents whether or not, over the last five years, there had been a change in the amount of effort required to find and harvest certain types of resources (either increased effort or decreased effort). As a follow up, respondents were asked whether one of the following reasons helped explain the change in effort: a change in the distance needed to travel to get the resource, a change in resource abundance or changes in competition, affecting access to the resource. These three reasons were given for effort levels both rising and falling, and additional explanations were provided by many of these households, as well.

Some households reported expending less effort harvesting certain resources (comparing 2003 effort with 1998 effort), but there was no single resource for which a majority of respondents reported expending less effort. For most resources, the responses ranged between "more effort" or "remained the same," with some resources being fairly evenly split between the two. The general perception in Chignik Lake is that populations of fish, caribou, and moose are declining, and subsistence harvesters have to spend more time and go farther to obtain adequate amounts of these resources.

Salmon generally required more effort to access in 2003 when compared to five years before (see Table A-58). Of those respondents that noted a change in effort for salmon, 58.8% said that required effort has increased, 35.3% said effort has remained the same and 5.9% said that less effort is presently required. Those that said more effort is required identified all three suggested reasons as applicable, with diminished salmon populations the most commonly cited reason (80.0% of those that said "more effort") (see Table A-59).

Changes in the way individual Chignik Lake households access salmon greatly affected the results of these "effort" questions. When the co-op fishery was started in 2002, only a portion of local commercial permit holders actually fished, whereas before that time each permit-holding household harvested its own fish and was able to remove fish from their commercial catch for home use. Many households used to organize their summer around both subsistence fishing and commercial fishing, and the existence of the co-op fishery triggered major changes in the methods, timing, techniques and organization of labor by which Chignik Lake households get their subsistence salmon. These co-op-related changes created the context in which the responses to the "effort" questions should be considered.

For example, a "fishing" co-op commercial fishing household may have spent more time and energy during the co-op years to fish its quota, compared to the short duration derby openers of the past. Another household may be spending less if it used to fish for itself but now has pooled its permit with the co-op. Anyone in the community can receive salmon for home use from the co-op regardless of their commercial fishing status, and thus, the effort required to get subsistence salmon may have gone down for households that chose to participate in this method. (These scenarios only involve the harvest of bright sockeye salmon, because the "fall fish" or "spawnout" fishery that occurs in the autumn and early winter takes place after the commercial fishery has closed and would not be affected by the co-op.)

Also relatively unaffected was the way people accessed non-salmon fish like halibut, cod, and Dolly Varden. For these fish, a majority, 69.2% of responses, said the required effort stayed the same (see Table A-61). Marine invertebrates also garnered 66.7% of respondents saying effort stayed the same (see Table A-64).

An entirely different picture emerged when considering the more straight-forward questions of effort required to harvest large land mammals. A large majority, 71.4% of respondents, said that more effort was required in 2003 than in 1998 (see Table A-67). The reasons given for this assessment were 100% for increased travel distance and decreased resource abundance and 70% for increased competition (see Table A-68).

These same stressors produced a different reaction than the one described above in that certain households reported spending less effort hunting large game (see Table A-69). The increased travel distance and diminishing populations discouraged them from making the effort in 2003 altogether, and less effort was expended. In this way, two different "effort" situations emerged out of the same unfortunate circumstance, as access to the caribou herd diminished, and caribou hunting households were struggling, or flatly unable, to meet their subsistence needs in 2003.

Comparisons of Harvest and Use With Other Years

The survey asked the respondents whether or not their use of each particular resource category had changed over the last five years, either going up, down, or remaining the same. A follow-up question asked about changes in use and harvest over a 15-year period between 1988 (year before the *Exxon Valdez* oil spill) and 2003. These questions were designed to assess whether subsistence resource harvests and uses have continued to rebuild and recover as the years accrue from the time of the spill. While the simple answers to these questions might give a general picture of the way subsistence has recovered since the time of the spill, other intervening factors affect quantitative changes in use, and these were reflected in the responses. The existence of non-spill and non-environmental factors (personal matters, local employment, changing demographics, etc.) prevented a clear understanding of the way environmental, social and cultural elements of subsistence are recovering from the effects of the spill.

Measuring the percentage of responses for each answer ("more", "same" or "less") provided a general understanding of the way subsistence recovery progressed over that five-year period (see Table A-1). Regarding salmon use, 28 households gave valid responses to the "use" question and 3 households did not answer the question. Their responses were almost evenly spread out across the three possible responses. One-third each said their harvest and use stayed the same, decreased, and increased compared to five years earlier (see Table A-1).

For those that said their harvest and use of salmon had increased over that time, the reasons included changing household size (e.g. more kids), less caribou meat available, and more opportunity because of the way co-op salmon are made available to community members. Less use of salmon was attributed to a decrease in the abundance of salmon, more time taken up by work, therefore less time, for fishing, as well as increasing age and poor health (see Table A-2).

The use of many resource categories remained the same over that time, according to a majority of Chignik Lake households: small game and furbearers, marine mammals, birds and eggs and wild plants all received between 62% and 71% of responses saying that their use had remained relatively unchanged between 1998 and 2003 (see Tables A-13, A-16, A-19, and A-22, respectively). Non-salmon fish, marine invertebrates and large land mammals were also reportedly used by a majority of households at a level similar to five years before (see Tables A-4, A-7 and A-10, respectively).

The 20% of households that did not answer the question pertaining to large land mammals (see Table A-10) reduced the accuracy of the measures for caribou, which, by most other accounts, was likely used less in 2003 than in 1998. In addition, caribou populations were so depressed by 1998 that any indication that caribou use had remained "the same" since that time does not mean that the situation is satisfactory, but in fact "still depressed" and unavailable.

When the household was asked about their overall subsistence harvest and use, the majority of responses indicated that they were using less than they did five years previously (see Table A-25). Most respondents referenced declining caribou populations as the reason for declining use (see Table A-26). This is inconsistent with the responses to use-and-harvest questions specific to large land mammals (see above). It can be inferred that the 20% of households that did not answer the large land mammal use-and-harvest question were in fact harvesting fewer, to some degree. This inference is supported when the 2003 harvest information is compared with past survey data with significant decreases over that time.

The survey also offered a glimpse at the longer-term changes in household harvest and use. When respondents were asked whether or not their subsistence use of different resources had changed since 1988, the year before the oil spill, the trends are clearer. A majority of households said that in 2003 they were using less salmon (see Table A-28), marine invertebrates (see Table A-34) and large land mammals (see Table A-37) than they were in 1988; no one said they were, at present, using more of these resources, but some did say their use was about the same.

Eighty-three percent of households said their use and harvest of large land mammals—primarily caribou—had decreased since 1988; the greatest consensus for decreased use of any resource. People indicated that caribou population had been diminishing steadily since the time of the oil spill, but no one believed the oil spill had any effect on caribou populations (Table A-39).

Households offered some reasoning as to why they are using less of these resources. Salmon use decreased because of diminishing salmon returns, which was at least partly attributed to the effects of spill contamination on salmon populations. Overharvest by commercial fisheries, including the local co-op fishery, was also blamed for interfering with the subsistence harvest. Some households offered no reasons why their salmon use has diminished (see Table A-29). Although respondents mostly said that marine mammal harvests were the same in 2003 as 1988, there were a number who voiced their concerns about the decreases in the numbers of harbor seals and Stellar sea lions in the area that they had observed.

Most interviewed households that reported diminished levels of use of marine invertebrates did not offer an explanation for their reduction in use. Table A-35 shows the reasons people gave for their reduced harvest and use in 2003 compared to 1988. Interviewed households that did offer explanations for their reduced use of marine invertebrates equally cited spill contamination, access to the resources, abundance issues, and the age and health of the respondent as reasons for changes in use.

The total harvest of wild food for the community was 29,800.9 pounds, 961.3 pounds per household and 255.5 pounds per capita. These figures are lower than those for 1991, where the per capita harvest estimate was 442.4 pounds, and the average household harvest was 1,751 (Fig. XV-1). This decrease in per capita harvest represents a 42.2% reduction in the amount of subsistence food, per person. The 2003 harvests were also lower than the findings from 1989 (per capita harvest 453) but fairly close to the 1984 harvest estimate of 279 pounds per person (Fig. XV-1). The diversity of resources used also narrowed between 1991 and 2003. In 1991, the average household used 24 different species, while in 2003 that number had dropped to 18.6 (see Table I-10).

Salmon harvest decreased 32%, from 203.7 pounds per capita in 1991 to 138.4 pounds in 2003 (see Table XV-4 and Fig, XV-2). Non-salmon fish harvest was down 39.5% (a per capita reduction of 16.4 pounds) and marine invertebrate harvest was down 26.4% (5.5 pounds less per capita). The 2003 harvest of large land mammals was only 60.3% of the 1991 harvest (91 pounds per capita, down from 152 pounds). Marine mammal harvest was up 2.9% in 2003 compared to 1991. The harvest of wild plants and berries went up by 23.3%, but the harvest of birds and eggs decreased by 70.5%, from 13.2 pounds per capita in 1991, down to 3.9 pounds in 2003 (see Table XV-4 and Figure XV-2).

The decreased harvests of salmon and caribou, in particular, had a significant effect on the subsistence economy of the average household in Chignik Lake. Between 1991 and 2003, despite small increases in the marine mammal and wild plant harvests, the large decreases in salmon and caribou harvests drastically reduced the amount of subsistence food available to the average household.

The dependence on salmon retained from commercial nets diminished in Chignik Lake compared to the 1991 study year. In that year, 23.3% of all salmon harvest came out of commercial nets, while in 2003 only 15.8% did. This corresponds with a relative increase in the importance of subsistence methods for salmon, where the contribution rose from 68% in 1991 to 78.9% in 2003. The contribution of rod-and-reel fishery, however, decreased from 8.4% in 1991 to 5.3% in 2003.

The establishment of the co-op salmon fishery had an impact on the percentage of households that kept salmon out of their commercial catch, but participation in the other methods remained close to levels measured in 1991. The percentage of households keeping fish out of their commercial catch decreased significantly from 66.7% in 1991 to 28.6% in 2003. Subsistence methods, such as beach seine and set gillnet, were practiced by about 71% of households in both 1991 and 2003, and rod and reel method was used by approximately 35% of households in those years (Chapter XVI).

In the above discussion, Chignik Lake households compared their use and harvest of resources in 2003 with that of 1998, and in many instances said that their harvest and use had been “about the same” over the recent five-year period. When asked to compare their 2003 harvests with those of 1988, the year before the oil spill, most households (40% of those responding to the question, see Table A-55) reported a decrease leading up to 2003. Many indicated that the decrease was significant. Comparing actual harvest data for 2003 with those from 1991 gives an approximate, quantitative summary of the decline noted by respondents. And based on the survey responses to the “more/less/same” comparison questions, it can be inferred that most of the serious decline in harvest and use probably occurred before 1998, especially for caribou, which was a significant source of meat in earlier years. After 1998, subsistence levels remained at that diminished status during the next five years leading up to this study.

Participation levels (measuring the percentage of the population that attempted to harvest) were still high, even increasing, despite large downturns in the harvest (see Table I-9). In 1991, 55.8% of individuals attempted to harvest fish, but in 2003 it rose to 62.7%. The percentage of people hunting stayed nearly the same (around 33% of households), despite dramatic decrease in local caribou populations, which has discouraged hunters. Attempts to harvest any resource were made by 79% of the population in 1991, and in 2003 it went up to 86.7%. It would follow that effort would also be increasing, which was indeed demonstrated by the data described above. Over the past decade, the residents of Chignik Lake made extra effort to harvest subsistence foods, yet their harvests diminished. Local perception in 2003 was that salmon runs were less abundant than in the recent past, and that caribou populations were all but extinguished, and without these two important resources the subsistence use of the average household in Chignik Lake was dramatically affected.

NATURAL RESOURCE CONDITIONS

Food Safety

After the spill, people in the affected area became wary of contaminated habitats where subsistence resources live and grew cautious about the purity of the resources themselves. The presence of oil on beaches, in the water column, and on animals created concern among subsistence users that their wild foods would be inedible because of oil contamination. While many people in Chignik Lake said that the direct effects of oil were not felt very strongly in their immediate area, a number of people believed that the harm done by the spill has radiated into the environment, affecting animals, fish, plants and habitats in many different forms. For these individuals, the effects of the spill are a continuing problem.

For example, during this study, individuals in Chignik Lake described the dying-off of birds, crabs, and sea otters that they had observed over the twelve months after the spill. One individual described mass-death of sea ducks, ravens, and gulls around Chignik, as well as on the Bristol Bay side of the Alaska Peninsula near Ilnik. Others described the appearance of strange cysts on the flesh, skin, and organs of salmon, noticed in 1994-1995. People avoided certain subsistence foods for at least part of one year (for some resources, up to 8 years) for fear of ingesting oil residues, or eating the flesh of animals that were contaminated or diseased or otherwise suspicious.

The phenomenon of “burned fish” came up during the interviews and discussions in Chignik Lake. Individuals reported that, since the spill, they have harvested salmon with flesh that looked as if it had been boiled or suffered some kind of chemical burn. These and other specimens had red or white cysts inside the body, on the flesh, or an unusual yellow coloration along the belly. One person said he collected a specimen of a fish with both male and female sexual organs; he collected this and other diseased specimens between 1994 and 1995 and gave them to the Alaska Department of Fish and Game (ADF&G) employees at the weir (on Chignik River), but never heard if they had been analyzed or if anything had been learned from the samples. [1]

With time, presence of oil in the local environment diminished, but concerns for food safety have remained. In 2003, some people still had reservations about eating certain wild food, and for some their fears caused them to examine their harvests with extra care. For some, these concerns can be linked back to the harmful effects of the oil spill.

Despite the concerns voiced during the interviews by multiple households for different species, the survey data do not document any great concern about food safety among Chignik Lake households. This could be related to the emotional reaction that individuals had to the very direct way the survey questions were asked and a fear to commit themselves to a negative answer. Respondents said that, in general, the resources were safe in 2003, but that one must watch carefully for diseased or contaminated specimens which are not safe and should not be eaten.

The survey asked specifically about the safety of certain subsistence foods: herring, seal, chitons (bidarkis), and clams. The responses to these standard questions are shown in Tables A-

[1] According to Chignik Bay residents, this type of interaction with ADF&G is not uncommon. Local people might be forthcoming with questions and concerns about the resources but they report that in the past these contributions have been met with skepticism by resource managers.

458 through A-465. The only resource which garnered a single “not safe to eat” response was clams (about 5% of responses) (see Table A-458).

Chignik Lake households believed that seal are safe to eat (see Table A-464). Of those who responded, 78.9% said seals were safe to eat, none said they were unsafe, and 21.1% said they were not sure. The percentage of responses that seals were safe to eat approximates the percentage of households that use seal, and the percentage that said “not sure” approximates the percentage of households that do not eat or use seal. (see Table XV-2) Seals are occasionally found to be “sick” or diseased, and these animals are not considered safe to eat. One respondent said that if a seal is especially thin, without much blubber, then it is probably sick. Worms in the gut or white spots on the liver, are also signs of disease or infestation. Although several people said they watch out for sick seals, no one implied that the number of sick animals increased after the spill, or that these conditions might have resulted from environmental contamination.

A majority of households, 84.2%, said that clams were safe to eat, while 5.3% (one household) said they were unsafe, and 10.5% said they were not sure (see Table A-458). The single respondent who said clams were unsafe did not give a reason (see Table A-459). Chitons were called safe by 89.5% of households (see Table A-460).

From a statistical point of view, there was not a significant concern in Chignik Lake that in 2003 the effects of the spill were directly affecting the safety of subsistence foods. Most people did not believe that spill contamination has rendered subsistence resources inedible in the present (2003), although for some time after the spill many resources were avoided for fear of sickness. This kind of contamination, perceived to have existed in the past, was believed to have dispersed or lessened somehow. However, as described above, there were at least some households in Chignik Lake who believed that the spill was responsible for long-term downturns in salmon physiological health, and simply because they are in the minority does not mean their observations are invalid. There were two reports of deformed, diseased, or otherwise abnormal salmon entering the Chignik area during the years after the spill, although not everyone making these reports was prepared to ascribe the cause to spill contamination. Respondents were open with their particular observations of injury and suspicious conditions in the resources, but less ready to go on record with explanations for these changes, as the survey would have them do.

Despite few people saying that foods are unsafe to eat because of the spill, many people do believe that spill contamination had some effect on the wildlife and habitats in the Chignik region. Instead of rendering the food inedible, however, the perception is that spill contamination injured the long-term health of the populations in general, resulting in lower numbers of salmon, seal, sea lion and other resources.

To further complicate understanding of the situation, there was some inconsistency between the way households answered the food safety questions and how they responded to other parts of the survey. For example, one household (14.3% of those that answered the question; see Table A-35) in Chignik Lake said that its harvest of clams has decreased due to concern about the safety of eating the resources. But when asked if clams were safe to eat, this household answered “yes.” The direct question about shellfish safety (see Table A-458) did not draw a single comment that clam safety was currently at risk by spill contamination (see Table A-459). Therefore, while one set of answers might show a lack of concern for a resource’s health and condition, another might present a slightly different picture.

Status of Resource Populations

Much of the data in this chapter indicate that subsistence resource populations are stable, at least over the years 1998 to 2003, that people are getting enough subsistence foods and that they are confident in the safety of those foods. But the survey asked the question, "Have subsistence resources recovered since the oil spill?", and a majority of respondents answered, "no" (55.6%)(see Table A-82). Some people who gave this response had previously reported decreasing salmon populations and a "not sure" response to that decrease's connection to the spill (see Table A-102), similarly for marine mammals (see Table A-325). In the final analysis, it seems that more people actually saw connections between the spill and long-term decline of resource populations (at least in their co-occurrence) than what was reported on the questions regarding specific resource availability.

Within Chignik Lake, there are a number of different opinions regarding the status of subsistence resource populations. People are very observant of the animals, fish and plants that constitute the basis of their subsistence livelihood. Their perspectives differ, however, based on factors such as their duration in the community, their level of harvest, the species they focus on as well as factors related to access. From house to house, people in Chignik Lake presented their ideas about the health of resource populations, the availability of different species and the reasons why they think these changes occurred.

Households were asked whether or not the availability of certain subsistence species from their area changed over the five-year period between 1998 and 2003. The observations and opinions of the respondents varied, some noticing significant decreases in some resources, and some reporting healthy populations, or even increases, for the same resource. This diversity shows the wide range of experience in Chignik Lake, so much so that very few clear trends emerged from the interviews. The diminishing caribou population was the only clear trend, noted by a nearly all the respondents.

The survey form asked for general assessment of the availability of each of the five species of salmon, herring, black rockfish, halibut, caribou, moose, waterfowl, shellfish, plants and other resources. For each response that indicated either increased or decreased availability, the respondent was asked for information explaining the assessed change.

Table A-99 shows the responses to these questions of salmon availability for the five-year period. Chignik Lake households, for the most part, believe that salmon availability remained about the same between 1998 and 2003; a majority of the respondents held this opinion for all species. Sockeye salmon still had a substantial number of responses that it is "less available" (41.2%), more than any other species of salmon. As discussed above, the diminishing salmon runs--particularly for sockeye--is the main reason for overall decrease in subsistence salmon harvests (as opposed to increasing competition, increased travel distance, or personal matters). The survey attempted to document local understanding of this decrease by recording people's explanations for the changes in availability.

Several people said that the decrease in salmon availability is directly related to the oil spill, while others were unsure of the connection between the two (see Table A-102). The co-op fishery was also seen as an impediment to a number of households, citing a long commercial fishing season and nets that choke off the Chignik River system below Chignik Lake. Many people said they did not know why salmon were decreasing.

A few respondents said they had seen an increase in the availability of certain salmon species, most notably Chinook salmon (see Table A-99). Some people said that changes in the commercial sockeye fishery (establishment of the co-op and adjustments in escapement requirements) created an increased availability for certain species, i.e., the co-op allows community members free access co-op caught salmon upon request. Several people said, that because the co-op did not target Chinook or coho salmon, their numbers are increasing. Some said that natural fluctuations had created an abundance in recent years (see Table A-100).

The answers to these questions of “more”, “same”, or “less” availability do not express the views of the community in their entirety or their complexity. For example, some of the increase in salmon availability over the period 1998 to 2003 was seen as a partial trend in the recovery of a population diminished by the effects of the spill. Some respondents explicitly stated that salmon populations went down right after the spill, and as of 2003 were still gradually recovering, and thus, “more available” than in the recent past.

Some people said that salmon populations were the same as they were in 1998, which happened to be at the depressed level of the 1990s after the spill. Therefore, an answer of “same” distorts the respondents observation that the populations are lower than they used to be before 1989.

For those who said salmon availability had decreased since 1998, competition from the co-op, and environmental factors (e.g., natural fluctuations, long-term ecosystem effects of spill contamination) were suggested as possible explanations (see Table A-101), but many people did not give explanations for their observations of salmon decrease. As stated above, while respondents were ready to report changes in a resource, they were not so ready to give explanations for the change. When asked whether the immediate reasons for the diminishing salmon runs were related to the spill, most respondents hedged and said they did not know. (Some respondents later contradicted themselves in statements that did suggest they attributed most, if not all, of the decline to the long-term effects of the spill: some of these included responses that said “subsistence resources have not recovered from the effects of the spill”. This means that the number of people who believe the oil spill is partly to blame for salmon population declines are most likely underestimates (see Table A-102 and Table A-29].

Other observations came to light in the respondents’ general comments. Particular individuals criticized the co-op commercial fishery, and ADF&G’s management of the fishery, for its schedule and the escapement requirements for openers. Specifically, people said that the season in the lagoon started too early (in June) and was allowed to go too late (through September), concurrent with the preferred subsistence schedule. More than one respondent said that the co-op fishers would sometimes block off the river completely with their nets, preventing any salmon from going through, and generally take too many fish, threatening the continued success of the run.

Other respondents said that the commercial trawl fishery (the ocean fishery, not the co-op fishery in Chignik Lagoon) was responsible for salmon declines; one person said that they have seen marks on the salmon skin that indicate they have been tangled in a trawler’s net. Excepting these statements, there were still people who were at a loss as to why their subsistence salmon fishery was in decline, or they were reluctant to attribute the decline to any specific set of problems.

One problem with these questions lies in the fact that 15 years had elapsed since the oil spill and during that time many factors intervened in the lives of people that were affected by the spill. People in Chignik Lake had to adapt to the evolution and overhaul of the commercial salmon and halibut fisheries, social and economic changes, and concerns about environmental changes all the way from beaver dams to El Nino. Given the complexity of the natural and human environments, it is no wonder people had a hard time narrowing their focus to one or two possible explanations.

Generally, Chignik Lake households observed between 1998 and 2003 an unchanging availability of herring, halibut and rock fish (see Table A-159); as well as of chitons, clams, octopus and sea urchins (see Table A-215). Dungeness crab were considered to be less available by a majority of respondents (53.8%) (see Table A-215), and some of them said that the commercial crab and trawl fisheries were impacting their populations (see Table A-217).

Both moose (60.0%) and caribou (87.5%) were observed to be less available than in 1998 (see Table A-270). The caribou population at Black Lake on the Alaska Peninsula decreased in recent years, and the loss of this important source of meat definitely hurt the households of Chignik Lake. Table A-271 shows that of those who responded to the question, half believed that "environmental" factors are responsible for this decrease in caribou availability. These factors include decreases in browse vegetation, possible contamination through the food chain, and predation by wolves. Some thought that competition and the effects of overhunting by trophy hunters limited moose and caribou numbers. Additionally, a few households said that poor management and regulations (referring to the restrictions and paperwork requirements of the Tier II hunt) are interfering with local access to caribou.[2]

For moose, 33.3% of responses indicated both competition and environmental factors as creating decreased availability; these would include overharvest by trophy hunters and subsistence hunters as well as predation by wolves. The remainder gave no reason for decreased moose availability (see Table A-271).

Most people believed that marine mammals were less available than they were in the past (see Table A-322). For harbor seals, 37.5% of households said they were less available than in 1998, and Stellar sea lions were said to be fewer by 72.7 % of the respondents.

Here is another example of a long-term trend being masked behind answers to a short-term question. Among the respondents who said harbor seal populations had remained the same since 1998, several qualified that assessment by saying that their populations plummeted after the oil spill and have not recovered since 1989, including the years between 1998 and 2003. Thus, their assessment of "same" availability actually means a continuation of the depressed numbers noticed after the spill. Similarly, those saying there are more seal meant to say that the devastatingly-low populations are slowly starting to increase but have not come close to the pre-spill populations levels.

Similar responses were given for sea ducks. The availability of sea ducks was said to have remained stable since 1998 (see Table A-377), but several households qualified this assessment by saying that they are only "gradually coming back" after being nearly depleted immediately after the spill. Several individuals described the death of sea birds in the oil spill's aftermath, and their concern for lingering effects in bird populations showed through in their assessment of their present populations.

Habitat Changes

Changes in the tundra habitats in the mountains near Chignik Lake were a major concern for caribou-hunting households in that village. When asked if they had observed any changes in

[2] In 1999, in response to continued decline in the Northern Alaska Peninsula Caribou Herd population, a Tier II hunt was instituted which required Alaska residents to fill out detailed applications, which are then scored and permits awarded. Also, the bag limit for caribou in 9E near Chignik Lake was reduced from 4 caribou per year to 1 per year.

habitat or environmental conditions in their area, half of Chignik Lake households said they had and half said they had not.

Table A-456 shows that 88.9% who answered that question affirmatively described the kinds of changes related to habitat, specific biological and ecological changes noticed around Chignik Lake, Black Lake (which drains into Chignik Lake), and the tundra surrounding these (discussed in detail below). Some responses describe changing river channels at Scow River (one of the rivers above Black Lake), and diminished water levels in Black Lake and Chignik Lake. In addition, water was backing up and flooding the tundra habitat around Black Lake, impacting the vegetation there and driving away the caribou herd that feeds there.

Beaver dams were implicated by Chignik Lake residents as the cause of the flooding. Beavers have been in the area for at least 40 years, but in the past, their dams were regularly torn down by Chignik Lake residents. However, this had not occurred in the five years or so before 2003. One individual said that 1995 was the last time a beaver dam had been removed from the streams around Black Lake. Some said that the lichens and vegetation were not able to live in the waterlogged environment, thus pushing caribou out of the area, which had been a traditional hunting ground for Chignik Lake residents for generations. While some individuals talked about the problems of overhunting by non-local hunters, many Chignik Lake residents viewed changes in habitat as being directly related to the decreasing caribou population.

Related to the decreasing lake levels, some respondents said that grasses are filling in the lake shores, as well as the soils near the outlet of Chignik Lake and the headwaters of Chignik River. This situation might impact salmon runs if the vegetation interferes with passage through the waterways.

SOCIAL AND ECONOMIC CONDITIONS

Food Purchases

When subsistence harvests or sharing decrease in a community, it might be necessary for households to buy subsistence foods that they normally get for themselves or receive from others as a gift or in trade. When asked if their household had purchased subsistence foods (wild meat or plants—not "store-bought" foods) in 2003, 89.5% of respondents that answered the question said "no," and the remaining 10.5% said "yes" (see Table A-475). The resources purchased in 2003 included salmon, halibut, harbor seal and crab.

A similar question asked whether or not the household had to purchase store-bought food to replace subsistence food in 2003. Table A-477 shows that a majority of Chignik Lake households had to substitute some store-bought food for subsistence food (57.9% of those that answered the question). The reason for this is reflected in Table A-478, showing 44.4% of households that answered the question are using less subsistence food than compared to the previous five years previous. The types of subsistence resources that required substitution included fish and birds, but it was primarily a lack of caribou meat that caused the shift to store-bought food.

Sharing of Subsistence Resources

Sharing is an important component of the local subsistence pattern. "Sharing" refers to the giving and receiving of wild food between households, "from kitchen to kitchen" rather than having people over for a cooked meal. The survey asked the respondent if their household has experienced “more,” “less,” or the “same” amount of sharing over the past five years. In Chignik Lake, 63.2% of those who answered the question said that sharing has remained the same (see Table A-472). More sharing was reported by 21.1%. These households mainly referenced a greater demand by extended family members and kids that have left the home (see Table A-473). Less sharing was reported by 15.8%, and these cited diminished resource populations as the main reason (see Table A-474).

While sharing activity remained stable for the most part, the decrease in local caribou populations, the changes in household subsistence salmon fishing that accompanied the advent of the co-op salmon fishery, and changes in community and household populations seem to have had some limited effect on the sharing pattern in Chignik Lake.

Young Adults’ Learning about Subsistence Activities

This survey question was designed to gauge the level of young people participating in subsistence activities. Respondents were asked whether or not they believed young people are learning enough subsistence skills. In Chignik Lake, of those who answered the question, most answered “no,” young people are not learning enough subsistence skills (61.1%, see Table A-466). Those who answered in this way cited lack of interest on the part of youth, a lack of teachers, changes in the community way of life, and the simple fact that young people are distracted by too many other activities to devote the attention to learning and participating in subsistence activities (see Table A-467).

Some respondents made pointed comments about the lack of youth participation. Several people said that “too much TV” takes away from the time and attention that young people might be spending on subsistence activities.

Environmental factors and the status of the resources themselves are also having a negative impact on youth involvement in subsistence. Some noted that resource scarcity, the challenges in finding them, and increased effort required to harvest them, have also discouraged young people and played a part in restricting their continued participation beyond one or two failed attempts.

It is a fact of modern life that the diversions of TV and video games, along with other entertainments, occupy some amount of time in any young person’s day. School work and extra-curricular activities like sports and clubs also keep them busy. In addition, it appears that many young people in Chignik Lake are involved in helping their families with subsistence harvests and food preparation. Thirty-nine percent of the responses indicated that they are learning enough subsistence skills. The opinion of the community was divided, however, as to what level of participation is sufficient. The data presented here indicate that, while some households were satisfied with their children’s involvement in subsistence, the majority wish they were more involved.

Elders' Influence

Along the same lines, the survey asked the respondents' opinions on the current role of elders in teaching subsistence practices and values in the community. The question asked whether or not elders were contributing "more," "less," or the "same" amount of knowledge as compared to the previous five years.

Among those who answered this question, the responses were fairly evenly divided. Most said that the level of involvement of elders in the community stayed about the same since 1998 (38.9%), some said it was less (33.3%) and a minority said that elders were more involved in 2003 than they have been in the previous five years (27.8%) (see Table A-469). Individual households naturally differ in their interactions with elders, and the way they perceive the quality of that interaction also makes their responses especially subjective.

Those that said, in 2003, elders were involved in teaching subsistence skills and values thought that elders had become more active (20.0%), and that society allowed their influence to grow (20.0%) through involvement in schools and tribal activities, etc., which are now considered okay (see Table A-470). The comments indicated that, at least in some parts of the community, there was a healthy respect for subsistence traditions and an *esprit de corps* in which elders show and share their experience with the younger generation. These households expressed optimism about the continuation of subsistence traditions into the future and confidence in the abilities of their young people to carry on those traditions.

Other respondents were more pessimistic, however. Some said that elders' influence had diminished because of increased social separation between youth and elders (see Table A-471). These views were also expressed and discussed in the responses to the earlier question about young adults and subsistence. The responses relating specifically to the questions about youth indicated that things like television, video games, and other forms of recreation were constricting those inter-generational relationships and threatening the continuation of subsistence traditions in the community.

Status of the Traditional Way of Life

When subsistence harvests declined, or in some cases, temporarily ceased, after the spill, many people worried that the traditions, knowledge and values of the subsistence way of life would suffer from a lack of practice. The survey tried to determine whether people thought, first, that the traditional way of life was negatively impacted by the spill, and second, whether they thought there had been progress to reclaim and restore some of those components of their community's traditional society.

The respondents were asked for a simple "yes" or "no" answer to these questions, the results of which are shown in Table A-479. In Chignik Lake, 93.3% of those who answered the first question said, yes, the traditional way of life was affected by the spill. Of those who did observe an impact, the majority (53.3%) believed that a full recovery had not yet been achieved; 33.3% said that for the most part the traditional way of life had recovered; and 13.3% said they weren't sure or did not feel prepared to answer.

Respondents understood this to be an overly simplistic question meant to illuminate a very complex situation. Some of them responded emotionally to the question. Much had happened in the community over the 15 years since the spill, especially shifts in the social, economic, and environmental situations associated with changes in the commercial salmon fishery. In addition, the simple matter of so much time lapsing since the spill may have impaired people's understanding of the oil's effects. These two factors made it rather difficult for people to sort out what changes over the last 15 years might be attributable to the spill.

Despite all this, after some discussion with the surveyor, many Chignik Lake respondents were able to give a yes or no answer. Many of the positive responses were tempered with comments like, "I'm not really sure, but I guess it has recovered," or, more often, "Some things have recovered, but others haven't." A few responses indicated that the injury to the traditional way of life is permanent and cannot be undone, while others thought that progress was being made in rebuilding and restoring subsistence activities to the way they used to be. Most respondents acknowledged that the community itself has changed over the last 15 years, in ways both related and unrelated to the effects of the spill.

EVALUATION OF THE GEM PROGRAM

The survey asked respondents for their general understanding and assessment of the *Exxon Valdez* Oil Spill Trustee Council and its Gulf Ecosystem Monitoring Program (GEM). In general, the households in Chignik Lake felt they were uninformed about either the Trustee Council or the GEM program. Over one-quarter (28.6%) of respondents said they were not familiar with one or the other, or both, of these organizations. Of those that were familiar, a great majority (84.6%) said that they do not feel adequately informed about the work being done by the Trustee Council or under the GEM program (see Table A-482). There were a few suggestions to help improve this situation, but most who said they were not well informed offered no suggestions for improving communication (see Table A-483).

A similar pattern was seen when asked about the involvement of the Chignik Lake Tribal organization in the GEM program. A third of the households said, again, they did not know enough about the GEM program to answer. For those who did answer, 75% said they think their tribe is not adequately involved in the work of the GEM program (see Table A-484), and most of these (66.7%) said that methods to improve communication within the tribe and among local residents was the preferred way to make the tribe more involved (see Table A-485).

Several Chignik Lake households were concerned that, in their view, the Trustee Council was not doing enough to elicit input and cooperation from the people living in the spill affected area. Others blamed their tribal councils for not maintaining lines of communication and community involvement. Others seemed ambivalent about the entire enterprise. The consensus was that the Trustee Council's presence is not greatly felt in Chignik Lake, and that much work needs to be done if that community is to become fully vested in the Trustee Council's work.

DISCUSSION AND CONCLUSIONS

The residents of Chignik Lake have seen many changes in their community since 1989: the *Exxon Valdez* oil spill, the subsequent downturn of commercial fishing returns and profits, the creation of the co-op fishery, fluctuations in marine mammal, sea duck, and salmon populations, and a drastic decrease in the number of caribou at the hunting grounds near Black Lake. The face of the community has changed, as well, with people moving away from the village, elders passing on or moving away and adults vying with entertainment technology for the interests of their young people. Despite these changes, the data collected in this survey show that subsistence hunting, fishing and gathering are still an integral part of life in Chignik Lake.

The community has shown resilience, withstanding the waves of social, economic, and environmental change that threaten to undermine the foundation of its subsistence tradition.

Table XV-1. Population Profile, Chignik Lake, 2003 Study Year

AGE	MALE			FEMALE			TOTAL		
	Number	Percent	Cum. Percent	Number	Percent	Cum. Percent	Number	Percent	Cum. Percent
0 - 4	0.00	0.00%	0.00%	1.48	2.50%	2.50%	1.48	1.33%	1.33%
5 - 9	7.38	14.29%	14.29%	4.43	7.50%	10.00%	11.81	10.67%	12.00%
10 - 14	10.33	20.00%	34.29%	11.81	20.00%	30.00%	22.14	20.00%	32.00%
15 - 19	7.38	14.29%	48.57%	8.86	15.00%	45.00%	16.24	14.67%	46.67%
20 - 24	1.48	2.86%	51.43%	4.43	7.50%	52.50%	5.90	5.33%	52.00%
25 - 29	0.00	0.00%	51.43%	0.00	0.00%	52.50%	0.00	0.00%	52.00%
30 - 34	1.48	2.86%	54.29%	0.00	0.00%	52.50%	1.48	1.33%	53.33%
35 - 39	5.90	11.43%	65.71%	4.43	7.50%	60.00%	10.33	9.33%	62.67%
40 - 44	2.95	5.71%	71.43%	4.43	7.50%	67.50%	7.38	6.67%	69.33%
45 - 49	2.95	5.71%	77.14%	4.43	7.50%	75.00%	7.38	6.67%	76.00%
50 - 54	2.95	5.71%	82.86%	7.38	12.50%	87.50%	10.33	9.33%	85.33%
55 - 59	2.95	5.71%	88.57%	2.95	5.00%	92.50%	5.90	5.33%	90.67%
60 - 64	2.95	5.71%	94.29%	1.48	2.50%	95.00%	4.43	4.00%	94.67%
65 - 69	2.95	5.71%	100.00%	0.00	0.00%	95.00%	2.95	2.67%	97.33%
70 - 74	0.00	0.00%	100.00%	1.48	2.50%	97.50%	1.48	1.33%	98.67%
75 - 79	0.00	0.00%	100.00%	0.00	0.00%	97.50%	0.00	0.00%	98.67%
80 - 84	0.00	0.00%	100.00%	1.48	2.50%	100.00%	1.48	1.33%	100.00%
85 - 89	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
90 - 94	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
95 - 99	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
100+	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
Missing	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
TOTAL	51.67	46.67%		59.05	53.33%		110.71		

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table XV-2. Estimated Harvest and Use of Fish, Game and Plant Resources, Chignik Lake, 2003 Study Year

	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
Resource Name	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
All Resources	100.0	95.2	95.2	100.0	90.5	29,800.85	961.32	255.54				71.70%
Fish	100.0	81.0	81.0	95.2	85.7	19,073.69	615.28	163.56				38.29%
Salmon	95.2	81.0	76.2	81.0	76.2	16,139.62	520.63	138.40	4,055.59		130.83	30.55%
Chum Salmon	4.8	0.0	0.0	4.8	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Coho Salmon	28.6	19.0	19.0	14.3	19.0	393.55	12.70	3.37	63.48		2.05	56.44%
Chinook Salmon	42.9	33.3	33.3	23.8	14.3	520.48	16.79	4.46	50.19		1.62	39.16%
Pink Salmon	19.0	14.3	14.3	14.3	4.8	223.59	7.21	1.92	78.73		2.54	88.74%
Sockeye Salmon	90.5	71.4	66.7	76.2	57.1	11,821.54	381.34	101.37	2,447.52		78.95	26.21%
Landlocked Salmon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Spawnouts	76.2	61.9	57.1	38.1	66.7	3,180.46	102.60	27.27	1,415.67		45.67	28.53%
Spawning Coho	4.8	4.8	4.8	0.0	0.0	4.26	0.14	0.04	1.48		0.05	115.62%
Spawning Sockeye	76.2	61.9	57.1	38.1	66.7	3,176.20	102.46	27.24	1,414.19		45.62	28.03%
Unknown Salmon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Non-Salmon Fish	90.5	61.9	61.9	85.7	76.2	2,934.08	94.65	25.16				24.50%
Herring	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Herring Roe	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Herring Roe/Unspecified	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Herring Sac Roe	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Herring Spawn on Kelp	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Smelt	47.6	0.0	0.0	47.6	42.9	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Eulachon (hooligan, candlefish)	4.8	0.0	0.0	4.8	4.8	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Rainbow Smelt	47.6	0.0	0.0	47.6	38.1	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Cod	47.6	19.0	19.0	33.3	28.6	103.92	3.35	0.89	32.48		1.05	60.52%
Pacific Cod (gray)	47.6	19.0	19.0	33.3	28.6	103.92	3.35	0.89	32.48		1.05	60.52%
Pacific (Silver) Hake	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Pacific Tom Cod	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Walleye Pollock (whiting)	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Flounder	9.5	9.5	9.5	0.0	0.0	159.43	5.14	1.37	53.14		1.71	96.47%
Starry Flounder	4.8	4.8	4.8	0.0	0.0	132.86	4.29	1.14	44.29		1.43	115.62%
Unknown Flounder	4.8	4.8	4.8	0.0	0.0	26.57	0.86	0.23	8.86		0.29	115.62%
Greenling	4.8	0.0	0.0	4.8	4.8	0.00	0.00	0.00	0.00		0.00	0.00%
Lingcod	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Greenling	4.8	0.0	0.0	4.8	4.8	0.00	0.00	0.00	0.00		0.00	0.00%
Halibut	90.5	57.1	57.1	76.2	66.7	2,494.76	80.48	21.39	2,494.76	LBS	80.48	25.19%
Rockfish	23.8	4.8	4.8	19.0	14.3	66.43	2.14	0.57	44.29		1.43	115.62%
Black Rockfish	19.0	4.8	4.8	14.3	9.5	66.43	2.14	0.57	44.29		1.43	115.62%
Red Rockfish	4.8	0.0	0.0	4.8	4.8	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Rockfish	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%

(Continued)

Table XV-2. Estimated Harvest and Use of Fish, Game and Plant Resources, Chignik Lake, 2003 Study Year

	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
Resource Name	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Sablefish (black cod)	19.0	0.0	0.0	19.0	14.3	0.00	0.00	0.00	0.00		0.00	0.00%
Sculpin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Irish Lord	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Irish Lord	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Sculpin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Shark	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Shark	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Skates	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sole	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Sole	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tuna/Mackerel	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Mackerel	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Char	19.0	9.5	9.5	9.5	9.5	57.87	1.87	0.50	41.33		1.33	85.94%
Dolly Varden	19.0	9.5	9.5	9.5	9.5	57.87	1.87	0.50	41.33		1.33	85.94%
Trout	19.0	9.5	9.5	9.5	0.0	51.67	1.67	0.44	36.90		1.19	93.19%
Rainbow Trout	9.5	4.8	4.8	4.8	0.0	41.33	1.33	0.35	29.52		0.95	115.62%
Steelhead	9.5	4.8	4.8	4.8	0.0	10.33	0.33	0.09	7.38		0.24	115.62%
Unknown Trout	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Land Mammals	100.0	42.9	38.1	100.0	76.2	7,070.95	228.10	60.63	31.00		1.00	36.06%
Large Land Mammals	100.0	42.9	38.1	100.0	76.2	7,070.95	228.10	60.63	28.05		0.90	36.06%
Brown Bear	57.1	9.5	9.5	52.4	47.6	1,003.81	32.38	8.61	2.95		0.10	77.67%
Caribou	95.2	33.3	28.6	95.2	61.9	2,878.57	92.86	24.68	19.19		0.62	69.62%
Deer	14.3	0.0	0.0	14.3	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Moose	85.7	19.0	14.3	76.2	61.9	3,188.57	102.86	27.34	5.90		0.19	65.24%
Small Land Mammals	14.3	9.5	9.5	4.8	4.8	0.00	0.00	0.00	2.95		0.10	77.67%
Beaver	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Fox	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Red Fox	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Hare	4.8	0.0	0.0	4.8	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Snowshoe Hare	4.8	0.0	0.0	4.8	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Land Otter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Lynx	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Mink	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Porcupine	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Weasel	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Wolf	9.5	9.5	9.5	0.0	4.8	0.00	0.00	0.00	2.95		0.10	77.67%
Wolverine	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%

(Continued)

Table XV-2. Estimated Harvest and Use of Fish, Game and Plant Resources, Chignik Lake, 2003 Study Year

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Marine Mammals	76.2	23.8	19.0	71.4	42.9	496.00	16.00	4.25	8.86		0.29	60.63%
Seal	76.2	23.8	19.0	71.4	42.9	496.00	16.00	4.25	8.86		0.29	60.63%
Harbor Seal	76.2	23.8	19.0	71.4	42.9	496.00	16.00	4.25	8.86		0.29	60.63%
Harbor Seal (saltwater)	76.2	23.8	19.0	71.4	42.9	496.00	16.00	4.25	8.86		0.29	60.63%
Sea Otter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Steller Sea Lion	4.8	0.0	0.0	4.8	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Whale	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Whale	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Birds and Eggs	81.0	42.9	42.9	71.4	42.9	452.87	14.61	3.88				26.47%
Migratory Birds	61.9	33.3	33.3	38.1	19.0	261.99	8.45	2.25	348.38		11.24	25.24%
Ducks	52.4	33.3	33.3	23.8	19.0	231.88	7.48	1.99	332.14		10.71	25.55%
Bufflehead	4.8	4.8	4.8	0.0	0.0	1.18	0.04	0.01	2.95		0.10	115.62%
Canvasback	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Eider	4.8	4.8	4.8	0.0	0.0	12.67	0.41	0.11	8.86		0.29	115.62%
King Eider	4.8	4.8	4.8	0.0	0.0	12.67	0.41	0.11	8.86		0.29	115.62%
Gadwall	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Goldeneye	14.3	14.3	14.3	4.8	4.8	42.51	1.37	0.36	53.14		1.71	80.61%
Unknown Goldeneye	14.3	14.3	14.3	4.8	4.8	42.51	1.37	0.36	53.14		1.71	80.61%
Harlequin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Mallard	28.6	23.8	23.8	9.5	4.8	43.84	1.41	0.38	48.71		1.57	59.28%
Merganser	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Common Merganser	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Long-tailed Duck (Oldsquaw)	9.5	9.5	9.5	0.0	4.8	23.62	0.76	0.20	29.52		0.95	77.67%
Northern Pintail	28.6	28.6	28.6	4.8	9.5	80.30	2.59	0.69	100.38		3.24	66.53%
Scaup	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Scaup	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Scoter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Black Scoter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Surf Scoter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
White-winged Scoter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Scoter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Teal	19.0	19.0	19.0	0.0	9.5	25.69	0.83	0.22	85.62		2.76	59.28%
Green Winged Teal	19.0	19.0	19.0	0.0	9.5	25.69	0.83	0.22	85.62		2.76	59.28%
Wigeon	4.8	4.8	4.8	0.0	0.0	2.07	0.07	0.02	2.95		0.10	115.62%
American Wigeon	4.8	4.8	4.8	0.0	0.0	2.07	0.07	0.02	2.95		0.10	115.62%
Unknown Ducks	19.0	0.0	0.0	19.0	4.8	0.00	0.00	0.00	0.00		0.00	0.00%
Geese	38.1	19.0	14.3	28.6	4.8	30.11	0.97	0.26	16.24		0.52	59.49%
Brant	19.0	14.3	9.5	9.5	0.0	8.86	0.29	0.08	7.38		0.24	79.75%
Canada Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Canada Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Emperor Geese	0.0	4.8	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Snow Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
White-fronted Geese	19.0	9.5	9.5	9.5	4.8	21.26	0.69	0.18	8.86		0.29	82.77%
Unknown Geese	9.5	0.0	0.0	9.5	0.0	0.00	0.00	0.00	0.00		0.00	0.00%

(Continued)

Table XV-2. Estimated Harvest and Use of Fish, Game and Plant Resources, Chignik Lake, 2003 Study Year

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Shorebirds	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Common Snipe	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Seabirds & Loons	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Auklet	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Parakeet Auklet	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Gulls	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Gull	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Murre	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Common Murre	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Puffins	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Puffin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Other Birds	57.1	33.3	33.3	38.1	42.9	176.70	5.70	1.52	252.43		8.14	43.56%
Upland Game Birds	57.1	33.3	33.3	38.1	42.9	176.70	5.70	1.52	252.43		8.14	43.56%
Ptarmigan	57.1	33.3	33.3	38.1	42.9	176.70	5.70	1.52	252.43		8.14	43.56%
Bird Eggs	47.6	9.5	9.5	42.9	9.5	14.17	0.46	0.12	47.24		1.52	88.74%
Duck Eggs	4.8	0.0	0.0	4.8	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Duck Eggs	4.8	0.0	0.0	4.8	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Geese Eggs	4.8	0.0	0.0	4.8	4.8	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Geese Eggs	4.8	0.0	0.0	4.8	4.8	0.00	0.00	0.00	0.00		0.00	0.00%
Seabird & Loon Eggs	47.6	9.5	9.5	42.9	9.5	14.17	0.46	0.12	47.24		1.52	88.74%
Gull Eggs	47.6	9.5	9.5	42.9	9.5	14.17	0.46	0.12	47.24		1.52	88.74%
Glaucous Winged Gull Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Herring Gull Eggs	47.6	9.5	9.5	42.9	9.5	14.17	0.46	0.12	47.24		1.52	88.74%
Puffin Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tern Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Seabird Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Marine Invertebrates	90.5	66.7	66.7	90.5	76.2	1,780.29	57.43	15.27				56.72%
Chitons (bidarkis, gumboots)	81.0	42.9	42.9	61.9	28.6	202.24	6.52	1.73	51.67	GAL	1.67	26.67%
Red (large) Chitons	9.5	9.5	4.8	9.5	4.8	13.29	0.43	0.11	4.43	GAL	0.14	115.76%
Black (small) Chitons	81.0	42.9	42.9	57.1	28.6	188.95	6.10	1.62	47.24	GAL	1.52	28.74%
Clams	90.5	61.9	61.9	81.0	61.9	593.43	19.14	5.09	197.81	GAL	6.38	28.75%
Butter Clams	90.5	61.9	61.9	81.0	61.9	549.14	17.71	4.71	183.05	GAL	5.90	30.25%
Horse Clams (Gaper)	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Pacific Littleneck Clams (Steamers)	19.0	9.5	4.8	19.0	4.8	44.29	1.43	0.38	14.76	GAL	0.48	115.76%
Pinkneck Clams	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Razor Clams	28.6	4.8	0.0	28.6	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Unknown Clams	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%

(Continued)

Table XV-2. Estimated Harvest and Use of Fish, Game and Plant Resources, Chignik Lake, 2003 Study Year

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Cockles	33.3	14.3	14.3	19.0	4.8	79.71	2.57	0.68	26.57	GAL	0.86	69.22%
Unknown Cockles	33.3	14.3	14.3	19.0	4.8	79.71	2.57	0.68	26.57	GAL	0.86	69.22%
Crabs	71.4	4.8	4.8	66.7	28.6	826.67	26.67	7.09	516.67		16.67	115.62%
Dungeness Crab	33.3	0.0	0.0	33.3	14.3	0.00	0.00	0.00	0.00		0.00	0.00%
King Crab	4.8	0.0	0.0	4.8	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown King Crab	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tanner Crab	57.1	4.8	4.8	52.4	19.0	826.67	26.67	7.09	516.67		16.67	115.62%
Tanner Crab, Bairdi	57.1	4.8	4.8	52.4	19.0	826.67	26.67	7.09	516.67		16.67	115.62%
Unknown Tanner Crab	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Crab	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Limpets	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Mussels	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Unknown Mussels	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Octopus	76.2	19.0	19.0	66.7	33.3	76.76	2.48	0.66	19.19		0.62	87.82%
Scallops	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Weathervane Scallops	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Sea Cucumber	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Sea Urchin	52.4	4.8	4.8	47.6	9.5	1.48	0.05	0.01	2.95	GAL	0.10	115.62%
Shrimp	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	LBS	0.00	0.00%
Snails	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Vegetation	90.5	81.0	81.0	47.6	57.1	927.05	29.90	7.95				31.24%
Berries	90.5	81.0	81.0	47.6	57.1	773.52	24.95	6.63	193.38	GAL	6.24	35.14%
Plants/Greens/Mushrooms	47.6	42.9	42.9	14.3	9.5	153.52	4.95	1.32	38.38	GAL	1.24	37.76%
Seaweed/Kelp	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Unknown Seaweed	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Wood	52.4	52.4	52.4	0.0	9.5	0.00	0.00	0.00	25.10	CORDS	0.81	32.48%

Note: Harvest amount in individual units unless otherwise specified.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table XV-3. Estimated Harvests of Wild Resources by Resource Category, Chignik Lake, 2003

	Pounds Per Person			
	1984	1989	1991	2003
Salmon	139.46	152.69	203.74	138.40
Other Fish	16.24	38.92	41.55	25.16
Land Mammals	112.74	216.35	152.57	60.63
Marine Mammals	3.65	6.46	4.13	4.25
Birds & Eggs	3.58	15.30	13.16	3.88
Shellfish	3.31	15.86	20.75	15.27
Wild Plants	NA	7.42	6.45	7.95
All Resources	278.98	453.00	442.35	255.54

SOURCE: Scott et al. 2001; Alaska Department of Fish and Game, Division of Subsistence Household Survey 2004

Table XV-4 . Percentage of Total Harvest by Resource Category, Chignik Lake, 2003

	Percentage of Total Harvest			
	1984	1989	1991	2003
Salmon	50.0%	33.7%	46.1%	54.2%
Other Fish	5.8%	8.6%	9.4%	9.8%
Land Mammals	40.4%	47.8%	34.5%	23.7%
Marine Mammals	1.3%	1.4%	0.9%	1.7%
Birds & Eggs	1.3%	3.4%	3.0%	1.5%
Shellfish	1.2%	3.5%	4.7%	6.0%
Wild Plants		1.6%	1.5%	3.1%

SOURCE: Scott et al. 2001; Alaska Department of Fish and Game, Division of Subsistence Household Survey 2004

Figure XV-1. Harvests of Wild Resources, Pounds Usable Weight per Person, Chignik Lake

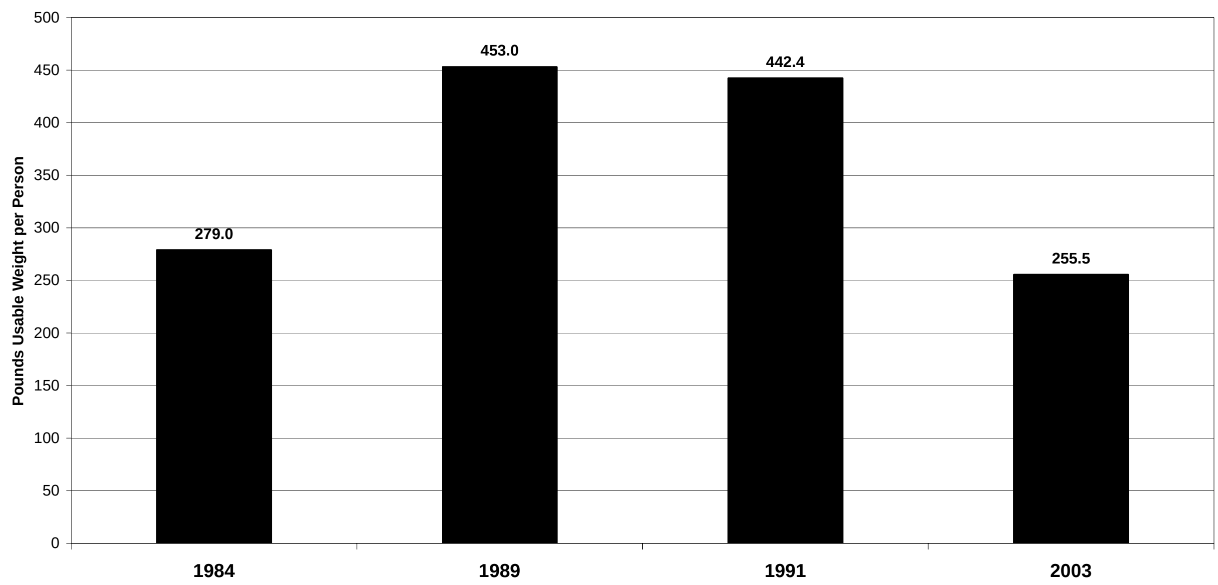


Figure XV-2. Harvests of Wild Resources by Resource Category, Pounds Usable Weight per Person, Chignik Lake

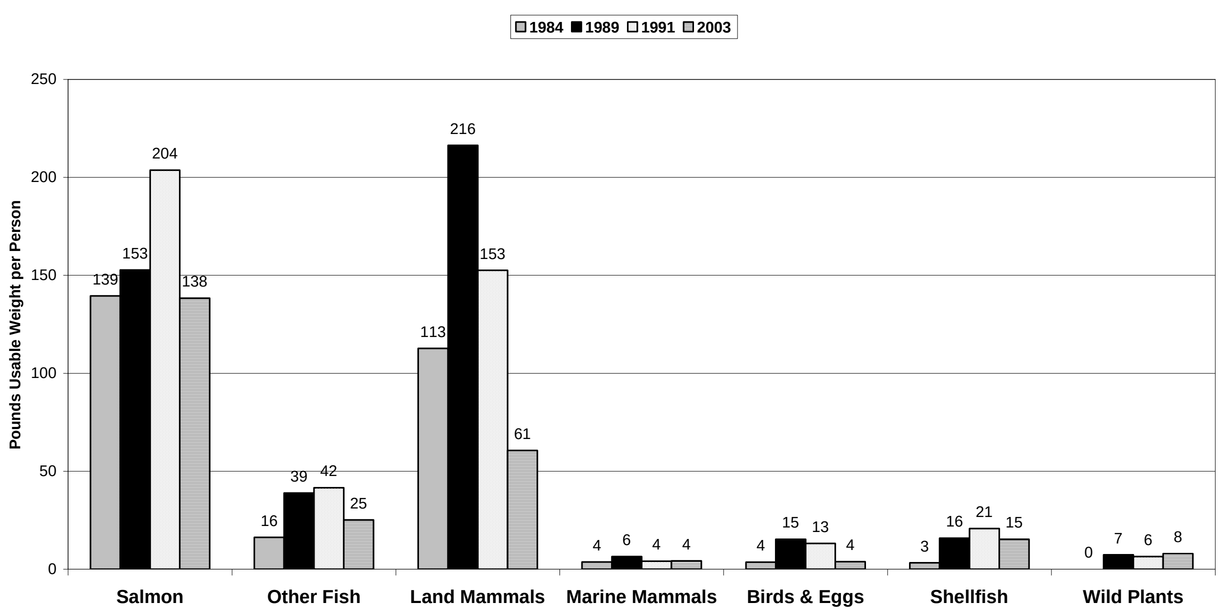


Table XV-5. Estimated Salmon Harvest by Gear Type, Chignik Lake, 2003 Study Year

Resource	Removed From Commercial Catch			Subsistence Methods								
				Setnet			Seine			Drift Gillnet		
	Amount	Pounds	HH Mean	Amount	Pounds	HH Mean	Amount	Pounds	HH Mean	Amount	Pounds	HH Mean
Salmon	518.6	2,561.0	82.6	2,835.8	11,206.2	361.5	354.3	1,520.5	49.0	0.0	0.0	0.0
Coho Salmon	0.0	0.0	0.0	63.5	393.6	12.7	0.0	0.0	0.0	0.0	0.0	0.0
Chinook Salmon	38.4	398.0	12.8	3.0	30.6	1.0	0.0	0.0	0.0	0.0	0.0	0.0
Pink Salmon	78.7	223.6	7.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sockeye Salmon	401.5	1,939.4	62.6	1,765.5	8,527.5	275.1	280.5	1,354.7	43.7	0.0	0.0	0.0
Spawning Coho	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Spawning Sockeye	0.0	0.0	0.0	1,003.8	2,254.5	72.7	73.8	165.8	5.3	0.0	0.0	0.0

Resource	Subsistence Methods						Rod & Reel			Any Method		
	Other			Any Method								
	Amount	Pounds	HH Mean	Amount	Pounds	HH Mean	Amount	Pounds	HH Mean	Amount	Pounds	HH Mean
Salmon	0.0	0.0	0.0	3,190.0	12,726.6	410.5	346.9	852.0	27.5	4,055.6	16,139.6	520.6
Coho Salmon	0.0	0.0	0.0	63.5	393.6	12.7	0.0	0.0	0.0	63.5	393.6	12.7
Chinook Salmon	0.0	0.0	0.0	3.0	30.6	1.0	8.9	91.8	3.0	50.2	520.5	16.8
Pink Salmon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	78.7	223.6	7.2
Sockeye Salmon	0.0	0.0	0.0	2,046.0	9,882.2	318.8	0.0	0.0	0.0	2,447.5	11,821.5	381.3
Spawning Coho	0.0	0.0	0.0	0.0	0.0	0.0	1.5	4.3	0.1	1.5	4.3	0.1
Spawning Sockeye	0.0	0.0	0.0	1,077.6	2,420.3	78.1	336.6	755.9	24.4	1,414.2	3,176.2	102.5

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table XV-6. Percentage of Households Harvesting Salmon by Gear Type and Species, Chignik Lake, 2003 Study Year

RESOURCE	Removed From Commercial Catch	Subsistence Methods				Subsistence Gear Any Method	Rod & Reel	Any Method
		Setnet	Seine	Drift Gillnet	Other			
Salmon	28.6%	66.7%	19.0%	0.0%	0.0%	71.4%	33.3%	76.2%
Coho Salmon	0.0%	19.0%	0.0%	0.0%	0.0%	19.0%	0.0%	19.0%
Chinook Salmon	19.0%	4.8%	0.0%	0.0%	0.0%	4.8%	9.5%	33.3%
Pink Salmon	14.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	14.3%
Sockeye Salmon	28.6%	57.1%	14.3%	0.0%	0.0%	61.9%	0.0%	66.7%
Spawning Coho	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.8%	4.8%
Spawning Sockeye	0.0%	33.3%	4.8%	0.0%	0.0%	33.3%	23.8%	57.1%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

CHAPTER XVI: PERRYVILLE

by

Lisa Hutchinson-Scarbrough

COMMUNITY BACKGROUND

Community History

The community of Perryville is located on the Pacific Coast of the Alaska Peninsula approximately 500 miles southwest of Anchorage and 275 miles southwest of Kodiak. (ADCCED 2003). According to Clark (1984:136-237), as early as 6,000 years ago, the maritime hunting cultures of Pacific Eskimo, or Alutiiq, Yup'ik Eskimos, and Aleuts occupied the Alaska Peninsula. They are ancestral to today's Alaska Peninsula Native people.

The direct cause of the founding of the community of Perryville was the eruption of the volcano, Mt. Novorupta, in 1912. At the time of this eruption, the founders of Perryville were residing on the Pacific coast of the Alaska Peninsula, in what is now known as Katmai National Park and Preserve, in two small villages, Kaguyak (Douglas) and Katmai. The June 6, 1912 eruption forced the evacuation of these villages, which were both destroyed. No one perished in the eruption because, at the time, all the villagers were working in Kafluk Bay, salting and smoking salmon for a commercial saltery (Partnow 2001:185).

The eruption rendered the area uninhabitable. Three feet of ash were deposited, and the air was so thick with ash and smoke that no daylight was visible for several days afterwards. Three villagers were sent in their bidarkis, or kayaks, from Kafluk Bay across Shelikof Strait to Kodiak Island for help. These men returned to Kafluk Bay on June 12 in the U.S. Coast Guard steamer, Redondo. The remaining 114 people were rescued and taken first to Afognak Island, and were later transported by the Coast Guard Cutter, The Manning, under command of Captain Kermit W. Perry, further south along the Alaska Peninsula coastline. Their first stop was Ivanof Bay, which had been selected by elders, but two Norwegian trappers living there reported falsely that Ivanof Bay would not be a suitable location to live in the winter. Therefore, the refugees moved to the current village location, which they named Perryville (after Captain Perry) (Partnow 2001:195-96). The Perryville site resembled their former villages including a broad river plain with another volcano (Mt. Veniaminof) behind the village.

The first school in Perryville was built in 1922, and a Russian Orthodox Church the following year. Some of the icons from the Douglas and Katmai churches were brought to this church, which still stands in Perryville. The Native Village of Perryville was organized under an IRA charter in 1950 (Davis 1986). Active Village Corporation members are descendents of the 1912 village founders. Perryville maintains an Alutiiq culture and a subsistence way of life. Commercial fishing provides the primary cash income.

Demography

According to the 2000 U.S. Census, Perryville had 33 total households with a total population of 107, and all but two were Alaska Native. The average household size was 3.2 persons, with 54% of the population male and 46% female. The median age was 26.5 years.

The 2003 Perryville household survey identified 33 households and 27 were interviewed. The estimated population was 121 people, 71 males and 50 females. The average age of the population was 27.1 years and the median age was 22.0. The average length of residency of the population was 21.5 years, and the average length for household heads was 34.5 years. The average household size was 3.7 persons. All households interviewed were Alaska Natives; three teacher households (6 people; 4 non-Natives and 2 non-local Alaska Natives) were not interviewed because they had only lived in Perryville since September 2003 (see Table I-8 and Table XVI-1).

Economic Overview

Only a few year-round jobs are available in Perryville. Employers include the Native Village (Corporation) of Perryville, Bristol Bay Area Health Corporation, and the Perryville school. Commercial fishing in the Chignik Management Area provides a significant percentage of income for residents of Perryville, particularly during the summer months. Income earned from commercial fishing in the Chignik Management Area (particularly salmon, cod, and halibut) continues to be an important component of the village's economy. In addition to fish for sale, subsistence salmon and other fish, marine invertebrates, marine mammals, waterfowl, land mammals, and a variety of wild plants and berries are obtained and utilized by most Perryville residents in order to satisfy much of their nutritional needs.

The 2000 U.S. Census reported the per person wage and salary income for Perryville in 1999 was $20,935, and the median household income in earnings was $51,875. Those listed as employed in 1999 totaled 47.8% of residents 16-years old and older. Of those employed, 40.6% listed their work as management and professional occupations and 37.5% service and production jobs, including fishing employment.

SUBSISTENCE RESOURCE HARVEST AND USES

Participation in Hunting, Fishing and Gathering Activities

In 2003, 100% of Perryville households used, attempted to harvest, harvested, received, and gave away at least one subsistence resource (see Table I-10). Of all Perryville residents, 80.8% attempted to hunt, fish, or gather wild foods, and 75.8% of the population participated in processing subsistence resources. Fishing was the subsistence activity in which the most people participated at 74.7% of the population. Processing fish was also the leading processing activity, engaged in by 70.7% of the population. Plant and berry gathering (71.7%) and processing (63.6%) were the second leading subsistence activities at an individual level in Perryville in 2003 (see Table I-9).

Resource Harvest Quantities and Harvest Composition

Perryville residents harvested a total of 517.9 pounds of usable weight per person of wild resources in 2003 (see Table I-10 and Table XVI-2). This was up significantly from 1989, when an average of 394.4 pounds per person were harvested, and in 1984 when 391.2 pounds per person were harvested (Table XVI-3, Figure XVI-1). The primary change in harvest patterns in Perryville according to several Perryville households was an increased reliance on moose, making up for fewer caribou available in the local area to harvest. Households reported using an average or 24.4 resources per household with a maximum of 53 different resources and a minimum of 6. Of these resources, a mean of 17.8 resources were harvested per household. Households averaged 17.8 different resources received and 13.5 resources given away. Households, on average, harvested 1,937.6 pounds of wild resources with a minimum of 110.0 pounds per household and a maximum of 11,713.7 pounds (see Table I-10). The average number of wild resources harvested by all the Alaska Peninsula study communities (Perryville, Chignik Bay, Chignik Lagoon, and Chignik Lake) in 2003 was 17.9 resources, which is slightly lower than the 1989 and 1991 averages of 17.6 and 18.2 resources, respectively. The pre-spill average is estimated at 15.7 resources used per household (Scott et al. 2001).

All of Perryville households used fish, with 96.3% harvesting fish resulting in 286 pounds per person. Salmon was harvested in the greatest quantities: 6,253.2 salmon (consisting of all five species of salmon), for 229 pounds per person and 856.6 pounds per household. Sockeye and coho salmon were harvested in the largest quantities, at an estimated 2,288 sockeye or 89.5 pounds per person, and 1,563.2 coho or 78.5 pounds per person. There was an additional harvest of 183.3 (3.3 pounds per person) of spawned sockeye and 326.3 (7.6 pounds per person) spawned coho. A community total of 1,636.6 (37.7 pounds per person) of pink salmon, 162.6 (6.8 pounds per person) of chum salmon and 61.1 (5.1 pounds per person) of Chinook salmon were harvested as well (see Table XVI-2).

Total salmon harvests were only slightly higher in 2003 compared to harvests in 1989, when the estimated total was 5,205.7, averaging 202.2 pounds per person. In 1989, however more coho salmon was taken than sockeye, with a total of 1,451.3 fish, or 76.8 pounds per person. Sockeye harvests in 1989 totaled 1,400.7 fish (61.4 pounds per person). There were also an additional 537.3 spawned coho (13.3 pounds per person) and 275.6 spawned sockeye (5.6 pounds per person). Also in 1989, Perryville residents harvested a total of 1,056.3 pink salmon (22.6 pounds per person), 453.5 total chum salmon (21.2 pounds per person), and 8 Chinook (1.1 pounds per person) (Scott et al. 2001).

For 1984, estimated salmon harvests were virtually the same as in 1989 with a total of 5,249 salmon (215.8 pounds per person). And like 1989, coho salmon was harvested in the largest numbers, 2,404 total fish (121.1 pounds per person). In the 1984 study year spawned-out coho and sockeye salmon harvests were included with the total species harvests. Pink salmon were second in numbers harvested in 1984, totaling 1,729 fish or 40.7 pounds per person. Sockeye harvests in 1984 totaled 898 fish or 40.5 pounds per person. Chum salmon totaled 193 fish or 10 pounds per person and Chinook totaled 24 fish or 3.5 pounds per person (Scott et al. 2001).

In comparing the three study years, the total salmon pounds harvested had virtually not changed, but the composition of the harvest by species had. In 1984, coho and pink salmon were the primary species of salmon harvested in the community, but by 2003, sockeye had become number one followed by coho and pinks. This suggests that coho are harder to obtain in the Perryville area or there has been an increase in either the availability of sockeye in local streams or more Perryville residents are obtaining their subsistence salmon from the Chignik area than they did 20 years ago (Fall et al. 1995a, Hutchinson-Scarbrough and McCullough 2003, Scott et al. 2001).

Halibut provided the second highest fish harvest by Perryville residents with a total of 5,355.8 pounds, with a per person harvest of 43.4 pounds and household harvest of 162.3 pounds. Halibut harvests in 1989 were virtually the same at 5,507 pounds or 47.5 pounds per person. Halibut harvests in 1984 were about half that of the other two study years with a total of 2,161 pounds harvested or 18.8 pounds per person. Total fish other than salmon, including halibut, averaged 57 pounds per person in 2003. This was slightly less than in 1989 when 69 pounds per person were harvested, yet higher than in 1984 when harvests averaged 45 pounds per person (Fig. XVI-2). Pacific cod in 2003 was used by 44.4% of Perryville's households, totaling 641 pounds or 18.5 pounds per person, which is higher than in 1989 when 490.5 pounds or 4.2 pounds per person was harvested and in 1984 when 531 pounds or 4.6 pounds per person was harvested. Eulachon (candlefish) was used by 81.5% of households in 2003 totaling 575.4 total pounds or a per person harvest of 4.7 pounds. Other fish including Dolly Varden, greenling, and various rockfish were also harvested (see Table XVI-2) (Scott et al. 2001).

In 2003, 96.3% of all Perryville households used marine invertebrates while 88.9% harvested them for a total of 4,601.5 pounds (139.4 pounds per household and 37.3 pounds per person). In addition, 88.9% of Perryville households reported that they received marine invertebrates from other households, and 70.4% reported that they shared some of their marine invertebrates with other households. These harvest, use, and participation levels are virtually the same as reported in 1989, when 96.3% of Perryville households reported using marine invertebrates. However, the total harvest levels in 1989 was half (2,373.0 pounds) that of 2003, with 76.6 pounds per household and 20.5 pounds per person. In 1984, the total harvest of marine invertebrates was even less than in 1989 with an estimated total harvest of 1,242 pounds or 46 pounds per household (10.8 pounds per person); however, the use and harvest of marine invertebrates in 1984 was more than in 1989 and 2003, with 100% using and 90% harvesting. The difference is mostly due to a great increase in harvest of Tanner and Dungeness crab in 2003. In 2003, 952.4 pounds of Tanner and 684.44 pounds of Dungeness were harvested in Perryville, whereas in 1989, only 69.8 pounds of Tanner and 297 pounds of Dungeness crab were harvested. In 1984, no Tanner crab and only 52 total community pounds of Dungeness crab were reported harvested. Also, clams in 2003 were taken at about twice the 1989 total, with 1,303.4 pounds taken in 2003, 541.6 in 1989, and 302.0 total pounds in 1984. In 2003, chitons (bidarkis or gumboots) harvests (626.1 total pounds or 19 pound per household) were less than in 1989 (676.3 total pounds or 21.8 per household) but higher than in 1984 when 343 pounds total were reported taken (Table XVI-2) (Scott et al. 2001).

Land mammal harvests averaged 145 pounds per person in 2003, more than double the level estimated for 1989 at 60 pounds per person. In 1984,the land mammal harvest level was midway between the other two years at 93 pounds per person (Fig. XVI-2). Large land mammals made up most of the land mammal harvest, with 96.3% of all households using at least one resource, including brown bear, caribou, deer (not available locally) and moose. Moose provided the greatest portion of land mammals harvested, totaling 28.11 moose (123.0 pounds per person) harvested by 25.9% of the households. Moose harvests were greater than in the two previous study years, which totaled 4.6 in 1989 and 8 moose in 1984. In 2003, Caribou totaled 12.2 animals (14.9 pounds per person) with 18.5% of households harvesting and 70.4% of households using the meat. Caribou harvests have declined since 1984 when 30 were harvested and in 1989, when 21.9 were harvested. Several of Perryville's hunters indicated that caribou are very scarce, therefore, there has been more effort to hunt for moose, which are more available in the area. Brown bear continues to be harvested for subsistence with 48.1% of households reporting using and 7.4 reporting harvesting bear. A total of 2.4 bears were harvested providing 6.7 pounds per person (see Table XVI-2) (Scott et al. 2001).

Marine mammals were used by 81.5% of Perryville households in 2003, totaling 25 pounds per person. These harvest levels are virtually the same as the previous study years when 26 pounds per person were taken in 1989 and 20 in 1984 (see Table XVI-2). Harbor seal harvests in 2003 totaled 51.3 animals or 23.3 pounds per person. Harbor seal harvests almost doubled from the two previous study years; in 1989, total harvests were 16.1 seals, and in 1984, 16 seals were harvested. Steller sea lion (1.2 individuals or 2.0 pounds per person) was used by 22.2% of Perryville households in 2003. The sea lion harvest in 2003 was less than in 1989 when 11.5 were reported harvested; but about the same as in 1984 when only 1 was taken. Local hunters reported that the decline of marine mammals, that was apparent in 1989 has reversed, and populations have rebounded to pre-spill levels (see Table XVI-1) (Scott et al. 2001).

Bird and egg uses and harvests have risen slightly over the three study years with a total of 11 pounds per person harvested in 2003, 8 in 1989, and 7 in 1984. Migratory birds made up the largest category with 59.3% of households using and 40.7% harvesting a total of 460.6 birds (3.6 pounds per person). Of ducks harvested, mallards were taken the most at 203.9 individuals (1.5 per person). Harlequins were the second most taken at 63.6 individuals (0.3 per person). Geese were harvested by 18.5% of households with 22.2% of households using geese. A total of 56.2 geese were harvested providing a per person harvest of 1.1 pounds per person. Ptarmigan harvests were higher than in previous years. In 2003, 74.1% used ptarmigan that were harvested by 51.9% of households. Total ptarmigan harvests in 2003 totaled 1,188.6 birds or 6.7 pounds per person. By contrast, in 1989, 647.6 birds, and in 1984, 547 birds were harvested. It appears this increase was due to more young adult male hunters taking an interest in hunting ptarmigan. Gull (herring gull) eggs continued to be taken in 2003 but harvests were much lower than in previous study years. In 2003, 70.4% of Perryville households both harvested and used a total of 416.8 eggs. In 1989, 1,041.4 eggs, and in 1984, 853 eggs were harvested. Inclement weather in 2003 made it more difficult for boats to travel to the egg harvesting sites which was the main reason given for the decline in egg harvests (see Table XVI-2) (Scott et al. 2001).

Plant and berry harvests increased slightly from the 1989 with 13 pounds per person harvested in 2003 and 8 pounds per person in 1989 (Fig. XVI-2). This information was not collected in 1984. All Perryville households reported using plants or berries in 2003; 354.4 gallons of berries were gathered providing 11.5 pounds per person. Other plants and other greens, such as petruski and putchkie, were used by 92.6% of all households with 1.6 pounds per person gathered. Driftwood was also gathered as firewood for smoking fish, and heating houses and bathhouses. Of all households, 88.9% reported using approximately 92.9 cords of wood (see Table XVI-2) (Scott et al. 2001).

Harvest Effort

Perryville households were asked to compare their efforts to harvest different resources in 2003 with that five years earler (1998) (see Tables A-58 to A-81). If their answer was either "more" or "less" then they were asked if the reason was due to any or all of the following: "travel further", "less abundance" and/or "more competition". Salmon was the only resource category where a plurality of households (47.8%) indicated they directed "more" effort towards harvests in 2003 than in 1998 (see Table A-58). Marine invertebrates were the only resource category where a plurality (43.5%) of households said they were directing "less" effort towards harvest in 2003 than five years prior (see Table A-64). For all other resource categories; non-salmon fish, large land mammals, marine mammals, and birds and eggs, the majority (50%-60%)

reported their effort was about the same (see Tables A-61, A-67, A-70 and A-76). This question was not asked for small mammals and furbearers. For every resource category asked with the exception of non-salmon fish (where people reported they expended "more" effort), the majority of respondents claimed that the reason is they "needed to travel further" to get the resource in 2003 compared to five years before. For non-salmon fish, competition was the leading answer given for increased effort (see Tables A-59, A-62, A-65, A-68, A-71, A-74, A-77 and A-80). By contrast, for those households that reported they directed "less" effort in 2003 compared to five years earlier, the majority of respondents said it was due to "less abundance" in their traditional resource harvest area (see Tables A-60, A-63, A-66, A-69, A-72, A-75, A-78 and A-81).

Comparison of Uses and Harvest with Other Years

Perryville households were asked to compare their 2003 use and harvest of wild resources with about five years prior (1998). Then the same question was asked comparing 2003 with the year before the *Exxon Valdez* oil spill (EVOS) (1988). The question was: "Did the respondent believe that their 2003 harvests and uses of a particular resource were more than, less than, or about the same as five years ago (1998) or the year prior to the spill (1988)?" (see Tables A-1 to A-57).

When asked to compare their overall subsistence resource use and harvest with five years ago, 40% of Perryville households believed there was less use and harvest in 2003 than five years before, 32% thought there was more harvest and use in their household and 28% thought there was little change (see Table A-25). When asked to compare their overall use and harvest of wild resources in 2003 with the year before the spill, 54.5% believed that, in 2003, their use and harvest of all resources were less, 22.7% believed there was little change, and 22.7% thought they harvested more in 2003 than the year before the spill (see Table A-55).

When asked if salmon uses and harvests were less, the same or more available in 2003 than five years ago, most households (44.0%) reported it was the same, while 32% thought less, and 24% thought there was more (see Table A-1). When asked to compare 2003 with the year before the spill, an equal number of households reported that there was either less (45.5%) or little change (45.5%), while only 9.1% thought there was more salmon available to harvest in 2003 than in 1988 (see Table A-28).

For non-salmon fish species, 50% of Perryville households thought that in 2003 there was little change from five years prior, 37.5% thought there was less, and 12.5% thought more (see Table A-4). When asked to compare 2003 with the year before the spill, again the most (47.6%) reported there was little change, while 38.1% thought there was less and 14.3% thought more in 2003 than in 1988 (see Table A-31).

When asked about use and harvest of marine invertebrates compared to five years ago, 44% of Perryville households thought there was less, 40% thought there was no change, and only 16% thought there was more (seeTable A-7). Comparing 2003 use and harvest of marine invertebrates with the year before the spill, an equal number of households reported there was either less (45.5%), or there was little change (45.5%), with 12.2% believing there was more in 2003 than in 1988 (see Table A-34).

The assessment percentages were the same for large land mammals as for the marine invertebrates with 44% saying there was less, 40% saying no change, and 16% seeing an increase in 2003 compared to 1998 (see Table A-10). When asked to compare 2003 large land mammal use and harvest with the year prior to the spill, 47.8% thought there was less, 43.5% saw little change, and 8.7% reported there was more in 2003 than in 1988 (see Table A-37).

Small game and furbearers are not used or harvested by many Perryville residents in 2003. When households were asked to compare their 2003 use and harvest with five years before, the majority of these respondents (58.8%) thought there was no change, 35.3% thought there was less, and 1.2% thought they had used and harvested more in 2003 than five years ago (see Table A-14). When asked to compare their use and harvest of small game and furbearers in 2003 with the year before the spill, 52.9% said it was less, 47.1% said there was no change, and no household said they used or harvested more in 2003 compared to 1988 (see Table A-40).

Marine mammal use and harvest comparisons with five years ago showed that 45.8% of households reported their use and harvest was about the same as five years ago; 37.5% thought it was less, and 16.7% thought it was more (see Table A-16). When asked to compare use and harvest of marine mammals in 2003 with the year prior to the spill, half (50.0%) of Perryville households said it was less, 45.5% said it was about the same, and 4.5% said it was more in 2003 than 1988 (see Table A-43).

Concerning bird and egg harvests in 2003 compared to five years ago, half of Perryville households (52.0%) reported their use and harvest had not changed, with 44.0% saying less, and only 15.9% saying more (see Table A-19). Compared to the year before the spill, 52.2% saw little change from the two periods, 39.1% thought their use and harvest of birds and eggs were less, and 8.7% reported it was more in 2003 compared to the year prior to the spill (see Table A-46).

Wild plants and berries harvest and use in 2003 was about the same as five years ago, according to 44% of households; 32.0% thought there was less use and 24% thought there was increases use (see Table A-22). The majority of households saw little change (47.8%) in this resource category in 2003 compared to the year before the spill, while 39.1% saw a decline and 13 thought they used and harvested more berries and wild plants in 2003 compared to 1988 (see Table A-49).

If a household responded that they had less use or harvest of a particular resource category in 2003 compared to five years before, they were then asked to give a reason for the change. Then they were asked if they believed the decline was related to the spill, and if so, how.

Total subsistence resources, marine invertebrates, and large land mammals were the resource categories that the most households responded “less” in 2003 compared to five years earlier. There were no Perryville households that believed that their overall subsistence uses and harvests had declined in 2003 compared to 1998 because of the spill, however for salmon, non-salmon, marine invertebrates, marine mammals and birds and eggs, some households believed there have been resource declines brought on by the spill.

For those households (40%) believing their overall subsistence harvests in 2003 was less than five years earlier, the majority (60% of responses) said this was due to less resources available in 2003. Other reasons included the following: 30% of respondents gave reasons related to the economy, 30% said personal health and aging issues made subsistence harvesting more difficult, 10% believed that the condition of resource/safety concerns led to less use, and another 10% of responses thought resource access (such as poor weather, no boat etc.) was why their harvest and use levels were less than five years earlier (see Tables A-26 and A-27).

When these households (44.0%) were then asked why they believed uses and harvests of marine invertebrates in 2003 were less than in 1998, 54.5% did not know or provided no reason, while 18.2% of the respondents believed this was due to resource abundance/ availability, 18.2% believed it was due to resource access, 18.2% believed it was due to their age or health reasons, and 9.1% gave a "food safety" or "condition of resource" reason. Only 11.1% of these respondents believed that the oil spill contributed to the decline. When asked why they thought it was oil spill-related, 33.3% of these respondents gave no explanation; another 33.3% of the responses gave a "health or age" related explanation; 66.7% believed the oil spill made it "harder to get resources locally" and "access" to marine invertebrates is now harder (see Tables A-8 and A-9).

For large land mammals, 44% of Perryville households believed that large land mammal harvests had declined since 1998. When asked for reasons why, most (45.5%) gave no further response, while 27.3% of respondents believed this was due to resource abundance, 27.5% gave economic related answers, 18.2% believed it was due to their aging or health issues, and 9.1% believed resource access was less in 2003 compared to 1998. No household blamed the oil spill as a reason for the decline of large land mammal harvests (see Tables A-11 and A-12).

For those households (44%) that believed bird and egg harvest and use were less in 2003 compared to 1998, 27.3% did not know why they had declined, 36.4% of respondents gave economic reasons, 27.3% of responses believed it was due to less resource abundance, another 27.3% of responses gave interest, effort, or knowledge reasons for less harvests, and 9.1% blamed the decline on personal health or aging reasons. Of all respondents, 3.7% believed their bird and egg uses had declined due to the spill, although their reasons related to health or age factors (see Tables A-20 and A-21).

When asked about marine mammals (Steller sea lions and harbor seals), 37.5% of Perryville households believed marine mammal uses and harvests had declined since 1998. When asked why, 55.6% gave no response or did not know, while 33.0% of respondents believed there were just fewer available (resource abundance), and 11.1% of respondents gave personal health and age-related reasons. Of these responses, 11.1% (3.7 households) believed the oil spill contributed to the decline of marine mammal use and harvest in 2003 compared to five years ago; 66.7% of respondents believed the oil spill had led to a decline of marine mammals (see Tables A-17 and A-18).

When asked about non-salmon fish resource use and harvest in 2003 compared to five years before, 37.5% of Perryville households believed there was a decline in 2003. When asked to assess why, 55.6% were uncertain or gave no response, 33.3% of respondents gave economic or resource abundance reasons, 22.2% provided health or age-related reasons, and 11.1% said the decline was due to resource access or time constraints. Only 3.7% of these households believed the spill contributed to a use and harvest decline of non-salmon fish resources. Reasons included the view that the spill contributed to less resource abundance. Personal health, age and economic reasons were also given for why the spill affected non-salmon fish harvests and uses (see Tables A-5 and A-6).

For salmon, 32% of households believed their salmon use and harvest were less than five years ago. When asked why, 25% gave no explanation or did not know why. Luck was a reason given by 25% of the respondents, another 25% gave resource abundance as the reason for the decline, 12.5% believed resource access was the cause, and another 12.5% of the respondents said the decline was related to economic reasons. Only 3.7% (1.2 households) believed the decline in salmon in 2003 compared to five years before was due to the spill. This responding household believed the oil spill contributed to the decline in abundance of salmon in the area (Tables A-2, A-3).

When asked to compare resource use and harvest in 2003 with the year before the spill, large land mammals, small game and furbearers, and marine mammals were the resource categories that the most households believed had declined in 2003 compared to the year prior to the spill. Salmon and marine invertebrates were also resources that the majority of Perryville households believed had either declined or stayed the same in 2003 compared to 1988. The resource categories for which some households believed the spill contributed toward the decline included salmon, non-salmon, marine invertebrates, marine mammals, and birds and eggs.

For overall subsistence resource use and harvest levels in 2003 compared to before the spill, 54.5% of Perryville households said that they believed it was lower in 2003 than prior to the spill. When asked why, 41.7% of respondents said the decline was due to age or health reasons, 25% gave economic reasons, 25% said resource abundance is less now, 8.3% said resource access, and 33% either did not know or gave no further explanation (see Tables A-56 and A-57).

For large land mammal use and harvest, 47.8% of Perryville households believed these had declined in 2003 compared to 1988. Reasons given for this included: resource abundance (36.4% of responses), economic (27.3% of responses), health and age (27.3% of responses) and resource access (18.2% of responses). Twenty-seven percent of these households did not provide an explanation or did not know (see Tables A-38 and A-39).

Small game and furbearer use and harvest levels were less in 2003 compared to 1988 according to over half (52.9%) of Perryville households. Reasons for this decline included economic reasons (33.3% of responses), health and age (33.3% of responses), resource access (11.1% of responses) and resource abundance (11.1% of responses); 44.4% did not provide a reason (see Tables A-41 and A-42).

Marine mammal use and harvests were believed to be less in 2003 than the year before the spill by half (50.0%) of Perryville households. Explanations offered for lower uses and harvests include: less resources available now (54.5% of responses), resource access (18.2% of responses) aging or health factors in household (27.3% of responses) and economic reasons (9.1% of responses); 27.3% did not know why or did not provide an explanation. One fifth of Perryville households believed that marine mammal use and harvests in 2003 were less than the year before the spill due to less population of marine mammals, in part due to the spill. Reasons provided included: resources are less abundant (80% of responses), resource access (20% of responses), and household health and aging reasons (60% of responses) (see Tables A-44 and A-45).

Almost forty-six percent of Perryville's households reported marine invertebrates use and harvest to be lower in 2003 compared to 1988. Regarding causes, 40% of the respondents said this was due to less resources available, 20% said resource access, 30% gave household health and aging reasons, 10% gave economic reasons, 10% said resource condition or food safety, and 30% did not provide an explanation. Twelve percent of Perryville households believed that the decline of marine invertebrates was due to the spill. Reasons provided included: resource conditions and food safety (33.3% of responses), resource abundance (33.3% of responses), resource access (66.7% of responses), and health and age reasons (33.3% of responses) (see Tables A-35 and A-36).

Concerning salmon use and harvest levels in 2003 compared to 1988, 45% of the households believed that there was a decline in this use and harvest. Explanations for the decline included: 40% of respondents said resource abundance, 40% of respondents gave health and aging reasons, 10% of respondents said time constraints, 10% of respondents said lack of interest or knowledge, and 10% of respondents gave no further reason. Sixteen percent of households that believed there was a decline in salmon use and harvest since 1988 blamed the spill on the decline. Reasons these respondents provided included: resource abundance (75% of responses), and health and age factors (50% of responses) (see Tables A-29 and A-30).

Non-salmon use and harvest levels were believed to be less by 38.1% of Perryville households. The main reasons provided were resource abundance (37.5% of responses), economic (25% of responses), health and age factors (12.5% of responses), time constraints (12.5% of responses) and resource conditions or food safety concerns (12.5% of responses); 37.5% gave no reason. Reasons for non-salmon declines linked to the oil spill included: resource abundance (100% of responses), resource conditions and food safety concerns (50% of responses) (see Tables A-32 and A-33).

Bird and egg use and harvest declined according to 39.1% of Perryville households in 2003 compared to the year prior to the spill. Reasons included: resource conditions and food safety (33.3% of responses), resource abundance (33.3% of responses), interest or knowledge (33.3% of responses), economic (22.2% of responses) and time constraints (11.1% of responses); 11.1% did not know or didn't respond. Birds and egg use and harvests were believed to be less in 2003 compared to the year before the spill and the decline was connected with the spill according to 20% of Perryville households. Reasons why included: resource conditions and food safety (60% of responses), resource abundance (40% of responses), health and age (40% of responses), and economic (20% of responses) (see Tables A-47 and A-48).

Wild plants and berry use and harvests levels in 2003 were less than in 1988 according to 39.1% of the households. Reasons why included health and age constraints (33.3% of responses), economic (22.2% of responses), resource access (11.1% of responses), resource abundance (11.1% of responses) and 44.4% did not respond to a reason why they believed it were less (see Tables A-50 and A-51).

NATURAL RESOURCE CONDITIONS

Food Safety

The survey asked if households thought that certain subsistence foods were safe to eat. This question was asked of all households about seals, clams, chitons ("bidarkis") and clams. When asked about seals, 88.5% of households thought seals were safe to eat, and 11.5% were uncertain. The certainty was less for clams, with 78% of households believing clams were safe to eat and 22% uncertain. When asked about chitons, the majority of households (92.6%) reported they were safe, while 7.4% were unsure. This question was also asked about herring, however herring is not readily available in the area, so most of the responses to this question were either "unsure" (77.8%) or safe (22.2%) (see Tables A-458 to 465).

Status of Resource Populations

When asked if they believed subsistence resources had recovered since the spill, 50% of interviewed Perryville households responded that they didn't believe subsistence resources overall were effected by the spill. Of the remaining 50% of the respondents, 37.5% (11 households) believed that they had not recovered, 12.5% (4 households) believed they had, and 1 household did not respond. Those that said no were asked what they thought should be done to aid in the recovery of subsistence resources. The majority (44.4%) did not provide a suggestion, 33.3% said restoration and enhancement projects would help, 11.1% thought legal or political action is needed, and 11.1% thought that better management or harvest regulations are needed (see Tables A-82 and A-83).

Habitat Changes

Households were asked to assess if they had observed any changes since the spill to the local habitat or to subsistence resources. Of all Perryville households interviewed, 66.7% said "yes", and 33.3% said "no." Of those that thought there were habitat or environmental changes, 83.3% (18.3 households) said "climate and weather" patterns have changed, and 22.2% (4.9 households) said "contamination" of the environment and habitat is a concern (see Tables A-456 and A-459).

SOCIAL AND ECONOMIC CONDITIONS

Food Purchases

Perryville households were asked if, in 2003, there were subsistence foods which they had to buy because they could not get them through subsistence harvesting or sharing. If they answered "yes," they were asked to list the species and why they needed to be purchased. The majority of Perryville households (88.9%) said "no," that they did not have to purchase replacement foods, and 11.1% said, "yes" that they did. Of the 11.1% of Perryville households saying that they did have to buy replacement foods for large land mammals that were not available to harvest. Perryville households were also asked if, in 2003, they needed to buy store-bought foods to replace subsistence foods. With this question, the majority (59.3%) of households said "yes" and 30.7% said "no" (see Tables A-475 to A-478).

Sharing of Subsistence Resources

When Perryville households were asked to compare the amount of sharing of wild resources in 2003 with that of five years prior, 57.7% of households thought it was about the "same"; 23.1% said "less"; and 19.2% said "more." Of those households that thought their sharing in 2003 was less, most said this was due to environmental reasons such as bad weather or scarcity of resources (50% of responses), or personal reasons (e.g, health, broken equipment) (50% of responses). Of the households that thought that they shared more in 2003 compared to 1998, most cited personal reasons (80%) or economic reasons (40%) (see Tables A-472 to A-474).

Young Adults' Involvement in Subsistence Activities

Perryville households were asked to assess if they thought that young adults in their community were learning enough hunting, fishing and processing skills. Eighty-nine percent of Perryville households either answered "yes" (50%) or "no" (50%). The remaining households (11.1%) answered "do not know" (see Table A-466).

Those respondents who believed young adults were not learning enough subsistence skills were then asked the reason. Responses included (by percentage of responses): young adults have "little or no interest" (50%), "lack of teachers" (50%), "change in community way of life" (50%), and young adults have "too much else to do" (25%). By contrast, households that believed that young adults were learning enough hunting, fishing and processing skills, were asked how young adults were learning these skills. Responses included (by percentage of responses): "other community members and friends" (41.7%), "elders" (16.7%), "involvement in activities" (such as going along on a hunt, helping process fish), (8.3%), "spirit camps and Native programs" (8.3%) and "school programs" (8.3%) (see Tables A-467 and A-468).

Elders' Influence

Perryville households were asked to assess the level of influence they thought that elders had in their community compared to five years ago. Overall, 69.2% of Perryville households thought that elders had less influence in 2003 compared to five years before, 19.2% thought there was more influence, and 11.5% believed that elders' influence had not changed (see Table A-469).

For households that thought that elders' influence had declined in 2003, reasons included: "demographic" (fewer elders in village) (66.7% of responses), "elders less active" (44.4%), "cultural" (22.2%), "social and political" (16.7%) and "economic" (5.6%). Those households that thought there was an increase in elders' influence over the last five years gave the following reasons: 100% said that "elders are more active", 40% said that "cultural" reasons and "social political" reasons contributed toward elders' increased influence over the last five years (see Tables A-470 and A471).

Status of the Traditional Way of Life

Households were asked if they thought the oil spill affected the traditional way of life. The majority of Perryville households (65.4%) said "yes," 26.9% said they "did not know," and 7.7% said "no." Those households that said they thought the traditional way of life was affected were asked if they thought it had recovered. Almost fifty-nine percent thought that their traditional way of life had not yet recovered since the spill, 23.5% did not know whether it had recovered, and 17.6% thought it had recovered (see Table A-479).

Households that thought that the traditional way of life has not recovered, or households that were uncertain were asked what they thought should be done to help in the recovery of the traditional way of life in their community. The majority of respondents thought that increased education about the traditional way of life and spirit camps would help with the recovery. Other responses included: increase resource populations (such as restoration projects), respond to social disruptions, involve elders more, continue studies on oil spill-impacts, and more time is needed for recovery (see Tables A-480 and A481).

EVALUATION OF THE GEM PROGRAM

Perryville households were asked if they believed they were being adequately informed about the *Exxon Valdez* Oil Spill Trustee Council's (EVOSTC) Gulf Ecosystem Monitoring Program (GEM). Households that did not know totaled 9.8%. Of those households that provided a response (23.2 households), 68.4% said “no” and 31.6% believed they were adequately informed. Those not adequately informed were asked for suggestions for improving knowledge about the GEM program in Perryville. Of those households that provided input, the majority (38.5%) thought newsletters or other mailings would be helpful, while 23.1% thought public broadcasting such as television, radio or village radio communication would help. Another suggestion was that community meetings be held in Perryville where a representative(s) of the Trustee Council would meet and explain the program, and help the community with project ideas and design. Also, some believed that the Tribal Council needed to communicate this information directly to its people, and others thought that video messages would be effective (see Tables A-482 and A-483).

Households were then asked to assess the adequacy of their Tribal Council’s involvement in the GEM program. Approximately half (51.1%) of households said they “did not know.” Of the households that gave an opinion (16 households), 61.5% said the tribal council was appropriately involved, and 38.5% said it was not. Those answering “no” were asked for suggestions that might increase their tribal council’s involvement in the GEM program. Forty percent of these households had no comment, while the others believed that the Trustee Council should improve communication and provide technical assistance to the Tribal Council (see Tables A-484 and A-485).

It was apparent that when the GEM questions were asked in Perryville, the majority of respondents had never heard of GEM before. However, they all were aware of previously funded Trustee Council projects in the community such as the Kametolook Coho Restoration Project, which was funded for six years by the EVOSTC through civil settlement funds (after one year of funding through a grant from the State of Alaska using criminal settlement money) (Hutchinson-Scarbrough and McCullough 2003). The Perryville Tribal Council and ADF&G worked cooperatively on this project, which used salmon egg boxes to improve lost coho runs. The majority of people appeared to be quite satisfied and proud of this project. Therefore, during the interview, there was often a discussion about the GEM program and how it might provide funds for other projects similar to the Kametolook Coho Restoration Project. A few ideas were suggested, but it is apparent that there has to be technical assistance (provided by the Trustee Council to the community) with a paid position, held by a local person who can generate ideas, get project proposals submitted, and, if funded, get the project accomplished. Without this level of communication, education and assistance, it is likely that Perryville and the ecosystem surrounding Perryville will miss out on opportunities provided through this program.

DISCUSSION AND CONCLUSIONS

Although there has been an increase in total community harvest since the spill, the perception of 37.5% of Perryville households in 2003 was that subsistence resources have not recovered. When asked if households believed that their overall subsistence harvests were less, more or the same compared to before the spill, 54.5% believed their harvests were less (see Table A-55). Effort to obtain many of these resources has increased, according to many Perryville households. It is evident that in 2003 there had been substitution of some resources compared to pre-spill patterns. For example, moose is taken in greater quantities in 2003 and less caribou compared to what was reported in 1994 and 1989 (Scott et al. 2001). Sockeye salmon is taken more in 2003 compared to before the spill, when coho and pinks were taken the most. Crab is taken more now perhaps to make up for declining clam and other marine invertebrates. Economically some people blame the spill because the main income of most Perryville residents comes from the commercial salmon fishery. In 1989, after the spill, the commercial fishery was confined to a small area inside Chignik Lagoon and there was an over escapement of fish that year. Many people did not make money that year and some believe there has been a domino effect on income, with Japanese markets not buying wild fish, leading to an increased interest in farmed fish.

Escapement levels of sockeye salmon to Chignik Lake have remained virtually steady since the early 1970s to 2004. In 1989, the summer of the spill, total salmon harvests were one third of that the prior year and about half of the ten-year average prior to the spill. The year following the spill, harvests had rebounded to the pre-spill years until about 1997 when total commercial catches overall declined, as well as average prices paid by the canneries to Chignik fishermen (with the exception of 2002-2004 where higher prices were paid to those fishermen participating in the cooperative fleet), when compared to the 1970s and 1980s (McCullough 2004).

Less fish and lower prices have caused some economic stress to the Chignik and Perryville area communities, as well as others that earn their income from the Chignik commercial salmon fishery. In response to these issues, some of the Chignik commercial fishermen petitioned the Alaska State Board of Fisheries (BOF) in January 2002 for a cooperative fishing fleet. The intent of the cooperative fleet is the reduction of the number of actively participating Chignik Commercial Fisheries Entry Commission (CFEC) permit holders and their vessels and crews to decrease overhead expenses associated with commercial fishing, and to control the harvest rate to achieve a higher quality product, which would bring a higher price. The BOF adopted the plan into regulation during this meeting. The new cooperative fishery plan could be implemented if at least 51 of the CFEC holders agreed to join the fleet (Pappas et al. 2002). In 2002, 77 Chignik Management Area (CMA) CFEC permit holders formed to harvest salmon as part of the cooperative fleet. Twenty-two CMA CFEC permit holders chose not to join the cooperative fleet, and were identified as the “competitive fleet.” By the 2004 Chignik salmon season, the cooperative fleet had increased to 87 members with only 13 remaining in the competitive fleet (Bowens 2004).

The Department of Fish and Game (ADF&G) and the BOF have had to make adjustments to the Chignik subsistence fishery as a result of the new regulation involving the co-op fishery. In the years before the formation of the co-op fishery (2002), regulations allowed any Alaska resident to obtain a Chignik subsistence salmon permit, with a seasonal limit of 250 salmon per person. There were restrictions on commercial fishermen, however, in that from 48 hours before the first commercial salmon fishing opening in the Chignik Area through September 30, a commercial fishing license holder could not subsistence fish for salmon. Generally commercial fishing openings occurred after June 6, which gave families time to put up their spring “bright” sockeye salmon that they would then either smoke, kipper, can, or freeze. Then many families (including Perryville families) harvested more salmon in the fall or early winter, which they often refer to as “spawning,” “spawned out,” and “red or late-run” sockeye salmon. These salmon are mostly for drying, because they have less fat and are harvested after the period when flies can ruin the fish.

During the 2002 salmon season, the first year the co-op was in operation, the slow movement of fish, adverse weather conditions, and the shift in management strategy with the early start of the commercial fishery reduced early-season subsistence opportunities. To provide a subsistence opportunity for commercial fishing license holders, the fishery managers opened subsistence salmon fishing for commercial fishing license holders for two days in late June by emergency order. Additional opportunities occurred again in early September. Though opportunities occurred during this year, several local subsistence families believed that they needed to have opportunities to harvest salmon in early June, the traditional time, because by late June, the blowflies were present and much of their fish spoiled.

During the 2003 season, in order to provide a subsistence opportunity for commercial fishing license holders, the conditions of the subsistence permit were liberalized. Subsistence salmon fishing for commercial fishing license holders was open for the entire season, as long as they registered with ADF&G Chignik office prior to harvesting fish (McCullough 2003).

In 2004, ADF&G continued to provide commercial license holders with subsistence-fishing opportunities throughout the season, and opened up subsistence fishing in Chignik River above the weir in June. Several people still reported that they had difficulty obtaining their subsistence salmon in early June.

Subsistence salmon fishing patterns have been affected both positively and negatively by the formation of the co-op fishery, and the fishery in general has been met with mixed reactions in Perryville as well as the other Chignik communities. Some believe the co-op has helped their families economically and allowed for additional time to harvest subsistence salmon. Others believe the co-op fishery has limited subsistence fishing opportunities and the co-op has financially devastated them. Some families believe that even though ADF&G has liberalized subsistence opportunities greatly, they have lost the ability to harvest their spring salmon prior to the first commercial opening. As noted earlier, families that establish fish camps along Chignik Lagoon, including Perryville families, prefer putting up their spring salmon prior to the commercial fishery mainly because there are fewer flies in early June to spoil the smoked or kippered fish. They also believe that the early run fish taste better and freeze or salt better if harvested early in the season. There are others that see both positive and negative changes occurring with their subsistence harvests and cash economy as a result of this change to the commercial fishery. In addition, salmon, which is dried, is harvested from Chignik Lake in the fall by many of the Chignik area residents including some Perryville families. Several residents, particularly of Chignik Lake, commented that they were not seeing as many fish as in prior years and ,therefore, needed to fish more days to harvest these fish or they simply got less.

Culturally, the co-op has changed some of the traditional patterns of Perryville and Chignik Lake families who traditionally traveled to Chignik Lagoon to spend summers in fish camps while members of their family fished the commercial fishery. This pattern continues for some Perryville families. For example, one Perryville respondent said when asked if he continues to go to fish camp:

> We go (to fish camp) because it is a family tradition. I have to go, it's the way I learned and my wife's hometown. When you grow up, your roots draw you back there. You got to know where you come from in life and is what you become.

However, many of Perryville families have lost the motivation or cannot afford to go to fish camp if they can no longer commercial fish in Chignik Lagoon. In addition, many people that owned commercial boats sold their boats and therefore do not have any means to travel to fish camp. Children, who worked on the family fishing boat, no longer have that opportunity to learn about fishing or to go to fish camp for subsistence. Many people who once earned income from commercial fishing now have found year-around employment in Perryville, which restricts their ability to go to fish camp.

The new co-op fishery still allows for license holders to participate in the fishery if interested, although not all boats get to fish. All license holders, whether they fish or not, share the income from the fishery. Though these co-op boats need deckhands, the co-op has significantly decreased employment opportunities for Perryville residents who worked as deckhands in the past. A person who had always worked as a deckhand, but did not own a permit, would not receive any percentage of payment from the co-op fishery unless they were able to work on a co-op boat or on an “independent” boat. Some of the people who used to work as deckhands but were unable to work as a deckhand on one of the co-op boats or on an “independent” boat, are now either working jobs in the village, are unemployed, or have moved out of the village for employment. One respondent said:

> I worked as a deckhand on a co-op boat last summer. I had many chances to go out and harvest my own subsistence salmon, but I could have removed some from our co-op catches. The biggest (negative) factor that I see with the co-op is that it has caused a loss of employment for those that use to work as crew.

> Other people believed that the changes to the Chignik commercial fishery have not had any big effect on employment opportunities. As one respondent commented:

> I found that it was easy to get a job as a crew on a co-op boat last summer. I don’t think that the co-op has changed opportunities for a person to work as a deckhand, and you can take as much fish as you want for yourself or others that need it (for subsistence).

Subsistence salmon patterns in Perryville have changed for families who formerly traveled to Chignik to fish commercially. If that person or family is not fishing, they can receive salmon from the co-op for subsistence but many believe that much of what subsistence is about are the labor involved, the harvesting and processing. One Perryville resident said:

> Receiving fish from the co-op is ok, but it is disorganized and not everyone that needs fish gets it. Also, subsistence people like the activity of getting their own fish, teaching their children and not just getting free handouts. How are our children going to learn about earning a living by fishing, or going to fish camp as we have always done if we no longer have a boat or need to fish because we joined the co-op?

> And another replied:

> Receiving fish like this erodes cultural traditions of teaching our children about fishing and putting away our subsistence fish.

Some of the families believed that the co-op has made them better, financially, and has allowed for more time to harvest and put away their subsistence salmon. They say the co-op has allowed for a more efficient fishery, and if they use their boat, they do not use as much fuel, because they work just one location of the lagoon, and the co-op is able to catch fish more efficiently (by using fixed-leads). The use of net pens keeps the fish fresh until they are delivered to the processors, who then pay them more money for a "better product." They have also commented that they like the co-op because it is not competitive, and they all need to work together instead of competing, which has made fishing more enjoyable and less stressful. Also, they say because of the efficiency in catching fish, they have more time to harvest their own subsistence salmon and process it as well. One family that fished for the co-op remarked:

> In the past we have always harvested enough salmon to get a surplus. We were able to do that more easily this year because with the way the co-op fishery worked we had more time off from commercial fishing to do our subsistence. We also were able to remove subsistence fish from our co-op catch. The biggest difference, though, is that in the past, we always freeze some red salmon fillets in the freezer, but we were unable to do that this year. I love fishing for the co-op, for we don't fight with other fisherman like before, we have to work together and makes for a more enjoyable and relaxing fishing season, and our income is better than when we fished independently.
>
> While the co-op has taken away the competition and typical conflicts that go with commercial fishing (for people who joined the co-op because of the benefit of working together for the benefit of all), it has also led to strife with families that have chosen to work as "independent" fishermen. As one person that remained an independent fisherman commented:
>
> Since the co-op, my income has gone down and many people in the village no longer can get work fishing. I have relatives that do not talk to me anymore. I don't want to give up the tradition of my livelihood, fishing for myself. I understand why some people want to join the co-op, for it is easy. But for those of us that still want to fish independently like we have always done, because so many people have joined the co-op, it has made it so we (the "independent" fishermen's) have very few days to catch [commercial] our fish like we use to have before the co-op.
>
> Another respondent believed the co-op has helped his community:
>
> [The co-op] has helped us. The co-op doesn't come here (Perryville region) to commercial fish (like in past), so our local streams are getting more humpies and silvers and we are even getting sockeye here now.

There were several Perryville households that still expressed concerns about the possible effects of the oil spill on the local subsistence resources and believed that, overall, many local subsistence resources are less abundant than they were in the years before the spill. Also, the commercial salmon fishery in Chignik Area, according to some comments from Perryville residents, has not rebounded since it was hard hit the year of the the spill. In their view, this has eventually led to a shift in employment and family summer activity patterns for several families (with fewer getting employment through fishing), and families not going to fish camp in Chignik to get salmon for smoking. The 2003 study year appeared to be a good year for an abundance of coho salmon particularly in Three Star and Long Beach rivers. The Kametolook River still remained closed for subsistence fishing in 2003 by the Perryville Village Council in an effort to help strengthen future runs. Many believed that the Kametolook River in 2003 had more coho than they had seen in several years suggesting the restoration project is working. Also, everyone spoke of a strange “brown/red tide/oil patch” that came through the whole region around October or November 2003. It made the water very murky and smelly. It was around for about three weeks and, when it left, most of the bidarkies fell off of the rocks dead and the sea urchins had no spines. Everyone reported difficulties since then in obtaining these, as well as butter clams. One person responded:

> This fall, in early November, the ocean was brown, something out there. The water was murky, and the ocean was stinky, smelled like a sewer. Then the next low tide, we went down to the beach at low tide and saw several bidarkies off the rocks dead. Sea urchins were spineless, but the eggs were still inside. I thought it was a red tide, but it was different. I ate the sea urchins anyway and didn’t get sick. I wonder if it is an oil slick left over from the spill?

Another respondent spoke about other pollutants in the area such as batteries left from the old lighthouse on Paul Island:

> There are mounds of buried batteries eroding from the beach there. They informed DEC in the 1990s at the time of the spill, but never heard any more.

The Kametolook River Coho Restoration Project was developed after the Alaska State Legislature awarded the Department of Community and Regional Affairs (DCRA) $5 million to fund restoration projects, requested by villages, in the area impacted by the oil spill. Perryville's top priority was restoration of the Kametolook River coho salmon run because of its importance to their subsistence way of life. The project began in 1996 with DCRA funding which was used to evaluate restoration alternatives. The *Exxon Valdez* Oil Spill Trustee Council funded the second through seventh years of the project (Federal Fiscal Years 1997 through 2002) which used in-stream salmon incubation boxes, village restrictions to subsistence coho fishing in the river, and restrictions for commercial fishing as ways to restore depleted coho stocks (Hutchinson-Scarbrough and McCullough 2003).

Perryville subsistence harvests have remained strong since 1984 and have shown an increase in resources harvested, as well as total pounds harvested per person, in 2003. The population of Perryville has remained virtually unchanged since 1984, with many young adults choosing to remain in the community and raise their families. The school in 2003 employed four teachers offering grades K-12. When Perryville households were asked if the elders’ influence in teaching subsistence skills had declined compared to five year ago, 76% replied yes. Most of this was due to the loss of a few elders. In 2003, however, the community started incorporating the elders in cultural education programs for the community such as a recent barabara project, and the formation of an Alutiiq dance group.

One of the elders in Perryville commented:

> We lost our biggest teacher three years ago. We continue to teach our kids, but some other families aren't teaching these skills like I learned when I was young, or how we taught our kids. Some of the younger adults didn't have anyone to start it off (their learning) like building smokehouses. For example, we learned how to brine fish, for example so when you ate it you didn't have to salt it. If you are too busy watching TV, then you aren't teaching your kids. The spill did play a part for a few years in some believing safe to harvest subsistence foods and some of these children did not learn.

The perception of the majority of Perryville residents, when asked about subsistence harvests, is that there are fewer resources available in the area to harvest. They are finding that they need to travel further or fish or hunt more days in order to get the resources that were once available closer to the village. Subsistence remains very important to people in Perryville, and by the harvest information they are substituting some of their traditional foods with other foods, due to lack of availability of their preferred food, such as moose for caribou and sockeye salmon, instead of coho.

Some Perryville residents believed that the oil spill contributed toward declines of their coho runs as well as marine mammals, shellfish and birds. Others were reluctant to say the spill contributed toward the decline, but when asked they would usually respond with an "I don't know, probably." Others believe that the spill is just one factor, and that the ocean has many more pollutants such as nuclear energy from Russia and the Aleutians, dumped batteries on a nearby island, other oil spills, fishing boats dumping their bilges and other garbage in their nearby bays and global warming. One person stated:

> We beach comb and have found just about something from every part of the world, so how could we not be receiving ocean pollutants?

Sixty-seven percent of respondents reported that the habitat has changed since the oil spill. Most of the habitat changes had to do with the clarity of the ocean, a great decline in shellfish, fewer migratory birds and the berry picking areas that are overgrown with brush.

Seventy-five percent of Perryville households believed that subsistence resources affected by the spill have not recovered to the pre-spill levels. Fifty-nine% of Perryville household said they had to replace at least some of their wild foods with store-bought foods in 2003 because it was not available to harvest in the area. This resource was generally a substitute for caribou, which most people do not believe declined due to the spill, but rather overhunting, from sport hunters several years before.

For the most part, Perryville residents, though concerned about the safety of some resources, still chose to harvest and eat these foods, which they prefer, and believe are safer than eating imported meat or store-bought foods. When asked if they believed that clams, bidarkis and seals were safe to eat, over 75% for each resource responded "yes." There are some exceptions with a few of the younger adults that prefer "non-Native foods" to locally harvested subsistence foods. The community was divided when asked if they believed Perryville's young adults were learning enough subsistence skills, with 52% saying "yes." Some of the factors given as to why they were not had to with a shift in the values of parents in their teaching, the influence of television, movies and alcohol.

The majority of households (89%) believed that the traditional way of life was affected by the spill and 79% believed that it still had not recovered. Many believed additional projects like the Kametolook Coho Restoration Project would be useful, however only 22% of Perryville's households believed they had been informed or knew much about the GEM project, which could be utilized in Perryville if more information were provided to the community.

It appears that the greatest effect of the spill on the community was more economically driven in regards to these communities' reliance on salmon for employment as well as subsistence. Some would go so far as asserting that had the spill not occurred, people would be better off financially and the salmon runs, to the Chignik management, would be as strong as before the spill, and the co-op fishery might not have been necessary.

The psychological effect was also great in these communities, that is, the fear of the unknown. Although these communities are in direct line of the ocean currents, these communities had never experienced an oil spill this great: their commercial fishery was restricted the first year, they found tar balls on their beaches as well as dead birds that had been oiled (even though they were 500 miles from the tanker spill). This was a situation for which even the elders did not have knowledge of what to do or how to address the problem.

One elder's words, when asked if the traditional way was affected by the spill and how to help the traditional way of life recover, provide a good summary of the perspective at Perryville:

> Yes, it was hurt, and better management of resources would help. If properly managed, there wouldn't be a problem. The biggest effect (of the spill) around here was psychological. We still worry about clams and bidarkis that seem to not be around as much anymore, about our bottomfish that you have to fish deeper to get now, and our seals that disappeared and our salmon that started showing up with marks on their sides. We found dead birds on our beaches and tar balls. I had HAZMAT training, which helped me to understand and evaluate the affects of petroleum. We saw oil sheen in our waters after the spill in large areas. Yet how do we trust if our resources are safe for our families? We still eat them, yet now we wonder. That is what has changed the most for me.

Table XVI-1. Population Profile, Perryville, 2003 Study Year

AGE	MALE			FEMALE			TOTAL		
	Number	Percent	Cum. Percent	Number	Percent	Cum. Percent	Number	Percent	Cum. Percent
0 - 4	8.56	12.07%	12.07%	7.33	14.63%	14.63%	15.89	13.13%	13.13%
5 - 9	12.22	17.24%	29.31%	1.22	2.44%	17.07%	13.44	11.11%	24.24%
10 - 14	8.56	12.07%	41.38%	3.67	7.32%	24.39%	12.22	10.10%	34.34%
15 - 19	9.78	13.79%	55.17%	2.44	4.88%	29.27%	12.22	10.10%	44.44%
20 - 24	7.33	10.34%	65.52%	6.11	12.20%	41.46%	13.44	11.11%	55.56%
25 - 29	2.44	3.45%	68.97%	4.89	9.76%	51.22%	7.33	6.06%	61.62%
30 - 34	1.22	1.72%	70.69%	3.67	7.32%	58.54%	4.89	4.04%	65.66%
35 - 39	6.11	8.62%	79.31%	1.22	2.44%	60.98%	7.33	6.06%	71.72%
40 - 44	1.22	1.72%	81.03%	1.22	2.44%	63.41%	2.44	2.02%	73.74%
45 - 49	2.44	3.45%	84.48%	4.89	9.76%	73.17%	7.33	6.06%	79.80%
50 - 54	4.89	6.90%	91.38%	4.89	9.76%	82.93%	9.78	8.08%	87.88%
55 - 59	3.67	5.17%	96.55%	2.44	4.88%	87.80%	6.11	5.05%	92.93%
60 - 64	0.00	0.00%	96.55%	2.44	4.88%	92.68%	2.44	2.02%	94.95%
65 - 69	2.44	3.45%	100.00%	1.22	2.44%	95.12%	3.67	3.03%	97.98%
70 - 74	0.00	0.00%	100.00%	1.22	2.44%	97.56%	1.22	1.01%	98.99%
75 - 79	0.00	0.00%	100.00%	0.00	0.00%	97.56%	0.00	0.00%	98.99%
80 - 84	0.00	0.00%	100.00%	0.00	0.00%	97.56%	0.00	0.00%	98.99%
85 - 89	0.00	0.00%	100.00%	1.22	2.44%	100.00%	1.22	1.01%	100.00%
90 - 94	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
95 - 99	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
100+	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
Missing	0.00	0.00%	100.00%	0.00	0.00%	100.00%	0.00	0.00%	100.00%
TOTAL	70.89	58.59%		50.11	41.41%		121.00		

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table XVI-2. Estimated Harvest and Use of Fish, Game and Plant Resources, Perryville, 2003 Study Year

	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
Resource Name	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
All Resources	100.0	100.0	100.0	100.0	100.0	63,939.54	1,937.56	517.96				69.38%
Fish	100.0	96.3	96.3	88.9	88.9	35,298.49	1,069.65	285.95				38.13%
Salmon	100.0	96.3	96.3	81.5	85.2	28,268.92	856.63	229.00	6,253.19		189.49	27.48%
Chum Salmon	55.6	48.1	44.4	11.1	25.9	843.66	25.57	6.83	162.56		4.93	30.89%
Coho Salmon	92.6	88.9	85.2	51.9	66.7	9,691.98	293.70	78.51	1,563.22		47.37	19.35%
Chinook Salmon	40.7	25.9	25.9	22.2	22.2	633.72	19.20	5.13	61.11		1.85	34.12%
Pink Salmon	85.2	81.5	81.5	29.6	55.6	4,647.82	140.84	37.65	1,636.56		49.59	28.65%
Sockeye Salmon	92.6	74.1	74.1	55.6	59.3	11,051.04	334.88	89.52	2,288.00		69.33	25.02%
Landlocked Salmon	33.3	29.6	29.6	3.7	7.4	48.13	1.46	0.39	32.08		0.97	35.06%
Spawnouts	37.0	18.5	18.5	22.2	25.9	1,352.58	40.99	10.96	509.67		15.44	38.16%
Spawning Coho	22.2	18.5	18.5	7.4	18.5	940.82	28.51	7.62	326.33		9.89	45.06%
Spawning Sockeye	18.5	3.7	3.7	14.8	11.1	411.76	12.48	3.34	183.33		5.56	86.01%
Unknown Salmon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Non-Salmon Fish	92.6	85.2	85.2	74.1	77.8	7,029.57	213.02	56.95				26.21%
Herring	3.7	0.0	0.0	3.7	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Herring Roe	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Herring Roe/Unspecified	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Herring Sac Roe	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Herring Spawn on Kelp	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Smelt	81.5	74.1	74.1	37.0	66.7	575.38	17.44	4.66	177.04	GAL	5.36	14.35%
Eulachon (hooligan, candlefish)	81.5	74.1	74.1	37.0	66.7	575.38	17.44	4.66	177.04	GAL	5.36	14.35%
Rainbow Smelt	7.4	0.0	0.0	7.4	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Cod	44.4	33.3	29.6	29.6	18.5	641.42	19.44	5.20	200.44		6.07	36.51%
Pacific Cod (gray)	44.4	33.3	29.6	29.6	18.5	641.42	19.44	5.20	200.44		6.07	36.51%
Pacific (Silver) Hake	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Pacific Tom Cod	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Walleye Pollock (whiting)	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Flounder	7.4	7.4	7.4	0.0	0.0	25.67	0.78	0.21	8.56		0.26	59.17%
Starry Flounder	3.7	3.7	3.7	0.0	0.0	14.67	0.44	0.12	4.89		0.15	86.01%
Unknown Flounder	3.7	3.7	3.7	0.0	0.0	11.00	0.33	0.09	3.67		0.11	86.01%
Greenling	14.8	11.1	11.1	7.4	3.7	22.00	0.67	0.18	18.33		0.56	58.99%
Lingcod	3.7	3.7	3.7	0.0	3.7	4.89	0.15	0.04	1.22		0.04	86.01%
Unknown Greenling	11.1	7.4	7.4	7.4	0.0	17.11	0.52	0.14	17.11		0.52	73.86%
Halibut	81.5	59.3	59.3	66.7	55.6	5,355.78	162.30	43.39	5,355.78	LBS	162.30	20.11%
Rockfish	22.2	25.9	18.5	3.7	11.1	133.22	4.04	1.08	86.78		2.63	42.87%
Black Rockfish	18.5	22.2	14.8	3.7	11.1	128.33	3.89	1.04	85.56		2.59	44.70%
Red Rockfish	3.7	3.7	3.7	0.0	0.0	4.89	0.15	0.04	1.22		0.04	86.01%
Unknown Rockfish	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Sablefish (black cod)	18.5	3.7	3.7	18.5	7.4	7.58	0.23	0.06	2.44		0.07	86.01%
Sculpin	11.1	7.4	7.4	7.4	3.7	9.17	0.28	0.07	18.33		0.56	44.39%
Irish Lord	11.1	7.4	7.4	7.4	0.0	3.67	0.11	0.03	7.33		0.22	72.06%
Unknown Irish Lord	11.1	7.4	7.4	7.4	0.0	3.67	0.11	0.03	7.33		0.22	72.06%
Unknown Sculpin	7.4	7.4	7.4	3.7	3.7	5.50	0.17	0.04	11.00		0.33	62.15%
Shark	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Shark	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%

(Continued)

Table XVI-2. Estimated Harvest and Use of Fish, Game and Plant Resources, Perryville, 2003 Study Year

	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
Resource Name	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Skates	3.7	3.7	3.7	0.0	0.0	6.11	0.19	0.05	1.22		0.04	86.01%
Sole	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Sole	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tuna/Mackerel	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Mackerel	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Char	25.9	22.2	22.2	11.1	18.5	246.40	7.47	2.00	176.00		5.33	59.18%
Dolly Varden	25.9	22.2	22.2	11.1	18.5	246.40	7.47	2.00	176.00		5.33	59.18%
Trout	14.8	7.4	7.4	7.4	3.7	6.84	0.21	0.06	4.89		0.15	66.46%
Rainbow Trout	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Steelhead	14.8	7.4	7.4	7.4	3.7	6.84	0.21	0.06	4.89		0.15	66.46%
Unknown Trout	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Land Mammals	96.3	55.6	37.0	92.6	59.3	17,878.67	541.78	144.83	55.00		1.67	35.58%
Large Land Mammals	96.3	51.9	33.3	92.6	55.6	17,844.44	540.74	144.55	42.78		1.30	35.05%
Brown Bear	48.1	7.4	7.4	40.7	22.2	831.11	25.19	6.73	2.44		0.07	58.48%
Caribou	70.4	37.0	18.5	59.3	29.6	1,833.33	55.56	14.85	12.22		0.37	37.86%
Deer	7.4	0.0	0.0	7.4	7.4	0.00	0.00	0.00	0.00		0.00	0.00%
Moose	92.6	40.7	25.9	81.5	44.4	15,180.00	460.00	122.97	28.11		0.85	40.69%
Small Land Mammals	18.5	14.8	7.4	11.1	11.1	34.22	1.04	0.28	12.22		0.37	74.01%
Beaver	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Fox	3.7	3.7	3.7	0.0	0.0	0.00	0.00	0.00	3.67		0.11	86.01%
Red Fox	3.7	3.7	3.7	0.0	0.0	0.00	0.00	0.00	3.67		0.11	86.01%
Hare	3.7	3.7	3.7	0.0	0.0	4.89	0.15	0.04	2.44		0.07	86.01%
Snowshoe Hare	3.7	3.7	3.7	0.0	0.0	4.89	0.15	0.04	2.44		0.07	86.01%
Land Otter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Lynx	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Mink	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Porcupine	14.8	11.1	3.7	11.1	11.1	29.33	0.89	0.24	3.67		0.11	86.14%
Weasel	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Wolf	3.7	3.7	3.7	0.0	0.0	0.00	0.00	0.00	2.44		0.07	86.01%
Wolverine	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Marine Mammals	81.5	59.3	55.6	66.7	59.3	3,119.11	94.52	25.27	52.56		1.59	16.05%
Seal	81.5	59.3	55.6	63.0	55.6	2,874.67	87.11	23.29	51.33		1.56	16.75%
Harbor Seal	81.5	59.3	55.6	63.0	55.6	2,874.67	87.11	23.29	51.33		1.56	16.75%
Harbor Seal (saltwater)	81.5	59.3	55.6	63.0	55.6	2,874.67	87.11	23.29	51.33		1.56	16.75%
Sea Otter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Steller Sea Lion	22.2	11.1	3.7	18.5	11.1	244.44	7.41	1.98	1.22		0.04	86.14%
Whale	11.1	0.0	0.0	11.1	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Whale	11.1	0.0	0.0	11.1	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Birds and Eggs	92.6	66.7	66.7	70.4	59.3	1,402.77	42.51	11.36				36.37%
Migratory Birds	59.3	40.7	40.7	37.0	33.3	445.71	13.51	3.61	460.60		13.96	28.31%
Ducks	59.3	37.0	37.0	37.0	33.3	300.27	9.10	2.43	399.49		12.11	38.42%
Bufflehead	18.5	18.5	18.5	0.0	14.8	16.62	0.50	0.13	41.56		1.26	36.43%
Canvasback	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Gadwall	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Goldeneye	18.5	11.1	11.1	7.4	14.8	22.49	0.68	0.18	28.11		0.85	47.88%
Unknown Goldeneye	18.5	11.1	11.1	7.4	14.8	22.49	0.68	0.18	28.11		0.85	47.88%

(Continued)

Table XVI-2. Estimated Harvest and Use of Fish, Game and Plant Resources, Perryville, 2003 Study Year

	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
Resource Name	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Harlequin	29.6	18.5	18.5	18.5	22.2	31.78	0.96	0.26	63.56		1.93	37.33%
Mallard	29.6	25.9	25.9	11.1	18.5	183.54	5.56	1.49	203.94		6.18	63.81%
Merganser	11.1	7.4	7.4	7.4	3.7	5.50	0.17	0.04	6.11		0.19	69.68%
Common Merganser	11.1	7.4	7.4	7.4	3.7	5.50	0.17	0.04	6.11		0.19	69.68%
Long-tailed Duck (Oldsquaw)	11.1	11.1	11.1	3.7	11.1	23.47	0.71	0.19	29.33		0.89	47.03%
Northern Pintail	3.7	0.0	0.0	3.7	3.7	0.00	0.00	0.00	0.00		0.00	0.00%
Scaup	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Scaup	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Scoter	14.8	7.4	7.4	7.4	7.4	13.20	0.40	0.11	14.67		0.44	49.33%
Black Scoter	11.1	7.4	7.4	3.7	7.4	9.90	0.30	0.08	11.00		0.33	62.15%
Surf Scoter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
White-winged Scoter	7.4	3.7	3.7	3.7	3.7	3.30	0.10	0.03	3.67		0.11	86.01%
Unknown Scoter	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Teal	7.4	7.4	7.4	3.7	7.4	3.67	0.11	0.03	12.22		0.37	69.68%
Green Winged Teal	7.4	7.4	7.4	3.7	7.4	3.67	0.11	0.03	12.22		0.37	69.68%
Wigeon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
American Wigeon	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Ducks	3.7	0.0	0.0	3.7	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Geese	22.2	18.5	18.5	11.1	18.5	140.56	4.26	1.14	56.22		1.70	40.72%
Brant	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Canada Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Canada Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Emperor Geese	22.2	18.5	18.5	11.1	18.5	140.56	4.26	1.14	56.22		1.70	40.72%
Snow Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
White-fronted Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Geese	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Shorebirds	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Common Snipe	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Seabirds & Loons	7.4	3.7	3.7	3.7	0.0	4.89	0.15	0.04	4.89		0.15	86.01%
Auklet	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Parakeet Auklet	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Gulls	7.4	3.7	3.7	3.7	0.0	4.89	0.15	0.04	4.89		0.15	86.01%
Unknown Gull	7.4	3.7	3.7	3.7	0.0	4.89	0.15	0.04	4.89		0.15	86.01%
Murre	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Common Murre	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Puffins	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Puffin	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Other Birds	74.1	51.9	51.9	48.1	44.4	832.03	25.21	6.74	1,188.61		36.02	53.55%
Upland Game Birds	74.1	51.9	51.9	48.1	44.4	832.03	25.21	6.74	1,188.61		36.02	53.55%
Ptarmigan	74.1	51.9	51.9	48.1	44.4	832.03	25.21	6.74	1,188.61		36.02	53.55%
Bird Eggs	74.1	40.7	40.7	44.4	37.0	125.03	3.79	1.01	416.78		12.63	29.79%
Duck Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Duck Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Geese Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Geese Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Seabird & Loon Eggs	74.1	40.7	40.7	44.4	37.0	125.03	3.79	1.01	416.78		12.63	29.79%

(Continued)

Table XVI-2. Estimated Harvest and Use of Fish, Game and Plant Resources, Perryville, 2003 Study Year

Resource Name	Percentage of Households					Pounds Harvested			Amount Harvested			Conf Limit 95% (+/-)
	Use	Att	Harv	Recv	Give	Total	Mean HH	Per Capita	Total	Units	Mean HH	Harvest
Gull Eggs	74.1	40.7	40.7	44.4	37.0	125.03	3.79	1.01	416.78		12.63	29.79%
Glaucous Winged Gull Eggs	7.4	0.0	0.0	7.4	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Herring Gull Eggs	70.4	40.7	40.7	40.7	37.0	125.03	3.79	1.01	416.78		12.63	29.79%
Puffin Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tern Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Seabird Eggs	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Marine Invertebrates	96.3	88.9	88.9	88.9	70.4	4,601.50	139.44	37.28				35.15%
Chitons (bidarkis, gumboots)	85.2	85.2	85.2	37.0	51.9	626.08	18.97	5.07	161.84	GAL	4.90	19.32%
Red (large) Chitons	40.7	37.0	37.0	11.1	25.9	63.86	1.94	0.52	21.29	GAL	0.65	29.36%
Black (small) Chitons	85.2	85.2	85.2	33.3	48.1	562.22	17.04	4.55	140.56	GAL	4.26	19.78%
Clams	85.2	70.4	70.4	59.3	51.9	1,303.43	39.50	10.56	434.48	GAL	13.17	16.43%
Butter Clams	85.2	70.4	70.4	59.3	51.9	900.09	27.28	7.29	300.03	GAL	9.09	20.46%
Horse Clams (Gaper)	7.4	3.7	3.7	3.7	3.7	7.33	0.22	0.06	2.44	GAL	0.07	86.01%
Pacific Littleneck Clams (Steamers)	37.0	33.3	33.3	14.8	22.2	117.33	3.56	0.95	39.11	GAL	1.19	23.81%
Pinkneck Clams	18.5	14.8	14.8	11.1	11.1	73.33	2.22	0.59	24.44	GAL	0.74	42.50%
Razor Clams	22.2	18.5	18.5	7.4	14.8	205.33	6.22	1.66	68.44	GAL	2.07	36.55%
Unknown Clams	3.7	0.0	0.0	3.7	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Cockles	66.7	40.7	40.7	48.1	37.0	421.67	12.78	3.42	140.56	GAL	4.26	28.01%
Unknown Cockles	66.7	40.7	40.7	48.1	37.0	421.67	12.78	3.42	140.56	GAL	4.26	28.01%
Crabs	81.5	59.3	55.6	70.4	48.1	1,636.80	49.60	13.26	1,573.00		47.67	24.28%
Dungeness Crab	59.3	48.1	48.1	40.7	37.0	684.44	20.74	5.54	977.78		29.63	28.69%
King Crab	7.4	3.7	0.0	7.4	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown King Crab	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Tanner Crab	66.7	37.0	25.9	66.7	40.7	952.36	28.86	7.71	595.22		18.04	39.66%
Tanner Crab, Bairdi	66.7	37.0	25.9	66.7	40.7	952.36	28.86	7.71	595.22		18.04	39.66%
Unknown Tanner Crab	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Unknown Crab	3.7	0.0	0.0	3.7	0.0	0.00	0.00	0.00	0.00		0.00	0.00%
Limpets	7.4	7.4	7.4	0.0	0.0	1.96	0.06	0.02	1.30	GAL	0.04	80.46%
Mussels	25.9	22.2	22.2	7.4	11.1	18.33	0.56	0.15	12.22	GAL	0.37	37.27%
Unknown Mussels	25.9	22.2	22.2	7.4	11.1	18.33	0.56	0.15	12.22	GAL	0.37	37.27%
Octopus	63.0	44.4	40.7	40.7	40.7	444.89	13.48	3.60	111.22		3.37	26.30%
Scallops	7.4	3.7	3.7	3.7	0.0	7.33	0.22	0.06	7.33	GAL	0.22	86.01%
Weathervane Scallops	7.4	3.7	3.7	3.7	0.0	7.33	0.22	0.06	7.33	GAL	0.22	86.01%
Sea Cucumber	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	GAL	0.00	0.00%
Sea Urchin	74.1	74.1	70.4	48.1	63.0	136.89	4.15	1.11	273.78	GAL	8.30	17.01%
Shrimp	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	LBS	0.00	0.00%
Snails	11.1	11.1	11.1	0.0	0.0	4.13	0.13	0.03	2.75	GAL	0.08	51.88%
Vegetation	100.0	100.0	100.0	48.1	59.3	1639.00	49.67	13.28				22.20%
Berries	96.3	88.9	88.9	40.7	48.1	1,417.78	42.96	11.49	354.44	GAL	10.74	18.23%
Plants/Greens/Mushrooms	92.6	92.6	88.9	14.8	14.8	196.78	5.96	1.59	49.19	GAL	1.49	17.13%
Seaweed/Kelp	14.8	14.8	14.8	3.7	3.7	24.44	0.74	0.20	6.11	GAL	0.19	41.07%
Unknown Seaweed	14.8	14.8	14.8	3.7	3.7	24.44	0.74	0.20	6.11	GAL	0.19	41.07%
Wood	88.9	88.9	88.9	11.1	33.3	0.00	0.00	0.00	92.89	CORDS	2.81	26.23%

Note: Harvest amount in individual units unless otherwise specified.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table XVI-3. Subsistence Harvests in Pounds Usable Weight per by Resource Category, Perryville

	Pounds per Person		
	1984	1989	2003
Salmon	215.8	202.2	229.0
Other Fish	44.7	69.5	57.0
Land Mammals	93.4	60.0	144.8
Marine Mammals	19.7	25.6	25.3
Birds & Eggs	6.7	8.2	11.4
Marine Invertebrates	10.8	20.5	37.3
Wild Plants	*	8.5	13.3
All Resources	391.2	394.4	518.0

* Data not collected in 1984.

SOURCE: Scott et al. 2001; Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table XVI-4. Composition of Resource Harvests by Resource Category, Perryville

	Percentage of Total Harvest		
	1984	1989	2003
Salmon	55.2%	51.3%	44.2%
Other Fish	11.4%	17.6%	11.0%
Land Mammals	23.9%	15.2%	28.0%
Marine Mammals	5.0%	6.5%	4.9%
Birds & Eggs	1.7%	2.1%	2.2%
Marine Invertebrates	2.8%	5.2%	7.2%
Wild Plants	*	2.2%	2.6%

* Data not collected in 1984.

SOURCE: Scott et al. 2001; Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

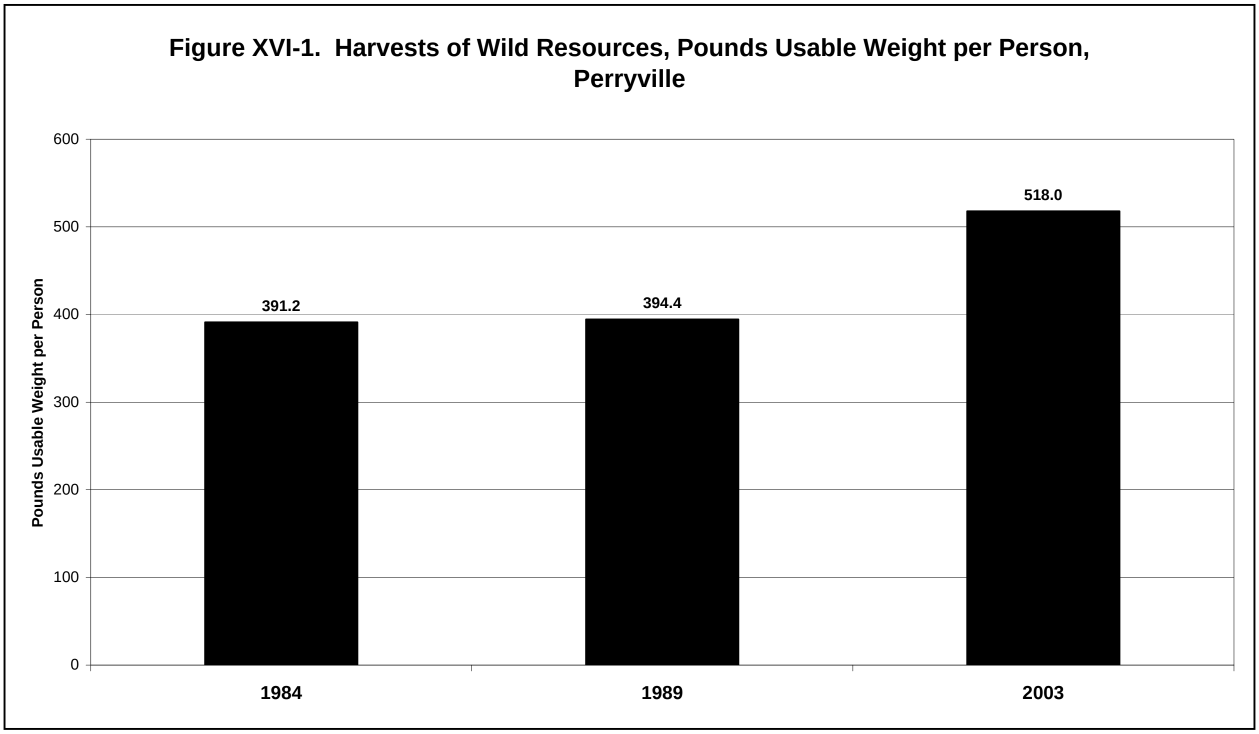


Figure XVI-1. Harvests of Wild Resources, Pounds Usable Weight per Person, Perryville
Pounds Usable Weight per Person
600
500
400
300
200
100
0
391.2
394.4
518.0
1984
1989
2003

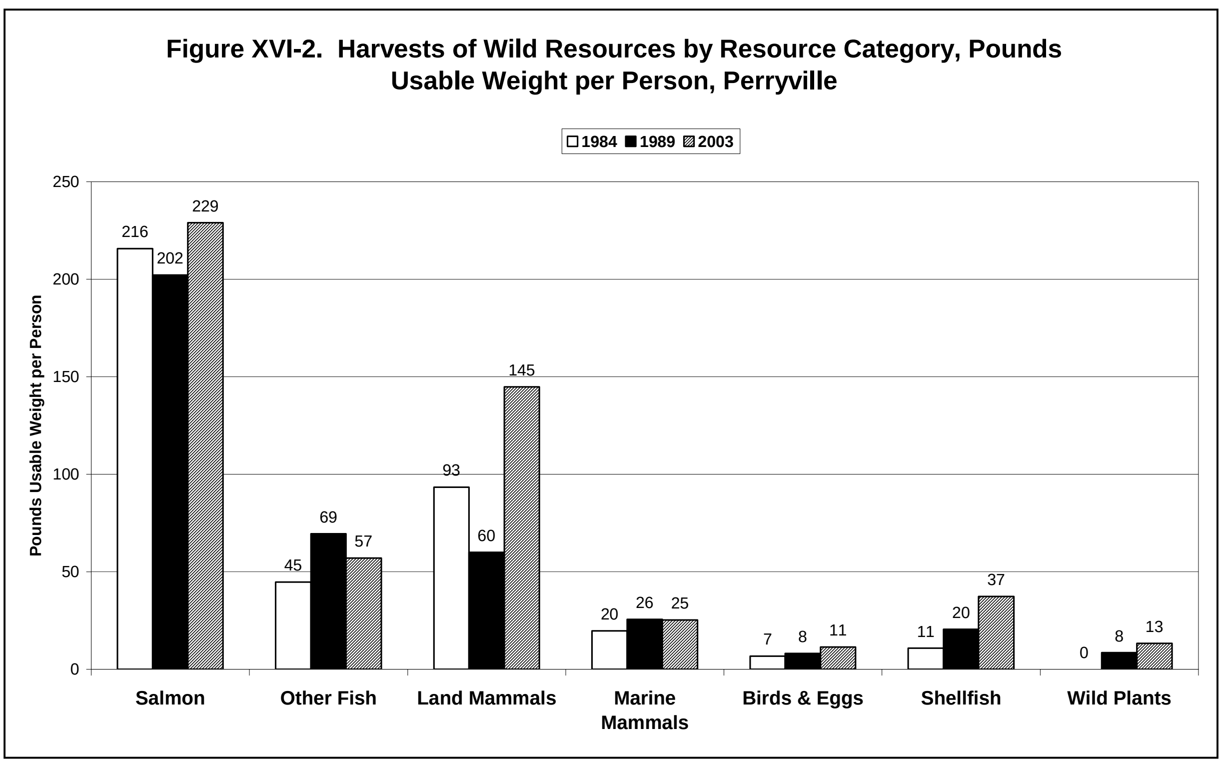


Figure XVI-2. Harvests of Wild Resources by Resource Category, Pounds Usable Weight per Person, Perryville
1984
1989
2003
Pounds Usable Weight per Person
250
200
150
100
50
0
216
202
229
45
69
57
93
60
145
20
26
25
7
8
11
11
20
37
0
8
13
Salmon
Other Fish
Land Mammals
Marine Mammals
Birds & Eggs
Shellfish
Wild Plants

CHAPTER XVII: DISCUSSION AND CONCLUSIONS

by

James A. Fall

INTRODUCTION: ADDRESSING THE RECOVERY OBJECTIVE

The purpose of this project was to gather information to assist in the assessment of the status of subsistence uses in the area affected by the *Exxon Valdez* oil spill (EVOS) in light of the Trustee Council's recovery objective (see Chapter I). Evaluating progress towards the Trustee Council's recovery objective for subsistence basically entails addressing three questions:

1. Are resources used for subsistence purposes healthy, and are their populations at pre-spill levels? This question was addressed by the "natural resource conditions" questions in the survey. Also, several oil spill restoration and GEM studies provide information to address this question.
2. Are people confident that resources are safe to eat? This question was addressed by food safety questions in the household survey.
3. Have the cultural values associated with subsistence uses been reintegrated into community life? This question was addressed by the "social and cultural conditions" questions in the survey.

Also, although the Trustee Council has established these three questions to frame consideration of the status of subsistence uses in oil spill communities, this discussion of the post-spill recovery of subsistence uses must also be informed by other factors that are deemed important by local community residents, such as harvest levels, the diversity of species used and changing environmental, economic, demographic, political and sociocultural conditions that have shaped subsistence hunting and fishing over the last 15 years.

Further, assessing the recovery of subsistence uses requires the difficult task of separating the lingering effects of the oil spill from other factors that are concurrently occurring. These factors include environmental, economic, social and cultural changes resulting from other processes active in the communities. In some cases, such as global climate change, these other conditions have no link to the oil spill. In others, such as the changing role of commercial fishing in many of the study communities, spill and non-spill factors may be intertwined. In still others, the role of the oil spill in changing fundamental environmental or social conditions is a point of contention. The link between paralytic shellfish poisoning (PSP) and the oil spill is an example; another may be the perception on the part of many survey respondents, that young people no longer have an interest in subsistence hunting and fishing.

Because subsistence hunting, fishing, and gathering are so central to community well-being in rural Alaska, fundamental to any evaluation of subsistence harvests and uses in the study communities is the recognition that the spill created a chronic technological disaster: one that persists, is difficult for its human victims to interpret and which results in a changed natural and social environment (Fall 1999d; Fall et al. 2001; Picou, Gill, and Cohen 1997). Also, as noted by Torry (1979:43), "Theories about disasters are inherently about communities, that is, community continuity and change." Interpretations of the meaning and long-term effects of the spill are "social constructions" that develop through discourse between scientists, managers, industry, the media and the residents of the affected communities (Fall et al. 2001:2). While the Trustee Council approaches its analysis of the status subsistence as an injured "natural resource service," community residents express a broader view, emphasizing the human and cultural dimensions in which subsistence uses of natural resources are embedded. It is important to keep these points in mind when reviewing the diverse and sometimes apparently contradictory responses to the survey questions, both between communities and within them.

DEMOGRAPHY

Before discussing subsistence harvest and use patterns, an overview of study findings regarding population trends in the spill-area communities is instructive. Changing community demography shapes patterns of subsistence uses as well as local perceptions of community well-being.

According to division household surveys, the population in the 15 study communities overall dropped 9.2% between 1990 (the year after the oil spill) and 2003 (the study year) (Fig. XVII-1). If Cordova is removed from the total, the population loss is even higher at 12.2%. During the same period, the population of Alaska rose 18.0%. If federal census and state estimates are used rather than the survey data, the story is similar: a population loss of 11.8% for the 15 study communities combined and a loss of 12.9% if Cordova is excluded (Fig. XVII-2).

Demographic trends have varied at the community level. Division survey results show notable population increases for three communities since 1990: Akhiok (up 26.8%), Chignik Lagoon (up 70.7%) and Nanwalek (up 46.5%). Four communities were virtually unchanged (plus or minus 5% or less), while the other eight lost from 6.8% (Ouzinkie) to 53.4% (Larsen Bay) of their population. One community with a permanent population in 1990, Ivanof Bay, reportedly had no permanent residents when the survey was conducted in early 2004. With one exception, federal and state census data show trends that are similar to the survey data. The exception is Akhiok, for which census records show a 33.8% drop in population between 1990 and 2003. Division surveys do not include seasonal residents; this might account for the differences between the two data sets for Akhiok (Fig XVII-1 and Fig. XVII-2).

According to survey results, in 2003, the study communities differed markedly in population structure. In 2000, the median age for Alaska's population was 32.4 years. In 2003, the median age in five of the study communities (Old Harbor, Ouzinkie, Chenega Bay, Chignik Lagoon and Karluk) was similar to the statewide value (+/- 10% or about 3 years). Six communities (Port Graham, Port Lions, Larsen Bay, Tatitlek, Chignik Bay and Cordova) had considerably older populations (median age 38.0 years or more), while in contrast, four communities (Perryville, Chignik Lake, Akhiok and Nanwalek) had very young populations (22.0 years median age or younger) (Fig. XVII-3). Correspondingly, a large percentage of the population of these latter four communities was under 20 years of age, from 44.6% in Perryville to 50.5% in Nanwalek, compared to 33.2% of the state's population overall (Fig. XVII-4).

In 2000, 51.7% of Alaska's population was male. In most of the study communities, a larger percentage of the population than the state's average was male, while in three (Chignik Lake, Tatitlek and Ouzinkie) the majority of the population was female (Fig. XVII-5). In most of the communities, males greatly outnumbered females among adults age 20 through 59 (see tables in community chapters). This suggests that more women than men are emigrating from the communities, most likely to regional centers (such as Cordova, Kodiak city or Valdez) or to Anchorage.

In summary, the population of the villages of the area affected by the spill has dropped, while the population of the state continued to grow significantly. Many villages have aging populations that are heavily skewed towards males. While subsistence harvest levels as estimated in pounds per capita may show recovery to pre-spill levels in some of these communities, their declining populations need to be factored in to any assessment of the status of the traditional way of life in the spill area.

TRENDS IN SUBSISTENCE HARVESTS AND USES

Subsistence Harvests and Uses in 2003

In 2003, harvests of wild resources for subsistence use in the study communities ranged from 176 pounds per person in Cordova to 518 pounds per person in Perryville (Table XVII-1 and Fig. XVII-6). The average for the 14 smaller communities (excluding Cordova) was 346.3 pounds per person. These are substantial harvests and approximate the average subsistence harvests of rural Alaska communities overall (Wolfe 2000; Fall et al. 2001:70-75). The overall estimate for the 14 smaller communities of 346.3 pounds per person almost matched the pre-spill average of 352.0 pounds per person for these places and illustrates the rebounding of subsistence harvests in the spill area since 1989. Increases in harvest estimates for the Lower Cook Inlet area in 2003 are particularly noteworthy (Fig. XVII-7).

Despite this overall return to near pre-spill harvest levels, the 2003 survey results illustrate several persistent differences between pre- and post-spill subsistence patterns. Marine invertebrate harvests continue to be low in many communities (e.g. Tatitlek, Chenega Bay, Ouzinkie, Larsen Bay) due to scarcities and PSP concerns (see Table XVII-2 and individual community chapters); marine mammal harvests are also down in a number of places (such as Tatitlek, Chenega Bay, Old Harbor), also due to scarcities, according to survey respondents.

For four communities (Chignik Lagoon, Perryville, Port Graham and Nanwalek), the 2003 estimated harvests are the highest for any year in which systematic household surveys were conducted. For others, harvests in 2003 were down from 1998 or considerably lower than pre-spill estimates (Tatitlek, Port Lions, Chignik Lake and Akhiok) (see Table XVII-3). At the subregional level, estimated harvests in 2003 were lower than pre-spill averages in Prince William Sound (this does not include Cordova) and the Kodiak Island Borough villages, and higher for the Lower Cook Inlet and Alaska Peninsula communities (Figure XVII-7). For Cordova, the 2003 estimate of 175.1 pounds per person was slightly lower than the pre-spill average of about 200 pounds per person, but very similar or higher than estimates for five out of six study years, for which harvest survey data are available (all but 1988) (see Table XVII-3).

In addition to harvest quantities, another index of changes in subsistence uses is the range of resources used. In this study, this is measured by the average number of resources used per household in each study community. Resource diversity declined substantially in the first two years after the spill, and then, like harvest quantities, gradually rebounded. In 2003, the average number of resources used per household ranged from a low of 7.9 kinds in Larsen Bay (see Chapter IX for discussion of this finding) to a high of 24.9 kinds in Ouzinkie (Fig. XVII-8). For the 14 predominately Alaska Native communities (all the study communities except Cordova, for which 1989 data are lacking), on average, households used 18.6 kinds of wild resources in 2003, compared to 16.9 kinds on average in years before the spill. In all four sub-regions, the range of resources used in 2003 matched or approached pre-spill levels and continued a clear rebounding back to a wide diversity of resources used (Fig. XVII-9). In Cordova, an average of 12.6 kinds of wild foods was used per household in the two pre-spill study years of 1985 and 1988 (Fall et al. 2001:75). This is nearly identical to the average of 12.4 kinds of resources used per household in 2003 (see Table I-10).

<u>Households' Assessments of Subsistence Uses in 2003 Compared to 1998</u>

Survey respondents were asked to assess trends in their household's subsistence uses compared to: 1) 1998 (five years before 2003, when the last round of comprehensive surveys took place); and 2) before the spill (15 years before the 2003 study year). For eight resource categories (salmon, other fish, large land mammals, small game, marine mammals, birds and eggs, marine invertebrates and wild plants), respondents reported whether their household's uses had increased, decreased, or remained about the same. If a change had occurred, they were asked to provide a reason for the change and whether they linked that change to the spill. A similar set of questions has been asked in every post-spill round of household surveys.

Regarding comparisons with 1998, assessments of trends in subsistence uses differed markedly between communities and among households in most communities (see Tables A-1 to A-27 and Fig. XVII-10). A majority of respondents in six communities (Karluk, Tatitlek, Akhiok, Port Graham, Chignik Lagoon and Chignik Bay) said their household's overall subsistence uses had declined. Only two of these communities were included in the 1998 study. In Port Graham, 58% of the respondents said their subsistence uses were lower in 2003 than in 1998 despite the community harvest of 466.1 pounds of wild foods per capita in 2003, the highest ever estimated in a household harvest survey for that community and 84% higher than the 1998 estimate. The per capita harvest in Tatitlek dropped from 406.4 pounds in 1998 to 289.7 pounds in 2003, a decline of 29% (see Table XVII-3).[1]

On the other hand, in three communities (Chenega Bay, Larsen Bay and Ouzinkie) a large majority of households (64% or more) said that their household's overall subsistence uses had remained about the same as five years ago, and only 20% or less of the households in these communities reported lower subsistence uses. Harvest estimates dropped between 1998 and 2003 in two of these communities: in Chenega Bay by 18% and in Larsen Bay by 12%. Ouzinkie's per capita community harvest estimate increased over this five year period by 20% (see Table XVII-3).

Assessments were more divergent in the other six study communities. In three (Nanwalek, Chignik Lake and Perryville), the most households said overall subsistence uses were down, but many reported that uses were about the same or even higher (about a third in Chignik Lake and Perryville and a quarter in Nanwalek) than in 1998. Nanwalek's per capita harvest estimate for 2003 was up by 55% compared to 1998; Chignik Lake and Perryville were not part of the 1998 study. In the final three communities (Old Harbor, Port Lions, and Cordova), most, but not a majority, of households said subsistence uses were stable, but about a

[1] It is important to note that respondents' assessments pertain to their own household's subsistence harvests and uses and not their community's, while per capita harvest data are for the entire community. Particular households' harvests and uses may well decline for a variety of reasons while the community's total harvests remain the same or even increase. Both provide information about subsistence use trends in the community, however.

third said uses were down. In terms of per capita harvest estimates, Cordova's harvests were virtually unchanged between 1998 and 2003, while Old Harbor's estimate increased by 19%; Port Lions was not part of the 1998 study (see Table XVII-3).

For all communities combined, 36.2% of respondents said their household's overall subsistence uses had declined since 1998 (Fig. XVII-11). Also, 10.3% of all respondents cited reasons for this decline that they linked to the spill. Spill-related reasons most commonly cited were resource scarcity (2.8% of all respondents) and "resource condition" (which includes food safety concerns), 1.4%. More commonly, households cited nonspill-related causes for an overall decline in subsistence uses since 1998: economic factors (7.1%), lack of interest (6.8%) and time constraints, usually caused by employment schedules (4.8%).

Households' Assessments of Subsistence Uses in 2003 Compared to Before the Oil Spill

In only three study communities (Chenega Bay, Ouzinkie and Larsen Bay) did most of the interviewed households say that, overall, subsistence uses were about the same in 2003 as before the spill (Fig. XVII-12; see Tables A-28 to A-57 for study findings at the resource category and community level). As estimated in pounds usable weight, subsistence harvests in Ouzinkie, in 2003, were 19% below the pre-spill average and in Larsen Bay they were 5% higher. Chenega Bay's 2003 per capita harvest was 36% higher than the pre-spill average (see Table XVII-3). However, the two pre-spill estimates for Chenega Bay pertain to the first two years of the community's resettlement and may underestimate subsistence harvests in the years immediately preceding the oil spill (Fall et al. 1996:103,109).

In eight study communities (Tatitlek, Port Graham, Akhiok, Chignik Lagoon, Karluk, Perryville, Old Harbor and Chignik Bay), 50% or more of respondents said that their household's overall subsistence uses were lower than before the spill, and in the remaining four communities (Port Lions, Cordova, Nanwalek and Chignik Lake), between 40% and 48% of responding households reported lower uses. Based on survey harvest data, per capita harvests were lower in 2003 compared to the pre-spill averages for Akhiok, Chignik Lake, Cordova, Old Harbor, Port Lions and Tatitlek; and higher for Chignik Bay, Chignik Lagoon, Nanwalek , Perryville and Port Graham. For all of these latter five communities, there is only one pre-spill harvest estimate, and it is unknown how representative this one estimate is of other pre-spill years (see Table XVII-3).

For all the study communities combined, 46.5% of respondents reported lower subsistence uses in 2003 than before the spill; 15.0% gave a spill-related reason for the decline (Fig XVII-13). Again, spill-related resource scarcities were the cause of lower uses cited by the most households (2.8%), and 2.3% cited resource condition issues. As with the comparison with 1998, however, non-spill factors played a larger role in declines in subsistence uses according to survey respondents, including lack of interest (6.9%) and economic reasons (6.6%).

Figure XVII-14 illustrates trends in respondents' assessments of overall subsistence uses since the spill for seven communities that were surveyed in 1990, 1994, 1998, and 2004.[2] The percentage reporting lower overall uses and citing spill-related reasons for the decline dropped from 1990 to 1998, but appears to have leveled off between 1998 and 2004. The percentage

[2] These seven communities are Tatitlek, Chenega Bay, Port Graham, Nanwalek, Ouzinkie, Larsen Bay and Old Harbor.

citing oil contamination as the cause dropped substantially over the first five years after the spill, but also appears to have leveled off since then.

Figure XVII-15 shows the percentage of respondents in eight spill-area communities that gave spill-related reasons for overall lower subsistence uses in 1989, 1993, 1998 and 2003 compared to before the spill. In all communities but Old Harbor and Tatitlek, there was a downward trend and a more recent leveling off. In Tatitlek, after dropping notably between 1993 and 1998, most households again pointed to the spill for lower uses in 2003. There is no evident trend in Old Harbor.

As shown in Figure XVII-16, 83.1% of the respondents in the combined 15 study communities reported that their household's uses of at least one resource category were lower than before the spill; 39.0% cited a reason linked to the spill for this decline. "Resource condition" (primarily concerns about edibility) was the most frequently mentioned spill-linked reason (9.0%), followed by resource scarcity (8.4%). However, far more respondents gave reasons they did not link to the spill for lower uses of particular resource categories, with "lack of interest" (19.6%) and "economic" (18.1%) being most common.

As shown in Figure XVII-17, most households in seven combined study communities in four study years reported that subsistence uses of at least one resource category were lower than before the spill. The percentage citing a spill-related reason for the lower uses dropped from 68.8% in 1990 to 54.4% in 1993, but has since leveled off at around half the respondents. In 1990, 55.0% of the respondents in these seven communities blamed spilloil contamination for lower subsistence uses of at least one resource category. Since then, about 17% of respondents have done so. Except for 1989, resource scarcity has been the most frequently cited cause of lower subsistence uses of any resource.[3]

Figure XVII-18 displays the percentage of households in eight study communities that cited spill-related reasons for the decline in subsistence uses of any resource category across four study years. For some communities, such as Chenega Bay, Ouzinkie, Larsen Bay and Port Graham, there appears to be a trend towards fewer respondents citing the spillas a likely cause of lower uses. In contrast, in Nanwalek and Tatitlek, in most study years, most respondents explained lower uses of at least one kind of resource with a reason related to the oil spill. In Old Harbor, more respondents over time cited spill reasons for declines in uses of particular resources.

In summary, although harvest estimates for 2003 suggest that overall subsistence uses approximated pre-spill averages for most communities, many households' evaluations of their uses suggest lower uses for a variety of reasons. Over half the households in seven study communities that have been systematically surveyed since 1989 point to the spillas the cause of persistent, lower subsistence harvests of at least one kind of resource in 2003.

Harvest Effort

Survey respondents were asked to assess their effort to harvest seven resource categories in 2003 compared to five years before (1998). Did harvest effort increase, decrease or remain about the same? If the effort had changed, respondents were asked if three factors contributed to the change: distance needed to travel to achieve a harvest, the population status of the resource

[3] The apparent decline, in the percentage of households citing resource scarcity as the cause of declining uses from 1998 to 2003, is likely due to the large number of non-responses to this question.

and competition with other harvesters. It should be noted that other factors influence effort, such as demography and a harvester's personal circumstances, that are independent of resource status. For more discussion on the complexities of analyzing harvest effort data, see Fall and Utermohle (1999:44-50). Despite the difficulties for analysis, community representatives at the project planning workshop were adamant that questions about effort remain in the survey.

Figure XVII-19 reports the 2003 study findings for each resource category for all communities combined, and Figures XVII-20 to XVII-26 report the findings for each resource category by community. (See Tables A-58 to A-81 for more detailed results.)

Marine mammals are the category for which the largest percentage of households overall reported an increase in harvest effort (Fig. XVII-19 and Fig. XVII-23). Effort was up notably in several communities, including Akhiok (80% said they hunted more for marine mammals in 2003 than five years before), Tatitlek (61% reported more effort) and Karluk (50%). Scarcities of harbor seals and sea lions were a primary reason cited for additional marine mammal hunting effort. "Competition" in the form of the presence of tour boats and other recreational users in Prince William Sound affects marine mammal hunting for Tatitlek and Chenega Bay.

Categories with the most reduced harvest effort included marine invertebrates (33% of all households reported less effort), salmon (31%), other fish (26%) and birds and eggs (27%). Concerns about paralytic shellfish poisoning, which some respondents linked to the effects of EVOS, continued to inhibit marine invertebrate harvesting in a number of communities, and especially in Ouzinkie, Port Lions and Larsen Bay.

Changing Role of Commercial Fishing

As discussed in many of the preceding chapters (e.g., Chenega Bay, Tatitlek, Old Harbor), the role of commercial fishing, as a source of cash to support the mixed economy of spill-area communities and as a source of resources for home use, is diminishing. As expressed as a percentage of the community's total harvest for home use in usable pounds, removal of resources from households' commercial harvests made the greatest contribution at Chignik Lagoon in 2003, at 20.2% (Figure XVII-27 and Table XVII-4), but represented 10% or less of the total pounds harvested in nine study communities.

As shown in Table XVII-4, in most communities, the contribution of resources removed from commercial harvests to the overall community harvest for home use has generally dropped since before the spill. Some key examples include Chenega Bay (17.5% of total harvest in 1984 and 12.8% in 1985; 3.4% in 2003); Cordova (27.8% in 1985 and 23.2% in 1988; 16.0% in 2003); Larsen Bay (29.0% in 1986; 12.8% in 2003); Old Harbor (28.8% in 1986; 6.3% in 2003); Ouzinkie (17.0% in 1986; 4.2% in 2003); Port Lions (16.8% in 1986; 2.5% in 2003); and Tatitlek (21.3% in 1987 and 13.9% in 1988; none in 2003).

The role of commercial fishing does not appear to have diminished as much in the four Chignik Area communities. However, the issues surrounding the cooperative fishery in the Chignik Management Area illustrate the stress under which commercial fishing is operating, as well as the integration of commercial and subsistence fishing and the unforeseen consequences of changes to commercial fishing for subsistence fisheries.

Accompanying the decline in the significance of commercial fishing in local communities has been a growth in recreational fishing in Prince William Sound, Cook Inlet and the Kodiak Area. As discussed in Chapter IV on Tatitlek, some local residents attribute this growth at least in part to the "discovery" of these areas after the oil spill. The growth of sportfishing has, according to some survey respondents, interfered with subsistence fishing and marine mammal hunting, either through displacement or the presence of recreational users inhibiting subsistence hunting. In several communities, however (see Chapter X, Old Harbor; and Chapter XI, Ouzinkie, for example), local residents have become involved in sportfishing charter services as a way to compensate for reduced commercial fishing income.

The decline in involvement in commercial fishing in spill-area communities has potential implications for subsistence uses. In Chenega Bay and Tatitlek, involvement in commercial fishing has dropped, but subsistence harvests in 2003 were still relatively high. In both communities, subsistence harvesters can use a skiff or small boat for subsistence activities, so the selling of larger commercial vessels may not have an immediate impact. However, it is an open question whether the decline in commercial fishing has removed a critical context in which young people learned the interrelated subsistence harvesting skills. In Cordova, some respondents reported a more immediate withdrawal from some subsistence activities within Prince William Sound, which is not directly accessible to them following sale of their commercial fishing vessels.

ASSESSMENTS OF NATURAL RESOURCE CONDITIONS

Overall Resource Recovery

In an overview of the status of natural resources in the spill area based largely on Trustee Council restoration research, Peterson et al. (2003:2082) concluded that:

> In the Alaska coastal ecosystem, unexpected persistence of toxic subsurface oil and chronic exposures, even at sublethal levels, have continued to affect wildlife. . . Oil persisted beyond a decade in surprising amounts and in toxic forms, was sufficiently bioavailable to induce chronic biological exposures, and had long-term impacts at the population level.

Correspondingly, as of 2003, the Trustee Council listed only seven “resources”[4] that have “recovered” from the spill effects; this list includes two key subsistence resources, sockeye salmon and pink salmon. Eight resources are classified as “recovering,” including clams and intertidal communities, which are important subsistence foods. Six resources are listed as “not recovering;” most significantly for subsistence uses, this category includes herring and harbor seals. Recovery is “unknown” for five resources, including rockfish and Dolly Varden, both resources widely used for subsistence purposes (see Table XVII-5).

Likewise, a large majority of survey respondents who reported that natural resources had been injured by the spill –(78%) reported that overall, subsistence resources have not recovered from these spill effects (Figure XVII-28; Tables A-82 and A-83).[5] In 11 study communities,

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[4] A “resource” in this context ranges from a species, to groups of species, “communities” within particular habitats, and particular kinds habitats.

[5] Note that Table A-82 reports three responses to the question about overall recovery of subsistence resources – “yes, they have recovered,” “no, they have not recovered” and “they never changed” (that is, they were not injured). About 30% of all respondents said that subsistence resources “never changed.” Of all valid responses, 54.5% said that resources had been injured and had not recovered, and 15.2% said resources had been injured but overall they

70% or more of these respondents said resources have not recovered. Only in Chignik Bay did more than 60% of respondents report overall recovery. In the other three communities, opinions were more evenly split, although a majority of households in Chenega Bay (56%), the community most directly in the path of the spill, said that resources have recovered, in strong contrast to the other Prince William Sound communities of Cordova and Tatitlek, where 80% and 89%, respectively, said that recovery has not taken place.

In 1998 (the previous study year), 63.4% of respondents in eight study communities said that overall, subsistence resources had not recovered from the effects of the spill. In these eight communities in 2004, 78.4% reported lack of overall recovery (Fig. XVII-29). This suggests an increase in doubt about natural resource recovery in these communities. In only one community (Chenega Bay), was there a notable increase in the percentage of households reporting recovery of subsistence resources. In all the other seven communities, the percentage stayed about the same or decreased.[6]

In 1998, when asked what could be done to assist in the recovery of natural resources, most respondents said what was needed was more time for resource populations to recover on their own (Fall and Utermohle 1999:67). Other frequent responses in 1998 included more studies and monitoring of resource populations (17.3%), harvest regulation and management (13.6%), and restoration and enhancement (13.2%). When asked the same question in 2004, most respondents (82.9%) offered no suggestions (Fig. XVII-30). A few suggested studies and monitoring of populations (4.0%), restoration and enhancement (3.3%) and more time (3.1%). Whether the high non-response to this question was the result of respondent or interviewer fatigue, or reflects a prevailing pessimism about any potential for restoring injured resources, is not known.

Availability of Resources to Harvest

During the survey, respondents were asked to assess the availability to harvest of 20 kinds of resources compared to five years before (1998). If they said a change had occurred, they were asked to provide an explanation for the change. The results for each resource appear in Tables A-84 to A-455. Table XVII-6 reports the percentage of respondents in each community who reported a declining trend in resource availability since 1998. Responses varied by resource type and community.

It is important to note that about two thirds of the respondents in Cordova (66.0%) and Tatitlek (68.4%) reported declining availability of herring in Prince William Sound. Tatitlek and Cordova residents view herring as a keystone species that affects the health of many other resource populations. That the majority of respondents in these two communities said that herring are less available to harvest continuing the prevailing observation from both communities for 1998 (Fall and Utermohle 1999:64). The EVOSTC continues to list herring as a resource that has not recovered from the spill (see Table XVII-5).

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had recovered. Data shown in Figures XVII-28 to XVII-30 include those 70% of valid responses that reported that natural resources had suffered an injury from the spill.

[6] One might speculate that the publication and media coverage of the review article in *Science* on "Long-Term Ecosystem Response to the *Exxon Valdez* Oil Spill" (Peterson et al. 2003) a few months before the household surveys might have influenced some responses to this question, but the extent of the article's influence, if any, is not known.

The EVOSTC also lists harbor seals as a resource that is not recovering since the spill. In 1998, a large majority of respondents in seven of the eight study communities agreed that harbor seal populations continued to be lower than before the spill (Fall and Utermohle 1999:64-65). In 2004, a majority of respondents in six of the 15 study communities reported a declining trend for seals. However, very few respondents have observed increasing harbor seal populations (Fig XVII-31). Combined with observations from 1998, the 2004 survey results demonstrate a consensus among respondents that harbor seal populations have not recovered to pre-spill conditions.

Changes in Habitat and Environment

Survey respondents were asked if they "have observed changes in the habitat or environment of subsistence resources" and if so, to describe the changes. As shown in Figure XVII-32, 45.7% of respondents said yes and 54.3% said no. (See Tables A-456 and 457 The percentage of respondents reporting observed environmental changes declined slightly from 1998, when 56.0% of respondents in seven communities (excluding Cordova) said they had observed such changes, compared to 44.0% in 2004. There were notable differences between communities. Sixty percent or more of respondents in Tatitlek, Perryville, Nanwalek, Chignik Bay and Karluk had observed habitat changes, while about 60% or more in Ouzinkie, Old Harbor, Port Graham, Port Lions and Larsen Bay reported that they had not.

Figure XVII-33 illustrates the kinds of habitat and environmental changes reported by survey respondents. These include changes in climate and weather, increased predation, increased or decreased animal or plant populations and human-caused damages. As discussed in several chapters, the negative effects of trawl commercial fisheries ("draggers") concerned many respondents, especially in Kodiak Island communities.

SUBSISTENCE FOOD SAFETY

As shown in previous studies, concern about oil contamination of subsistence foods was the primary reason for declines in subsistence harvests in the first several years after the oil spill. Although with time, fewer households reported oil contamination as a reason for reduced harvests, concerns about the long-term effects of eating resources that are exposed to residual oil remain (Field et al. 1999; Fall and Utermohle 1999:51). The Trustee Council's recovery objective for subsistence as an injured natural resource service highlights food safety. For subsistence uses to be fully recovered, "there is recognition that people must be confident that the resources are safe to eat."

Clams

Overall, a slight majority of respondents in 2004 (52%) stated that they believed that clams are safe to eat; 20.8% stated they are unsafe, and 27.3% were uncertain about the safety of eating clams.[7] At the community level, there was also a mixed assessment (Fig. XVII-34; Tables A-458 and A-459). A strong majority (about 60% or more) of the interviewed households in nine communities stated that clams are safe to eat. Assessments were mixed in Nanwalek and Port Graham, with about a third of respondents stating that clams are safe, but most stating they are unsafe or they were unsure about their safety. In four communities, all in the Kodiak Island Borough, only a small percentage of households expressed confidence in eating clams; a very large majority (over 90%) in Port Lions, Ouzinkie, and Karluk expressed this view. In contrast, most households in Akhiok (80%) and Old Harbor (73%) said that clams are safe. (However, see Chapters VII and X ; additional comments from respondents suggest that concern about PSP might be greater in these communities than indicated in direct responses to the food safety question.)

Overall, there appears to have been a decline in confidence about eating clams between 1998 and 2004. In 1998, 65.2% of respondents in eight study communities expressed confidence in eating clams, compared to 52.5% in these same eight communities in 2004. Although about the same percentage in both years stated that clams are unsafe (24.0% in 1998, 17.0% in 2004), the percentage of respondents expressing uncertainty went up, from 10.5% in 1998 to 30.5% in 2004 (Fig. XVII-34).

Figure XVII-35 illustrates trends within communities in assessing if clams are safe to eat. Patterns vary widely by community. In some, such as Chenega Bay and Tatitlek, there appears to be a trend towards more confidence in eating clams, although in neither community is confidence near universal. The opposite appears to be the case in Larsen Bay, Nanwalek, Ouzinkie, and Port Graham, where less households in 2004 believed clams were safe to eat compared to earlier study years.

By 1998, spill contamination as a cited cause of concern about the safety of eating clams had declined since the first few years following the spill (Fall and Utermohle 1999:57-58). However, in 2004, spill contamination was the most frequently cited cause of concern (33.9% of all those households saying clams are unsafe), replacing PSP (32.0%, up from 19.3% in 1998)[8] (Fig. XVII-36). As discussed in the chapters on Ouzinkie and Port Lions, a prevailing view in those communities is that PSP and the EVOS are linked. No households in Chenega Bay or Tatitlek blamed spill contamination as a reason to not eat clams, although this was a common response among Cordova respondents who said clams are not safe to eat (42.2%, up from 2.8% in 1998) (see Table A-459). As discussed in Chapter II, however, residual oil along beaches used for harvesting marine invertebrates remains an issue for Chenega Bay.

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[7] Respondents' expressing "uncertainty" about the safety of eating resources added ambiguity to the study findings, in that "uncertainty" might be the result of a respondent not being familiar with a resource and/or not using it, or it may be genuine puzzlement about whether or not a resource is safe. For a widely used resource such as clams, most "uncertain" responses likely should be treated as a "no, not safe" (given that the respondent likely knows about the resource and is unwilling to say that it is safe to eat). On the other hand, "uncertainty" about chitons, herring, and seals is more likely to be the result of not being a user of the resource since these resources are generally less widely used than clams.

[8] It is important to note that the State of Alaska issues annual advisories against eating clams from uncertified beaches due to the threat of PSP.

Chitons

In most communities, a very large majority of respondents said that chitons ("bidarkies") are safe to eat. Very few respondents (6.6%) stated that they are unsafe. Most (51.8%) respondents, largely in Cordova but also in Chignik Lagoon and Larsen Bay, stated uncertainty about the safety of eating chitons, but this is likely because they do not use them. Only in Nanwalek did a majority of households, most of whom are likely to be users or former users of this resource, express doubts about their safety as a subsistence food (Fig. XVII-38; Tables A-460 and A-461). In most previous study years, most respondents have expressed confidence in eating chitons (Fall and Utermohle 1999:59-61).

Herring

As with chitons, a very large majority of respondents who provided a positive or negative response said that herring are safe to eat. Of the estimated 110 households that stated that herring are not safe, 102 of these were from Cordova (Fig. XVII-39 and Tables A-462 and A-463). As with chitons, the large percentage of respondents who were uncertain about the safety of herring (48%) very likely are not regular users of this resource.

Seals

When interviewed in 2004, most Alaska Native households in 11 of the study communities stated that seals are safe to eat; for all 15 communities combined, 62% expressed confidence in seal meat or fat (Fig. XVII-40). Few households in any community stated, with certainty, that seals are not safe to eat, with the largest percentages in Cordova (14%) and Nanwalek (10%). For the 15 communities combined, 7% of respondents said seals are not safe to eat. But over 20% of the respondents in the eight study communities from 1998 expressed uncertainty about eating seals in 2003, as did 31% of the respondents overall. Confidence in eating seals has generally been high and even increased since 1991 in most communities, but the 2004 survey results suggest a decline in Larsen Bay, Nanwalek and Port Graham (Fig. XVII-41). Few households in these communities stated outright that seals are not safe to eat. Rather, they stated uncertainty. How many of these households regularly use seal meat or oil is not known.

ASSESSMENTS OF SOCIAL AND ECONOMIC CONDITIONS

Survey responses that are discussed in this section address the Trustee Council's goal that "the cultural values connected to subsistence uses be reintegrated into community life" as an indicator that recovery of subsistence uses has taken place. All of these questions were included in the household surveys with the consent of the participants in the study planning workshop in February 2004, and most had been asked in previous rounds of interviews.

Youth Learning Subsistence Skills

Key to the "reintegration" of subsistence values into community life is passing on these traditions and skills to young people. In 1996, the Trustee Council's overview on the status of subsistence uses noted that "There is particular concern that the oil spill disrupted opportunities for young people to learn subsistence culture, and that this knowledge may be lost to them in the future" (EVOSTC 1996:20). In 1992, only 38.8% of the respondents in eight study communities said that young adults were learning the necessary skills. In 1998, 48.0% of respondents answered in the affirmative. In 1998, 43.7% of those respondents who said youth are not learning enough about subsistence skills blamed disinterest on the part of youth, 24.0% said the way of life in the community had changed, and 22.9% said there was a lack of teachers (Fall and Utermohle 1999:83-85).

In 2004, a small majority of respondents in the 15 communities combined (52.8%) said that youth are learning adequate subsistence skills. In the eight communities also included in the 1998 study, 54.0% answered yes, youth are learning the needed skills. Responses varied greatly by community, however (Fig. XVII-42 and Table A-466). Most positive were respondents in Ouzinkie, where 90% of respondents said youth were learning subsistence skills, up from 48% in 1992 and 36% in 1998 (Fig. XVII-43). Active involvement in spirit camps by Ouzinkie residents may account for some of this optimism. On the other hand, only 14% of Karluk households said youth were learning subsistence skills.

Reasons given in 2004 for why youth are not learning about subsistence activities were similar to those offered in 1998 (Fig. XVII-44 and Table A-467). Lack of interest on the part of youth again ranked first (39.2%), following by lack of teachers (18.5%) and a change in the community way of life (13.2%). In 2004, respondents who said that youth were learning subsistence skills were asked how this was being accomplished. Most said that youth are learning from family members (40.8%) (Fig. XVII-45and Table A-468). Other ways in which youth are learning subsistence skills are through school programs (21.1%), from community members other than family or elders (14.3%), from elders (10.0%), through involvement in subsistence activities (7.3%) and through instruction at spirit camps and other Alaska Native programs (5.4%). (Note that these reasons are not mutually exclusive.)

Influence of Elders

Linked to the success of teaching subsistence skills to youth is the role of elders in community life. Respondents were asked whether the role of elders in teaching subsistence skills and values had increased, stayed the same, or decreased over the last five years (since the last survey for 1998). Overall, the most households (40%) reported an increase in elders' influence, 26% said it had remained the same, and 34% said elders' influence had declined (Fig. XVII-46 and Table A-469). However, this result was strongly shaped by the Cordova study findings. Cordova is by far the largest community in the study, and 51% of Cordova households said elders' influence has increased over the last five years. Cordova respondents attributed this increase to more activity on the part of elders and to "cultural" reasons linked to a renewed interest in learning traditional skills (see Table A-470). If Cordova is removed from the total, only 29% of the study respondents said that elders' influence has increased; 26% said it was about the same: and 46% said that elders' influence has declined. A majority of respondents in 9 study communities said that elders' influence has declined. In contrast, in Ouzinkie, 76% said elders' influence has increased.

In 1998, also, respondents were asked about trends in elders' influence since the oil spill. Most Ouzinkie households in 1998 (63.6%) said that elders' influence had declined, so the finding in 2004 (76% saying elders' influence has increased) demonstrates a change in the assessment of trends. However it was more common for most households in both 1998 and 2004 to say that elders' influence is declining (Fall and Utermohle 1999:88-93). In 2004, explanations for reduced influence of elders varied, but most often cited was demography (there are less elders) and "cultural" reasons having to do with changes in the community's way of life (see Table A-471).

Sharing

Sharing of subsistence foods is a key value and practice in rural Alaska communities. The oil spill disrupted traditional sharing networks for wild foods for one or more years, primarily because reduced harvests resulted in less resources to share. However, even during this period of severely reduced harvests, sharing occurred with the households of elders, single mothers with dependent children and inactive single person households. The most vulnerable people in the communities received the greatest support. Rather than breaking down, traditional sharing networks functioned during the worst years of the disaster to provide the limited supply of wild foods to the most dependent households (Fall et al. 2001:277-280, 297).

In 1998, survey respondents were asked if sharing had changed since the spill. Most said that sharing had remained the same (47.8%) or increased (24.2%), but 28.1% said sharing had declined (Fall and Utermohle 1999:81-82).

For the 2004 study, respondents were asked if sharing had changed over the last five years (since the last set of interviews). Again, most said that sharing had not changed (60.5%) or had increased (19.3%), while 20.2% said sharing had declined (Fig. XVII-47 and Table A-472). Over 70% of respondents in ten of the study communities reported either increased sharing or no change. On the other hand, over 40% of respondents in four communities (Karluk, Tatitlek, Port Graham and Nanwalek) said that sharing had declined over the last five years. In 1998, 44.8% of Nanwalek households said that sharing had declined since the spill, more than any other community; 41.7% of households in Tatitlek said sharing had declined (ranked second), and 34.1% did so in Port Graham (ranked third after Larsen Bay) (Fall and Utermohle 1999:81-82).

As shown in Figure XVII-48 (see Table A-473), of those respondents who reported decreased sharing, the largest number (30.8%) gave "personal" reasons, such as reduced family size. However, excluding Cordova, where personal reasons predominated (39.4% of all respondents), "environmental" reasons ranked first (27.5%). These were particularly common in Nanwalek (44.4%) and Port Graham (31.6%) and primarily included reduced harvests and consequently less resources to share.

As shown in Figure XVII-49 (see Table A-474), of those respondents who reported increased sharing, again the most cited personal reasons (35.3%). Personal reasons also were the most frequent among the smaller communities (all excluding Cordova), at 32.6%.

Food Purchases

Questions about households' purchases of food to replace subsistence harvests were added to the questionnaire administered in 1998 at the request of community representatives at a project-planning workshop. These questions were asked again in 2004, again in response to the recommendations of community representatives.

The first question asked if households had purchased any subsistence foods to replace resources that they could not obtain through their own harvests or sharing.[9] In the 1998 study, 42.4% of the households in the eight study communities had done so (Fall and Utermohle 1999:75-77). In 2004, 42.4% of the households in the 15 study communities reported they had purchased subsistence resources, including 44.6% of the households in the eight communities also surveyed in 1998. There were very large differences between communities. Few households in Chignik Bay, Chignik Lagoon, Chignik Lake, Larsen Bay, Old Harbor, or Perryville purchased subsistence foods. In contrast, most households in Karluk, Nanwalek, Ouzinkie, and Port Graham did so (Fig. XVII-50 and Table A-475). The most frequently purchased foods were marine invertebrates: shrimp (15.2% of all households), crab (13.8%), and clams (10.8%) (see Table XVII-7 and Table XVII-8). Shrimp, crab, and clams also ranked highest in 1998 (Fall and Utermohle 1999:77). Very few households purchased salmon or any other type of fish. Not surprisingly, few households reported buying land mammals or marine mammals; these are not sold in stores and would need to be purchased through customary trade. Reasons given by respondents for having to purchase subsistence foods are summarized in Table A-476. These varied, and included lower harvests due to PSP or suspected contamination, as well as resource scarcities.

The second question asked if households purchased "store foods" (for example, beef or chicken) to replace subsistence foods. In 2003, 42.4% of households in the 15 communities had done so. In 1998, 54.1 of households replaced subsistence foods with store foods – 58.2% households in these eight communities did so in 2003 (Fig. XVII-51 and Table A-477). In 2003, a majority of households in ten of the study communities replaced some subsistence foods with store-bought foods. Reasons for these purchases are summarized in Table A-478.

Recovery of the Traditional Way of Life

In 1998, 83.9% of the households interviewed in eight study communities stated that the traditional way of life had been injured by the spill. (This question was added to the household survey instrument at the recommendation of community representatives at a project-planning workshop.) Of these, 67.7% stated that the traditional way of life had not yet recovered, 17.4% said that recovery was complete, and 13.7 were not sure about the recovery status of the traditional way of life (Fall and Utermohle 1999:93).

Little change had occurred in these assessments by 2004 (Fig. XVII-52 and Fig. XVII-53; Tables A-479 and A-480). For all study communities, 82.3% said that the traditional way of life had been affected by the spill, as did 83.2% of the households in the eight communities that

[9] For the most part, "subsistence resources" that can be purchased are fish and shellfish for which commercial fisheries take place. "Customary trade" of fish and wildlife (including marine mammals) harvested under federal subsistence regulations is allowed. This is defined as exchange of subsistence resources for small amounts of cash in non-commercial settings.

had been part of the 1998 study. Of those households in all 15 study communities reporting an effect of the spill on the traditional way of life, 71.9% said recovery was not complete, 13.6% said recovery had occurred, and 14.5% were not sure. Findings were similar for households in the eight communities included in both the 1998 and 2004 studies: 73.7% said recovery had not occurred, 12.3% said it had, and 14.1% did not know.

As in 1998, survey respondents were asked to suggest what can be done to aid in the recovery of the subsistence way of life. In 1998, “more education and spirit camps” (15.5%), restore resource populations (12.1%) and “more time” (7.6%) were the most frequent suggestions (Fall and Utermohle 1999:93-95). These were also the most common suggestions in 2004, although “restore resource populations” ranked first (12.0%), “more time” (7.6%) second, and “more education and spirit camps” third (7.5%) (Fig. XVII-54 and Table A-481). As in 1998, a relatively large number of respondents said nothing can be done (4.7% in 2004,[10] 12.1% in 1998).

AWARENESS OF GEM PROGRAMS

At the recommendation of participants in the project planning workshop in early February 2004, survey respondents were asked if they felt they were adequately informed about the Trustee Council’s Gulf Ecosystems Monitoring (GEM) program. They were also asked if they believed their tribal council is adequately involved in the GEM program.

A large majority of respondents professed little to no knowledge about the GEM program. Over one third of those interviewed (36.2%) either did not know what the GEM program is or knew so little about it that they could not offer an opinion about whether they were “adequately informed” (Fig. XVII-55 and Table A-482). Additionally, 42.2% said “no,” they are not adequately informed, while only 21.6% said they knew enough about the GEM program to feel informed about it.

When asked about tribal council involvement in GEM, most interviewees had either no response or said they did not know if the local tribal council was adequately involved (see Table A-484). Of those that offered an opinion, 63.7% said “yes” and 36.3% said “no” (Fig. XVII-56). However, if Cordova is removed from the totals, only 41.6% of those who provided a response from the smaller communities said “yes,” and 58.4% said “no.” Respondents in the three Prince William Sound study communities ranked their tribal councils highest in terms of GEM involvement. In only two other communities (Perryville and Old Harbor) did the majority of respondents say “yes.”

Few respondents offered specific suggestions about how to increase awareness of the GEM program in their communities. The most popular suggestions were “newsletters or mailings” or “community meetings’ (see Tables A-483 and A-485). “Better communication” was the most frequent recommendation concerning how to improve tribal councils’ involvement in GEM.

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[10] About 44% of respondents who said the traditional way of life has not recovered did not provide any suggestions for assisting in the recovery. This perhaps accounts for the drop in the percentage saying “nothing can be done” between 1998 and 2003.

THE STATUS OF THE RECOVERY OF SUBSISTENCE USES IN 2003

As noted at the beginning of this chapter, applying the Trustee Council's recovery objective for subsistence entails asking three questions, about the status of natural resources, about people's assessments of the safety of eating subsistence foods, and whether the cultural values associated with subsistence uses have been reintegrated into community life. This section addresses each of these in turn, briefly noting the evidence from the study (and other supporting evidence) that subsistence uses have recovered, are recovering or have not recovered.

Question One. Are resources used for subsistence purposes healthy and are their populations at pre-spill levels?

Evidence that subsistence uses are recovering, related to natural resource populations and subsistence harvests and uses, includes the following:

- By the late 1990s, subsistence harvests rebounded to match or nearly match pre-spill levels in most communities; harvest levels at the subregional level in 2003 were close to or exceeded available pre-spill estimates.
- The diversity of species used for subsistence purposes in 2003 matched or exceeded levels documented in pre-spill studies.
- Most residents of the 15 study communities used wild foods and most participated in harvest activities.

Evidence that subsistence uses are not fully recovered, related to natural resource populations and subsistence harvests and uses, includes the following:

- The Trustee Council lists only 7 injured resources as "recovered." Eight are "recovering," six "have not recovered," and the recovery status of five resources is unknown. Key subsistence resources that have not recovered include herring, harbor seals, clams and intertidal communities.
- Harvests of key and culturally-significant resources, such as clams and harbor seals, are lower in several communities compared to pre-spill levels.
- Almost half the interviewed households (46.5%) said that their overall subsistence uses were lower than before the spill.
- Almost all the interviewed households (83.1%) said that their use of at least one kind of subsistence resource was lower in 2003 than before the spill, and 39.0% cited oil spill-related reasons for this decline.
- Many harvesters reported having to invest more effort to achieve harvest goals than in earlier years, due to reduced resource populations but also due to competition with other users
- Most survey respondents (78%) reported that in their view, injured subsistence resources have not recovered to pre-spill levels.

Question Two. Are people confident that resources are safe to eat?

Evidence that subsistence uses are recovering, related to food safety issues, includes the following:

- Most respondents who offered an opinion (as opposed to saying "don't know" or "not certain") said that chitons, herring, and harbor seals are safe to eat.

Evidence that subsistence uses are not fully recovered related to food safety issues includes the following:

- Confidence in the safety of eating clams is low in some communities (such as Karluk, Ouzinkie, Port Lions, Larsen Bay, Port Graham and Nanwalek) and eroding.
- While PSP is a primary concern for people who do not believe clams are safe, many link what they perceive to be increasing PSP incidents to conditions created by the spill.

<u>Question Three. Have the cultural values connected to subsistence uses been reintegrated into community life?</u>

Evidence that subsistence uses are recovering, related to the cultural values connected to subsistence uses, includes the following:

- Sharing of subsistence foods is frequent and widespread and involves most households in all the study communities.
- In some study communities (for example Ouzinkie, Larsen Bay, Chenega Bay, Old Harbor, Port Lions, Chignik Bay and Cordova), a majority of respondents reported that young people are learning subsistence skills.

Evidence that subsistence uses are not fully recovered includes the following:

- Many survey respondents (47.2%) reported that youth are not learning enough about subsistence skills.
- Many survey respondents (34%) said that elders' influence in their community is declining.
- Most survey respondents are not aware of the GEM program (36.2%) or feel inadequately informed about it (42.2%).
- Most survey respondents (72%) said that the traditional way of life has not recovered from the effects of the spill.

In summary, the study results support continuing the Trustee Council's assessment that, as a natural resource service, subsistence uses are "recovering but not recovered."

CONCLUSIONS

In 1990, Tatitlek Village Council President Gary Kompkoff (*in* Alaska Oil Spill Commission 1990:70) wrote the following about the potential long-term effects of the spill on his and other communities for whom subsistence hunting, fishing and gathering are a cornerstone of a way of life:

> Mussels, clams, starfish -- things are dying off and floating up on the beaches. The tides come and go out, come in and go out. The scientists do their research one-day, and everything looks fine. But what about the tide coming in? There's frustration, uncertainty and fear -- a fear of what the future's going to bring. We go from fear to anger to frustration with this thing. It's going to be with us for a long time.

Kompkoff's prediction was accurate. Fifteen years after the MV *Exxon Valdez* dumped its cargo into Prince William Sound, most residents of spill-area communities believe that subsistence harvests and uses and the traditional way of life they support have not recovered from the effects of the oil spill. When interviewed, most state that harvests are lower than before the spill. Many are distrustful of eating clams from traditional harvest areas. Most report that subsistence resources are harder to obtain than 15 years ago due to scarcity and competition. Additionally, significant numbers of residents in these communities state that youth are not learning subsistence skills, and elders' influence in their communities has declined. Further, the population of most of the small communities in the spill area has declined. Few respondents attribute all these environmental and social changes solely to the oil spill, but many suspect that there is a link between the enduring injuries and disruptions that the spill caused as well as changes in their communities.

In the literature on disasters, technological disasters are distinguished from natural disasters in that technological disasters appear to have no end (Kroll-Smith and Crouch 1990). The threat continues long after the event itself has ended. For the people of the spill area, the threat has lasted 15 years. Local residents are still concerned about residual oil, as are scientists (Peterson et al. 2003). In addition, restoration projects continue, but local community residents report that they are uninformed about them or uninvolved in them. Litigation regarding private claims against Exxon remains unresolved. The result is a sense of loss of former isolation and control, and pessimism about the future.

Yet, there is no question that subsistence uses of natural resources remain vital, and central to a way of life of the communities of the spill area. Subsistence is important economically, socially and culturally in all the study communities. This is demonstrated by the high levels of harvests, widespread participation in subsistence activities and the diversity of resources used for subsistence purposes. This is a key continuity with pre-spill patterns, and illustrates an outstanding quality of these small Alutiiq villages; their resiliency, or, their ability to adapt (Fall et al. 2001:273-305).

As discussed in this report, the study findings for 2003 are ambiguous regarding the status and trends in subsistence uses and the values and traditions they support in the study communities. Subsistence harvests appear relatively large and diverse, but many households say their uses are down and have changed. Communities are split on whether youth are learning about, or are even interested in, subsistence hunting and fishing skills. Many say subsistence resources are safe to eat, but many others express doubts. Compared to five years ago, more survey respondents in 2004 wondered if resource scarcities or food safety issues are linked to the lingering effects of the oil spill, responding, "I don't know" or "maybe" rather than "yes" or "no." With time, it appears more difficult for respondents to factor out what they perceive as oil spill effects from other causes of change.

For biologists, recovery from the spill can be measured in terms of numbers of animals and population characteristics. For local community residents, a "return" to pre-spill conditions is impossible, and if this is the criterion by which "recovery" for subsistence uses is gauged, there will be no complete recovery. From the local perspective, biological considerations are not the only factor in recovery. A key finding of this research is that the oil spill is not viewed by local residents as an isolated event, but is seen as part of a complex set of factors that, in combination, have changed the way they live. The effects of the spillcan be traced as several "threads" within this set of factors. For example, respondents report more competition for resources and in part point to post-spill publicity, about recreational hunting and fishing or sightseeing opportunities, as a cause. Some respondents in Prince William Sound communities, and especially Cordova, view the transfer of private (Native Corporation) lands to the National Forest Service through the Trustee Council's habitat protection program as contributing to growing competition for fish and wildlife resources (Chapter III). Commercial fishing has declined, due to injured herring and salmon populations and declining prices, resulting in lost livelihoods, sale of boats and equipment, and a loss of access to subsistence harvest areas. Another thread is that during the first years after the spill, families stopped or limited their subsistence activities, disrupting transmission of skills and values to their children. Now, many survey respondents say, children are not interested in subsistence hunting or fishing, due, at least in part, to the curtailment of these activities because of food safety concerns or scarcities, either now or in the past when they or their parents were younger.

Subsistence food safety is yet another thread that the oil spill added to a complex problem. In 1989, for the first time in their lives, people in the study communities began to question the wholesomeness of subsistence resources. Since then, they have learned from multiple sources about other sources of contamination of traditional foods. Before the spill, wild foods provided a sense of security and optimism for the future, because they were viewed as safe to eat and available to harvest. The oil spill ended that general confidence. In 1998, it appeared that concerns about oil contamination were continuing to diminish in most of the study communities, but the uncertainty had increased by 2003 due to the unexpected volume of residual oil and reports from restoration studies that natural resource populations continue to be affected by it.

In conclusion, conditions in the natural, economic, and social environments have changed significantly for the residents of the communities of the area affected by the spillsince 1989. Some of these changes are direct consequences of the oil spill, while the link for others is less certain. This study has shown that despite these changes, subsistence uses of natural resources remain key to the health and well-being of these communities. Since the first years after the spill, subsistence uses and the values they support have made progress towards recovery, but this recovery is incomplete and the future direction of change is uncertain. As this and previous research has shown, residents of the spill-area see the future of their communities as tied directly to the strength of subsistence uses and their attendant skills and values. This human dimension of the injuries caused by the technological disaster that was the *Exxon Valdez* oil spill had economic, social, cultural, and spiritual components that changed these communities forever. Nothing will erase the memory of the spill, nor should this be the ultimate sign of recovery. Recovery will have occurred when the people of these communities believe their communities have a strong and viable future that builds upon their past; a future that they themselves must help to shape.

Table XVII-1. Estimated Harvests in Pounds per Person by Category and Community, 2003 Study Year

	Pounds per Person							
	Salmon	Other Fish	Land Mammals	Marine Mammals	Birds & Eggs	Marine Invert.	Wild Plants	Total
Akhiok	96.3	23.7	21.6	12.0	1.6	25.3	4.3	184.7
Chenega Bay	226.6	116.9	52.4	46.0	2.5	17.2	9.1	470.7
Chignik	129.9	107.3	28.4	1.8	2.2	42.6	9.0	321.1
Chignik Lagoon	195.2	47.5	69.2	0.0	1.7	61.8	13.3	388.7
Chignik Lake	138.4	25.2	60.6	4.3	3.9	15.3	8.0	255.5
Cordova	77.3	29.0	53.4	3.9	2.6	2.8	6.2	175.1
Karluk[1]				Unavailable				
Larsen Bay	181.0	57.1	18.9	2.2	0.8	50.6	15.8	326.4
Nanwalek	292.6	58.1	1.6	8.7	2.2	15.4	14.6	393.2
Old Harbor	166.2	60.8	43.3	46.2	6.4	23.3	11.1	357.2
Ouzinkie	130.6	110.8	19.6	11.8	14.1	14.0	14.9	315.7
Perryville	229.0	57.0	144.8	25.3	11.4	37.3	13.3	518.0
Port Graham	264.4	150.4	11.8	17.1	1.3	12.0	9.1	466.1
Port Lions	95.4	49.8	42.8	4.2	2.3	11.8	15.2	221.4
Tatitlek	75.0	73.8	18.4	99.9	4.0	0.7	3.4	275.3

[1]Survey data were too incomplete for Karluk to develop harvest estimates.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table XVII-2. Percentage of Total Pounds Harvested by Category and Community, 2003 Study Year

	Percentage of Total Harvest							
	Salmon	Other Fish	Land Mammals	Marine Mammals	Birds & Eggs	Marine Invert.	Wild Plants	Total
Akhiok	52.1%	12.8%	11.7%	6.5%	0.9%	13.7%	2.3%	100.0%
Chenega Bay	48.1%	24.8%	11.1%	9.8%	0.5%	3.6%	1.9%	100.0%
Chignik	40.4%	33.4%	8.8%	0.5%	0.7%	13.3%	2.8%	100.0%
Chignik Lagoon	50.2%	12.2%	17.8%	0.0%	0.4%	15.9%	3.4%	100.0%
Chignik Lake	54.2%	9.8%	23.7%	1.7%	1.5%	6.0%	3.1%	100.0%
Cordova	44.1%	16.5%	30.5%	2.2%	1.5%	1.6%	3.5%	100.0%
Karluk[1]				Unavailable				
Larsen Bay	55.4%	17.5%	5.8%	0.7%	0.2%	15.5%	4.9%	100.0%
Nanwalek	74.4%	14.8%	0.4%	2.2%	0.6%	3.9%	3.7%	100.0%
Old Harbor	46.5%	17.0%	12.1%	12.9%	1.8%	6.5%	3.1%	100.0%
Ouzinkie	41.4%	35.1%	6.2%	3.7%	4.5%	4.4%	4.7%	100.0%
Perryville	44.2%	11.0%	28.0%	4.9%	2.2%	7.2%	2.6%	100.0%
Port Graham	56.7%	32.3%	2.5%	3.7%	0.3%	2.6%	2.0%	100.0%
Port Lions	43.1%	22.5%	19.3%	1.9%	1.0%	5.3%	6.8%	100.0%
Tatitlek	27.3%	26.8%	6.7%	36.3%	1.5%	0.3%	1.2%	100.0%

[1]Survey data were too incomplete for Karluk to develop harvest estimates.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table XVII- 3. Subsistence Harvests in Pounds Usable Weight per Person, Study Communities, All Study Years and Pre-Spill Averages

	Akhiok	Chenega Bay	Chignik Bay	Chignik Lagoon	Chignik Lake	Cordova	Karluk	Larsen Bay	Nanwalek	Old Harbor	Ouzinkie	Perryville	Port Graham	Port Lions	Tatitlek
1983	519.5						863.1	403.5		489.4	376.1			279.8	
1984		316.4	187.9	220.3	279.0							391.1			
1985		375.1				163.8									
1986	162.4						385.2	210.7		425.4	404.8			333.9	
1987									284.7				228.8		352.5
1988						233.8									643.5
Pre-Spill Average	325.9	346.6	187.9	220.3	279.0	199.9	618.1	309.5	284.7	456.3	389.3	391.1	228.8	307.2	483.4
1989	297.7	148.3	208.9	211.4	453.0		254.9	212.0	140.9	272.3	88.9	394.4	122.2	146.7	214.8
1990		139.2					401.5	344.5	181.3		205.2		214.0		152.7
1991		343.9	353.4		442.3	189.2	268.7	294.6	258.8	390.9	209.4		280.4		346.0
1992	321.1	412.5				163.5		353.2	279.0		347.1		272.8		
1993		274.8				127.8		451.0	304.9		218.2		212.1	331.5	270.1
1994															
1995															
1996															
1997															
1998		576.9				179.4		370.5	253.9	300.4	264.0		253.4		406.4
1999															
2000															
2001															
2002															
2003	184.7	470.7	321.1	388.7	255.5	175.1		326.4	393.2	357.2	315.7	518.0	466.1	221.4	289.7

SOURCE: Scott et al. 2001; Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table XVII-4. Percentage of Harvest for Home Use Removed from Commercial Harvests, Study Communities, 1984 to 2003

	Study Year[1]											
	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1998	2003
Akhiok			0.0%			0.2%			6.0%			0.4%
Chenega Bay	17.5%	12.8%				9.3%	13.7%	15.2%	15.0%	23.3%	9.4%	3.4%
Chignik Bay	5.9%					21.4%		32.4%				13.8%
Chignik Lagoo	7.8%					36.2%						20.2%
Chignik Lake	1.6%					9.4%						8.8%
Cordova		27.8%			23.2%			32.7%	27.5%	22.9%	22.4%	16.0%
Karluk			4.2%			0.2%	5.7%	0.0%				
Larsen Bay			29.0%			5.4%	17.3%	7.5%	18.1%	9.5%	10.5%	12.8%
Nanwalek				5.3%		2.3%	0.0%	0.0%	0.2%	0.1%	1.6%	11.2%
Old Harbor			28.8%			3.1%		17.0%			5.7%	6.3%
Ouzinkie			17.0%			6.0%	24.9%	28.1%	22.0%	14.8%	6.4%	4.2%
Perryville	1.3%					9.0%						7.4%
Port Graham				8.9%		30.5%	13.4%	8.7%	2.8%	0.8%	3.9%	2.0%
Port Lions			16.8%			8.8%				4.4%		2.5%
Tatitlek				21.3%	13.9%	4.5%	16.1%	3.3%		4.8%	2.8%	0.0%

[1]Years listed are those for which survey data from Division of Subsisence studies are available.

SOURCE: Scott et al 2001; Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table XVII-5. Status of Injured Resources and Services[1]

Not Recovering	Recovering	Recovered	Recovery Unknown	Human Services[2]
Common Loon	Clams	Archaeological Resources	Cutthroat Trout	Recreation and Tourism
Harbor Seal	Intertidal Communities	Bald Eagle	Kittliz's Murrelet	Passive Uses
Pacific Herring	Marbled Murrelet	Common Murre	Subtidal Communities	Commercial Fishing
Cormorants (3 ssp)	Sea Otter	River Otter	Dolly Varden	Subsistence
Harlequin Duck	Designated Wilderness	Black Oyster Catcher	Rockfish	
Pigeon Guillemot	Killer Whale (AB pod)	Pink Salmon		
	Mussels	Sockeye Salmon		
	Sediments			

[1] "Report of August 2002 with June 2003 additions."
[2] "Human services that depend on natural resources also were injured by the oil spill."

SOURCE: *Exxon Valdez* Oil Spill Trustee Council 2004:7.

Table XVII-6. Households' Assessments of Availabilty of Resources to Harvest in 2003 Compared to Five Years Earlier (1998)

	Percentage of Valid Responses Reporting LOWER Availability[1]														
	Akhiok	Chenega Bay	Chignik Bay	Chignik Lagoon	Chignik Lake	Cordova	Karluk	Larsen Bay	Nanwalek	Old Harbor	Ouzinkie	Perryville	Port Graham	Port Lions	Tatitlek
Chum Salmon	66.7%	15.4%	36.4%	83.3%	8.3%	22.8%	40.0%	0.0%	40.0%	27.5%	17.4%	63.6%	25.6%	64.7%	50.0%
Coho Salmon	75.0%	14.3%	38.5%	46.2%	18.2%	25.9%	80.0%	20.0%	27.3%	22.7%	17.1%	33.3%	50.0%	37.9%	25.0%
Chinook Salmon	66.7%	53.8%	30.8%	35.7%	21.4%	26.1%	80.0%	30.8%	42.9%	18.9%	8.0%	31.8%	47.2%	10.7%	72.7%
Pink Salmon	70.0%	0.0%	22.2%	66.7%	30.8%	23.8%	20.0%	20.0%	27.3%	14.6%	9.7%	16.7%	25.0%	31.6%	26.3%
Sockeye Salmon	80.0%	28.6%	54.5%	60.0%	41.2%	24.0%	66.7%	18.2%	13.6%	21.4%	34.4%	44.0%	19.4%	45.5%	72.7%
Herring		15.4%	100.0%	100.0%	33.3%	66.0%		0.0%	16.7%	31.8%	46.7%	8.3%	51.7%	36.4%	68.4%
Halibut	50.0%	30.8%	46.7%	71.4%	21.4%	46.6%	75.0%	0.0%	30.0%	20.9%	41.9%	65.2%	45.9%	57.6%	72.7%
Black Rockfish		0.0%	33.3%	22.2%	0.0%	38.2%	50.0%	0.0%	5.9%	28.6%	45.0%	7.1%	45.5%	22.2%	0.0%
Harbor Seal	80.0%	63.6%	10.0%	75.0%	37.5%	38.4%	75.0%	20.0%	80.0%	28.9%	52.6%	47.6%	48.6%	20.0%	86.4%
Steller Sea Lion	100.0%	45.5%	60.0%	66.7%	72.7%	27.1%	0.0%	0.0%	36.8%	38.9%	60.0%	56.3%	45.5%	33.3%	68.4%
Chitons	22.2%	50.0%	30.0%	44.4%	21.4%	41.4%	80.0%	0.0%	54.5%	39.4%	16.3%	57.1%	79.5%	40.9%	68.4%
Clams	44.4%	33.3%	100.0%	35.7%	21.4%	59.4%	100.0%	33.3%	63.6%	19.0%	86.5%	40.9%	60.5%	85.4%	78.3%
Dungeness Crab	100.0%	83.3%	84.6%	78.6%	53.8%	49.4%	100.0%	50.0%	63.2%	45.5%	90.9%	33.3%	43.2%	93.1%	100.0%
Octopus	75.0%	66.7%	60.0%	14.3%	9.1%	48.6%	100.0%	0.0%	28.6%	18.5%	37.5%	35.0%	55.6%	21.1%	70.6%
Sea Urchin	44.4%	66.7%	46.2%	40.0%	22.2%	45.1%	100.0%	20.0%	66.7%	28.6%	76.9%	75.0%	34.6%	90.9%	
Deer	100.0%	30.0%				13.6%	83.3%	7.7%		53.7%	16.1%			33.3%	50.0%
Moose			45.5%	56.3%	60.0%				41.2%			55.0%	10.0%		
Caribou			91.7%	93.8%	87.5%							85.7%			
Sea Ducks	0.0%	50.0%	37.5%	100.0%	18.2%	28.0%	100.0%	0.0%	58.8%	50.0%	47.6%	58.8%	48.1%	50.0%	70.0%
Plants & Berries	25.0%	8.3%	46.7%	7.7%	21.4%	29.7%	80.0%	18.8%	42.9%	6.5%	0.0%	29.7%	50.0%	12.2%	47.6%

[1] Blank cells indicate that there were no valid responses for that resource for the community.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table XVII-7. Estimated Percentage of Households Purchasing Subsistence Foods, 2003 Study Year

RESOURCE PURCHASED	Estimated Percentage of Households Purchasing Subsistence Foods															
	Chignik Bay	Chignik Lagoon	Chignik Lake	Perryville	Nanwalek	Port Graham	Akhiok	Karluk	Larsen Bay	Old Harbor	Ouzinkie	Port Lions	Chenega Bay	Cordova	Tatitlek	TOTAL
Any Resource	4.5%	6.3%	9.5%	7.4%	81.8%	61.7%	18.2%	42.9%	16.0%	7.7%	64.7%	42.6%	12.5%	35.4%	32.0%	35.4%
Fish	0.0%	0.0%	0.0%	0.0%	9.1%	0.0%	0.0%	0.0%	4.0%	0.0%	0.0%	0.0%	0.0%	0.9%	0.0%	0.9%
Salmon	0.0%	0.0%	4.8%	0.0%	0.0%	2.1%	0.0%	14.3%	0.0%	1.9%	0.0%	0.0%	0.0%	1.2%	0.0%	1.2%
Chum Salmon	0.0%	0.0%	0.0%	0.0%	0.0%	2.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Chinook Salmon	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.2%	0.0%	0.8%
Pink Salmon	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.9%	0.0%	0.0%	0.0%	0.1%
Sockeye Salmon	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.8%	4.0%	1.2%
Non-Salmon Fish	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.8%	0.0%	1.1%
Herring	0.0%	0.0%	0.0%	0.0%	4.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.2%	0.0%	0.9%
Herring Roe	0.0%	0.0%	0.0%	0.0%	0.0%	2.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Herring Spawn on	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	0.0%	0.4%
Cod	0.0%	0.0%	0.0%	0.0%	0.0%	2.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Pacific Cod (gray)	0.0%	0.0%	0.0%	0.0%	0.0%	2.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Halibut	4.5%	0.0%	4.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.8%	0.0%	0.0%	0.0%	2.8%	8.0%	2.3%
Shark	0.0%	6.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Large Land	0.0%	0.0%	0.0%	7.4%	0.0%	0.0%	0.0%	14.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.0%	0.4%
Deer	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%	0.0%	0.5%
Moose	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%	0.0%	0.5%
Harbor Seal	0.0%	0.0%	4.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.0%	0.2%
Ducks	0.0%	0.0%	0.0%	0.0%	0.0%	2.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Unknown Seabirds	0.0%	0.0%	0.0%	0.0%	0.0%	2.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Marine	0.0%	0.0%	0.0%	0.0%	13.6%	4.3%	0.0%	0.0%	0.0%	0.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.8%
Abalone	0.0%	0.0%	0.0%	0.0%	22.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%
Clams	0.0%	0.0%	0.0%	0.0%	0.0%	19.1%	0.0%	0.0%	12.0%	1.9%	49.0%	37.0%	0.0%	8.7%	4.0%	10.8%
Razor Clams	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.1%	8.0%	3.9%
Unknown Clams	4.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Crabs	0.0%	0.0%	4.8%	0.0%	27.3%	31.9%	9.1%	0.0%	0.0%	1.9%	35.3%	13.0%	12.5%	13.5%	12.0%	13.8%
Dungeness Crab	0.0%	0.0%	0.0%	0.0%	18.2%	6.4%	0.0%	0.0%	0.0%	0.0%	2.0%	0.0%	0.0%	4.2%	0.0%	3.6%
King Crab	0.0%	0.0%	0.0%	0.0%	0.0%	2.1%	9.1%	0.0%	0.0%	0.0%	9.8%	0.0%	0.0%	1.6%	0.0%	1.6%
Tanner Crab	0.0%	0.0%	0.0%	0.0%	0.0%	2.1%	0.0%	0.0%	0.0%	0.0%	2.0%	0.0%	0.0%	0.3%	0.0%	0.4%
Unknown Crab	4.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%	0.0%	0.6%
Mussels	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.9%	0.0%	0.0%	0.0%	0.1%
Octopus	0.0%	0.0%	0.0%	0.0%	13.6%	4.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%
Scallops	0.0%	6.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.9%	0.0%	0.0%	2.9%	0.0%	2.1%
Weathervane	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%	0.0%	0.5%
Shrimp	0.0%	6.3%	0.0%	0.0%	45.5%	27.7%	0.0%	0.0%	0.0%	0.0%	27.5%	3.7%	12.5%	16.5%	20.0%	15.2%
Vegetation	0.0%	0.0%	0.0%	0.0%	4.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%	0.0%	0.7%
Berries	0.0%	0.0%	4.8%	0.0%	4.5%	0.0%	0.0%	28.6%	0.0%	1.9%	0.0%	0.0%	0.0%	0.9%	0.0%	1.2%
Blueberry	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.9%	0.0%	0.9%	0.0%	0.6%
Strawberry	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.9%	0.0%	0.0%	0.0%	0.1%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table XVII-8. Estimated Number of Households Purchasing Subsistence Foods, 2003 Study Year

	Estimated Number of Households Purchasing Subsistence Foods															
RESOURCE PURCHASED	Chignik Bay	Chignik Lagoon	Chignik Lake	Perryville	Nanwalek	Port Graham	Akhiok	Karluk	Larsen Bay	Old Harbor	Ouzinkie	Port Lions	Chenega Bay	Cordova	Tatitlek	TOTAL
Any Resource	1.3	1.4	3.0	2.4	41.7	40.1	2.7	6.4	5.0	5.8	44.6	30.2	2.5	322.3	8.6	518.2
Fish	0.0	0.0	0.0	0.0	4.6	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	8.0	0.0	13.9
Salmon	0.0	0.0	1.5	0.0	0.0	1.4	0.0	2.1	0.0	1.5	0.0	0.0	0.0	11.1	0.0	17.6
Chum Salmon	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4
Chinook Salmon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.1	0.0	11.1
Pink Salmon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	1.3
Sockeye Salmon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.0	1.1	17.1
Non-Salmon Fish	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.0	0.0	16.0
Herring	0.0	0.0	0.0	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.1	0.0	13.4
Herring Roe	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4
Herring Spawn on	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.3	0.0	6.3
Cod	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4
Pacific Cod (gray)	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4
Halibut	1.3	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	2.9	0.0	0.0	0.0	25.4	2.2	33.2
Shark	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4
Big Game	0.0	0.0	0.0	2.4	0.0	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	1.1	5.7
Deer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	0.0	8.0
Moose	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	0.0	8.0
Harbor Seal	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	2.6
Ducks	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4
Unknown Seabirds	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4
Marine	0.0	0.0	0.0	0.0	7.0	2.8	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0	11.1
Abalone	0.0	0.0	0.0	0.0	11.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.6
Clams	0.0	0.0	0.0	0.0	0.0	12.4	0.0	0.0	3.7	1.5	33.8	26.3	0.0	79.2	1.1	158.0
Razor Clams	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	55.6	2.2	57.7
Unknown Clams	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3
Crabs	0.0	0.0	1.5	0.0	13.9	20.7	1.4	0.0	0.0	1.5	24.4	9.2	2.5	123.3	3.2	201.5
Dungeness Crab	0.0	0.0	0.0	0.0	9.3	4.1	0.0	0.0	0.0	0.0	1.4	0.0	0.0	38.2	0.0	53.0
King Crab	0.0	0.0	0.0	0.0	0.0	1.4	1.4	0.0	0.0	0.0	6.8	0.0	0.0	14.2	0.0	23.8
Tanner Crab	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0	1.4	0.0	0.0	3.1	0.0	5.9
Unknown Crab	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	0.0	9.3
Mussels	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	1.3
Octopus	0.0	0.0	0.0	0.0	7.0	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.7
Scallops	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7	0.0	0.0	26.7	0.0	30.8
Weathervane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	0.0	8.0
Shrimp	0.0	1.4	0.0	0.0	23.2	18.0	0.0	0.0	0.0	0.0	18.9	2.6	2.5	150.4	5.4	222.4
Vegetation	0.0	0.0	0.0	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	0.0	10.3
Berries	0.0	0.0	1.5	0.0	2.3	0.0	0.0	4.3	0.0	1.5	0.0	0.0	0.0	8.0	0.0	17.5
Blueberry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	8.0	0.0	9.3
Strawberry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	1.3

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

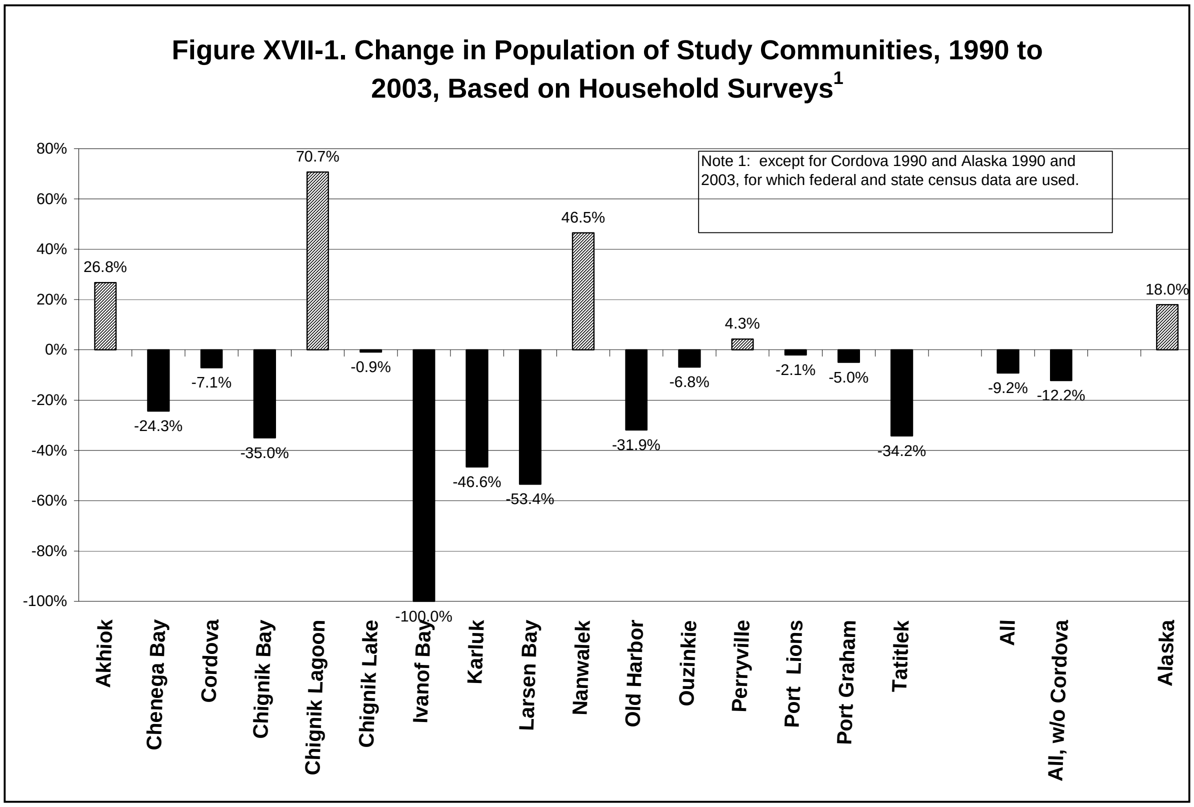


Figure XVII-1. Change in Population of Study Communities, 1990 to 2003, Based on Household Surveys1
Note 1: except for Cordova 1990 and Alaska 1990 and 2003, for which federal and state census data are used.
80%
60%
40%
20%
0%
-20%
-40%
-60%
-80%
-100%
26.8%
-24.3%
-7.1%
-35.0%
70.7%
-0.9%
-100.0%
-46.6%
-53.4%
46.5%
-31.9%
-6.8%
4.3%
-2.1%
-5.0%
-34.2%
-9.2%
-12.2%
18.0%
Akhiok
Chenega Bay
Cordova
Chignik Bay
Chignik Lagoon
Chignik Lake
Ivanof Bay
Karluk
Larsen Bay
Nanwalek
Old Harbor
Ouzinkie
Perryville
Port Lions
Port Graham
Tatitlek
All
All, w/o Cordova
Alaska

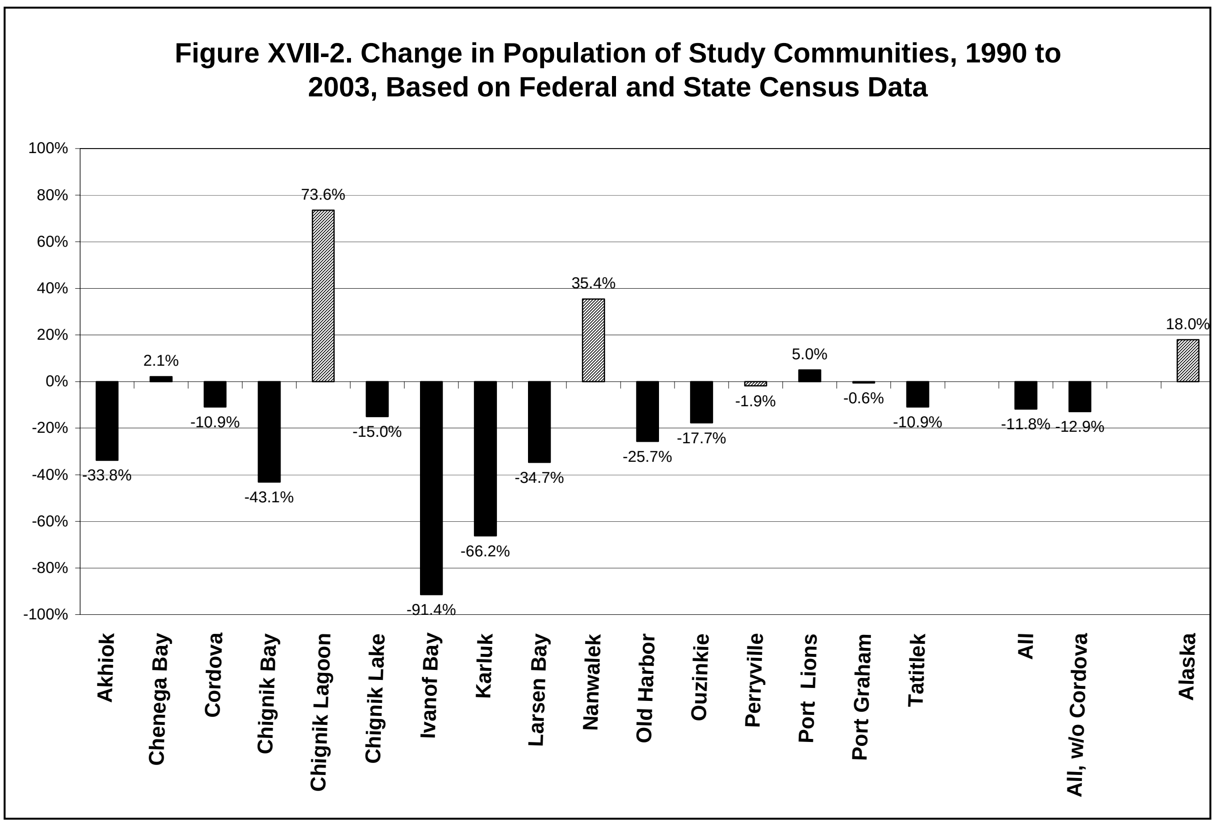


Figure XVII-2. Change in Population of Study Communities, 1990 to 2003, Based on Federal and State Census Data
100%
80%
60%
40%
20%
0%
-20%
-40%
-60%
-80%
-100%
-33.8%
2.1%
-10.9%
-43.1%
73.6%
-15.0%
-91.4%
-66.2%
-34.7%
35.4%
-25.7%
-17.7%
-1.9%
5.0%
-0.6%
-10.9%
-11.8%
-12.9%
18.0%
Akhiok
Chenega Bay
Cordova
Chignik Bay
Chignik Lagoon
Chignik Lake
Ivanof Bay
Karluk
Larsen Bay
Nanwalek
Old Harbor
Ouzinkie
Perryville
Port Lions
Port Graham
Tatitlek
All
All, w/o Cordova
Alaska

Figure XVII-3. Median Age of the Population of the Study Communities, 2003

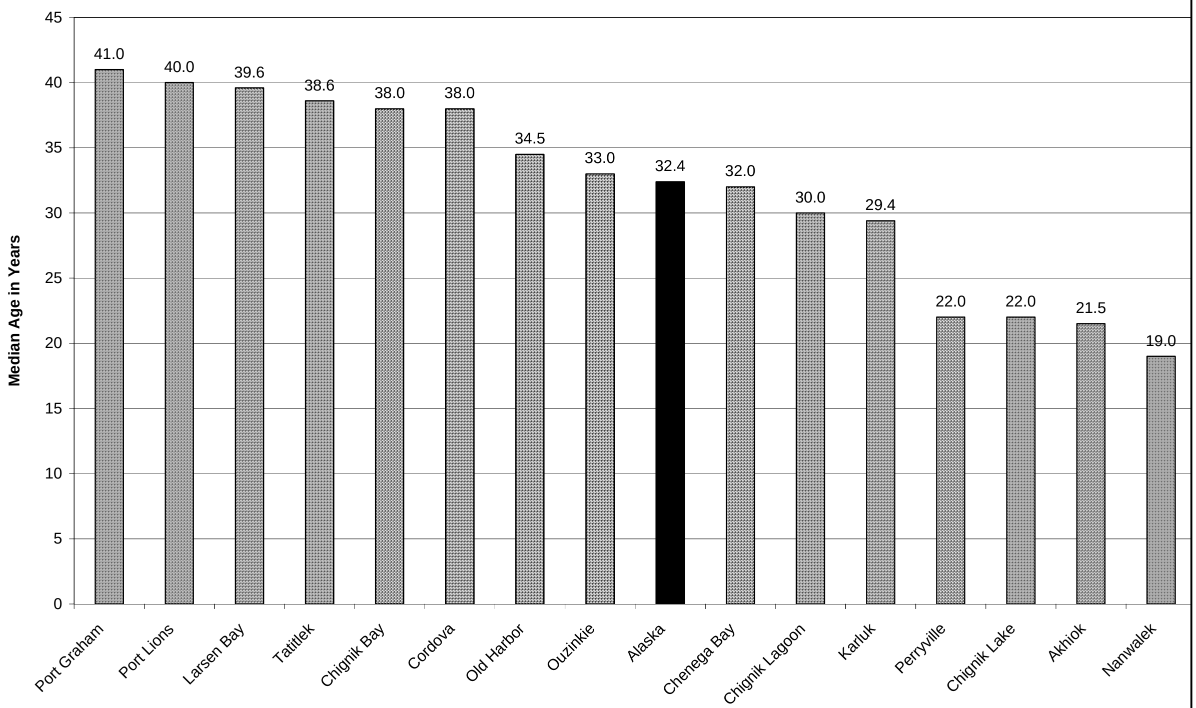
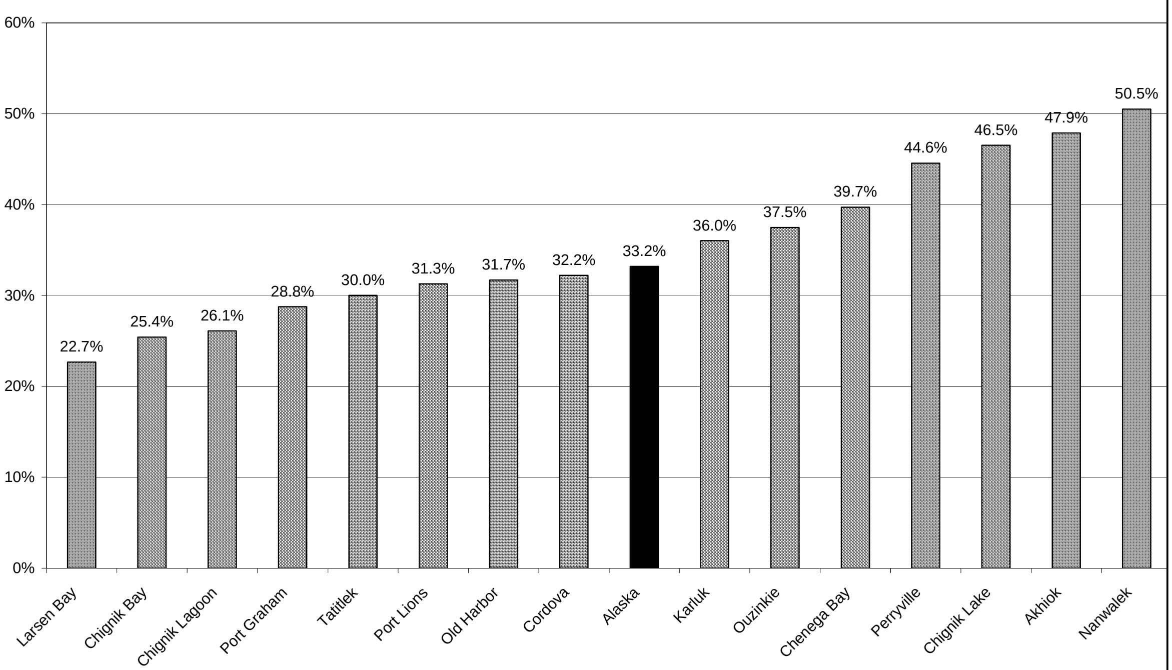


Figure XVII-4. Percentage of the Population of the Study Communities Under 20 Years of Age, 2003



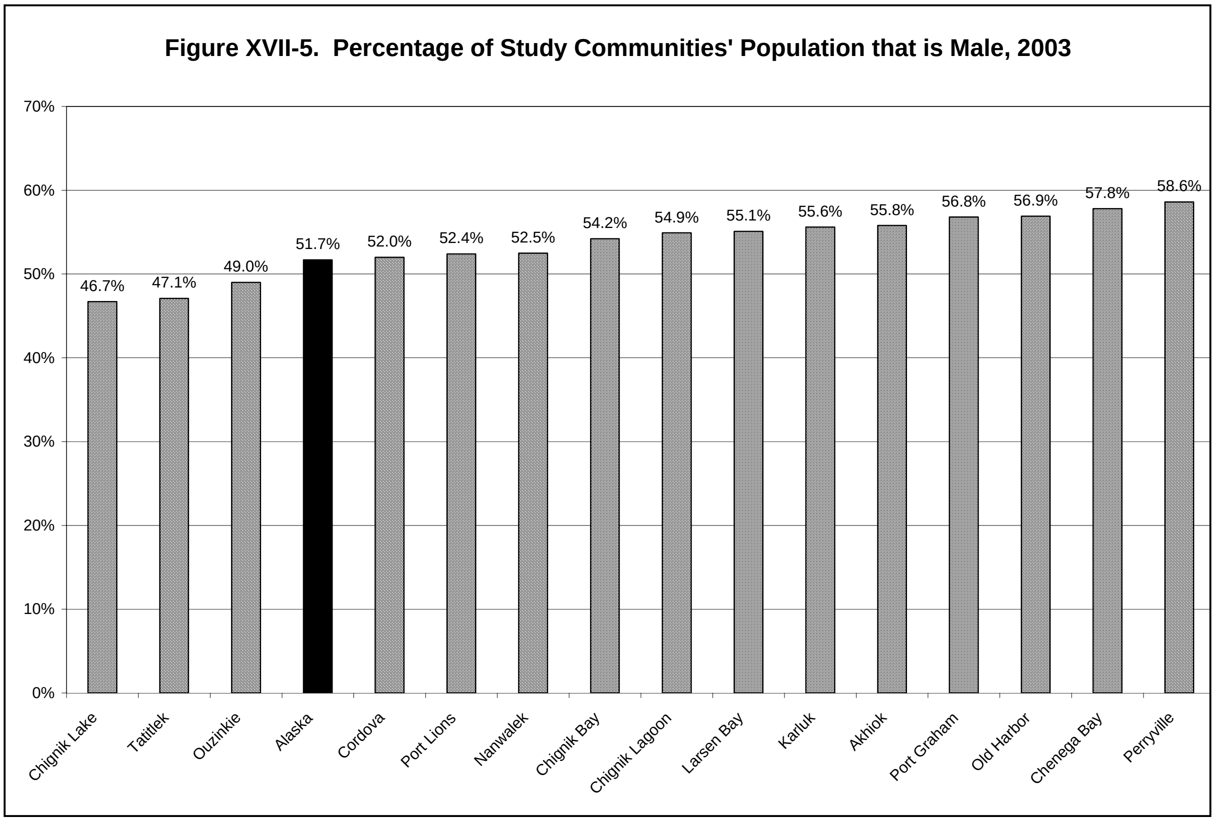


Figure XVII-5. Percentage of Study Communities' Population that is Male, 2003
70%
60%
50%
40%
30%
20%
10%
0%
46.7%
47.1%
49.0%
51.7%
52.0%
52.4%
52.5%
54.2%
54.9%
55.1%
55.6%
55.8%
56.8%
56.9%
57.8%
58.6%
Chignik Lake
Tatitlek
Ouzinkie
Alaska
Cordova
Port Lions
Nanwalek
Chignik Bay
Chignik Lagoon
Larsen Bay
Karluk
Akhiok
Port Graham
Old Harbor
Chenega Bay
Perryville

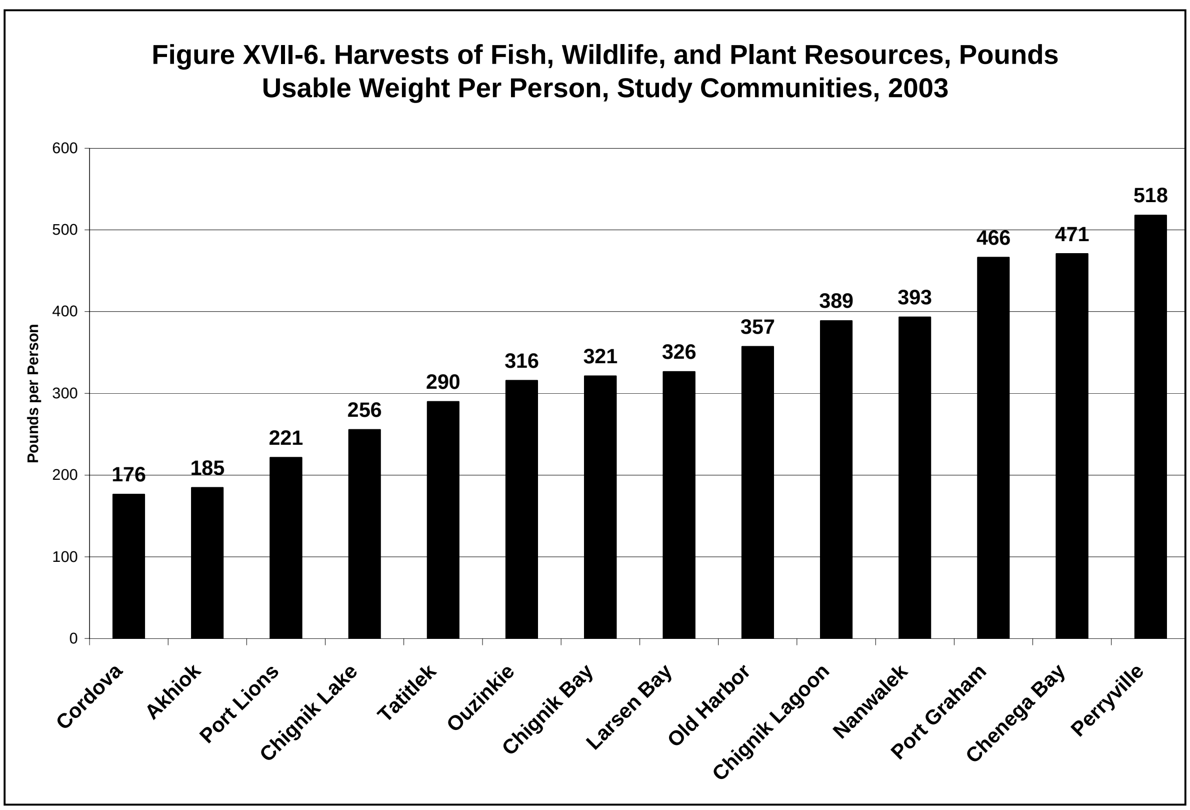


Figure XVII-6. Harvests of Fish, Wildlife, and Plant Resources, Pounds Usable Weight Per Person, Study Communities, 2003
Pounds per Person
600
500
400
300
200
100
0
176
185
221
256
290
316
321
326
357
389
393
466
471
518
Cordova
Akhiok
Port Lions
Chignik Lake
Tatitlek
Ouzinkie
Chignik Bay
Larsen Bay
Old Harbor
Chignik Lagoon
Nanwalek
Port Graham
Chenega Bay
Perryville

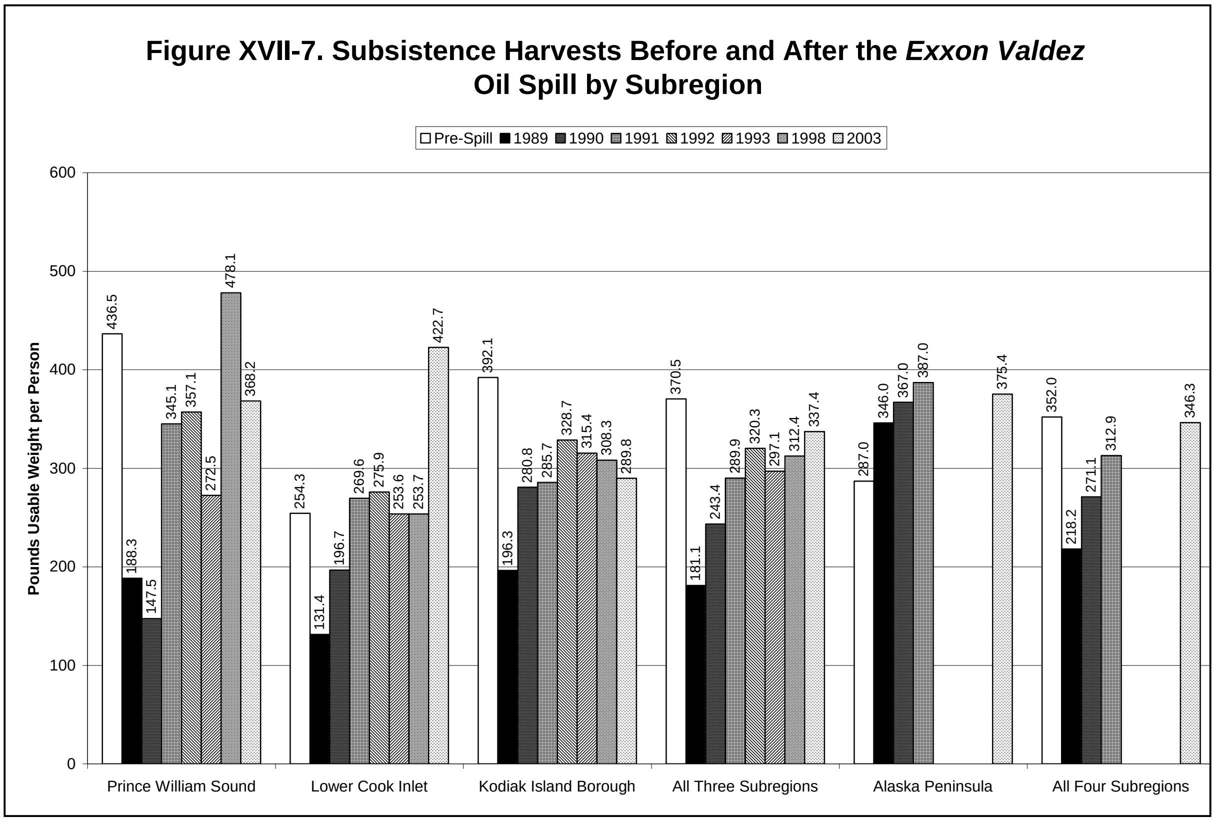


Figure XVII-7. Subsistence Harvests Before and After the *Exxon Valdez* Oil Spill by Subregion
Pre-Spill 1989 1990 1991 1992 1993 1998 2003
Pounds Usable Weight per Person
600
500
400
300
200
100
0
436.5
188.3
147.5
345.1
357.1
272.5
478.1
368.2
254.3
131.4
196.7
269.6
275.9
253.6
253.7
422.7
392.1
196.3
280.8
285.7
328.7
315.4
308.3
289.8
370.5
181.1
243.4
289.9
320.3
297.1
312.4
337.4
287.0
346.0
367.0
387.0
375.4
352.0
218.2
271.1
312.9
346.3
Prince William Sound
Lower Cook Inlet
Kodiak Island Borough
All Three Subregions
Alaska Peninsula
All Four Subregions

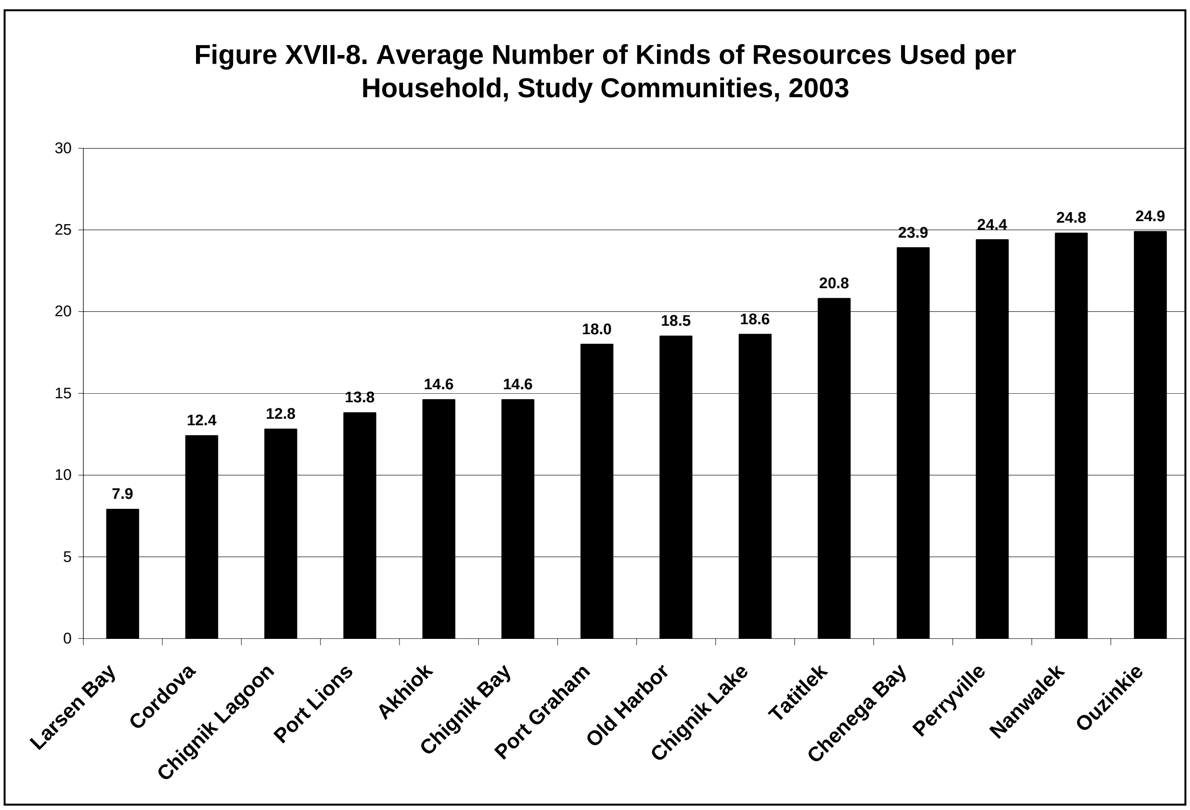


Figure XVII-8. Average Number of Kinds of Resources Used per Household, Study Communities, 2003
30
25
20
15
10
5
0
7.9
12.4
12.8
13.8
14.6
14.6
18.0
18.5
18.6
20.8
23.9
24.4
24.8
24.9
Larsen Bay
Cordova
Chignik Lagoon
Port Lions
Akhiok
Chignik Bay
Port Graham
Old Harbor
Chignik Lake
Tatitlek
Chenega Bay
Perryville
Nanwalek
Ouzinkie

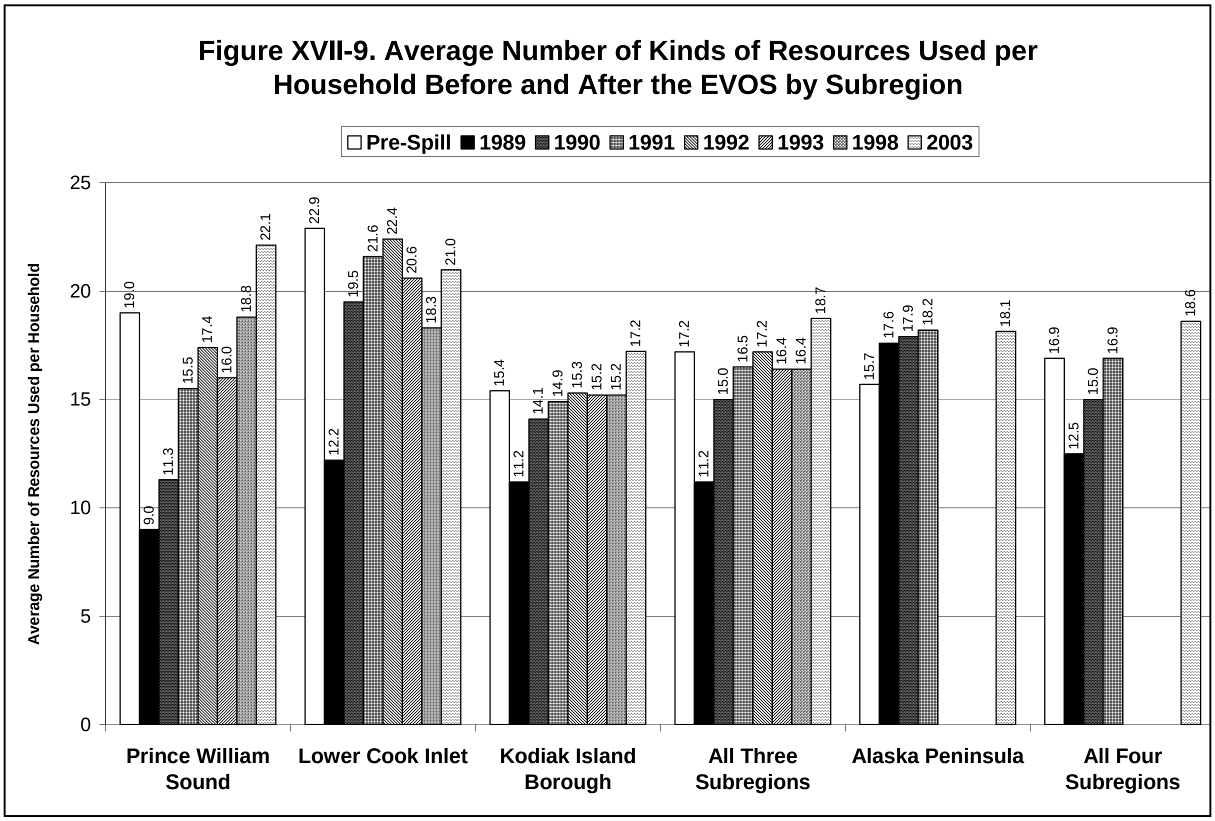


Figure XVII-9. Average Number of Kinds of Resources Used per Household Before and After the EVOS by Subregion
Pre-Spill 1989 1990 1991 1992 1993 1998 2003
Average Number of Resources Used per Household
0
5
10
15
20
25
19.0 9.0 11.3 15.5 17.4 16.0 18.8 22.1
22.9 12.2 19.5 21.6 22.4 20.6 18.3 21.0
15.4 11.2 14.1 14.9 15.3 15.2 15.2 17.2
17.2 11.2 15.0 16.5 17.2 16.4 16.4 18.7
15.7 17.6 17.9 18.2 18.1
16.9 12.5 15.0 16.9 18.6
Prince William Sound
Lower Cook Inlet
Kodiak Island Borough
All Three Subregions
Alaska Peninsula
All Four Subregions

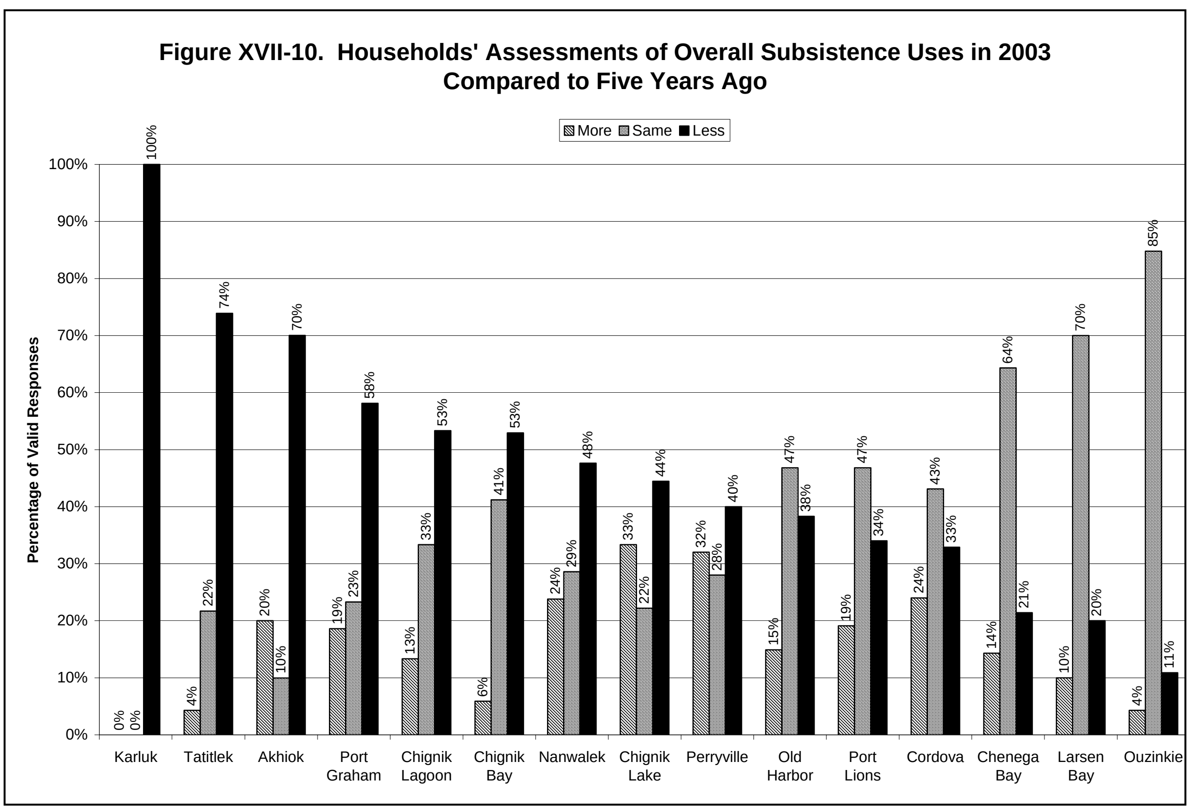


Figure XVII-10. Households' Assessments of Overall Subsistence Uses in 2003 Compared to Five Years Ago
More Same Less
Percentage of Valid Responses
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
0% 0% 100%
4% 22% 74%
20% 10% 70%
19% 23% 58%
13% 33% 53%
6% 41% 53%
24% 29% 48%
33% 22% 44%
32% 28% 40%
15% 47% 38%
19% 47% 34%
24% 43% 33%
14% 64% 21%
10% 70% 20%
4% 85% 11%
Karluk
Tatitlek
Akhiok
Port Graham
Chignik Lagoon
Chignik Bay
Nanwalek
Chignik Lake
Perryville
Old Harbor
Port Lions
Cordova
Chenega Bay
Larsen Bay
Ouzinkie

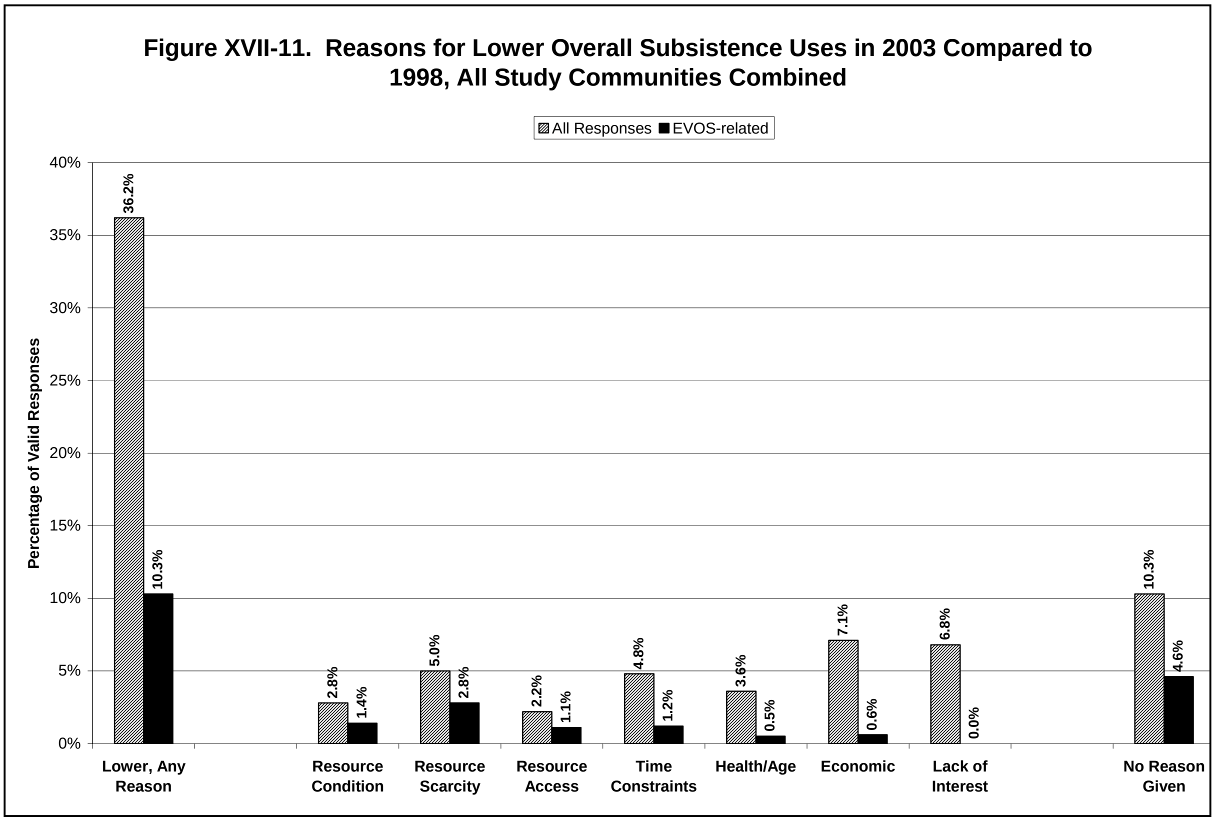


Figure XVII-11. Reasons for Lower Overall Subsistence Uses in 2003 Compared to 1998, All Study Communities Combined
All Responses
EVOS-related
Percentage of Valid Responses
0%
5%
10%
15%
20%
25%
30%
35%
40%
36.2%
10.3%
2.8%
1.4%
5.0%
2.8%
2.2%
1.1%
4.8%
1.2%
3.6%
0.5%
7.1%
0.6%
6.8%
0.0%
10.3%
4.6%
Lower, Any Reason
Resource Condition
Resource Scarcity
Resource Access
Time Constraints
Health/Age
Economic
Lack of Interest
No Reason Given

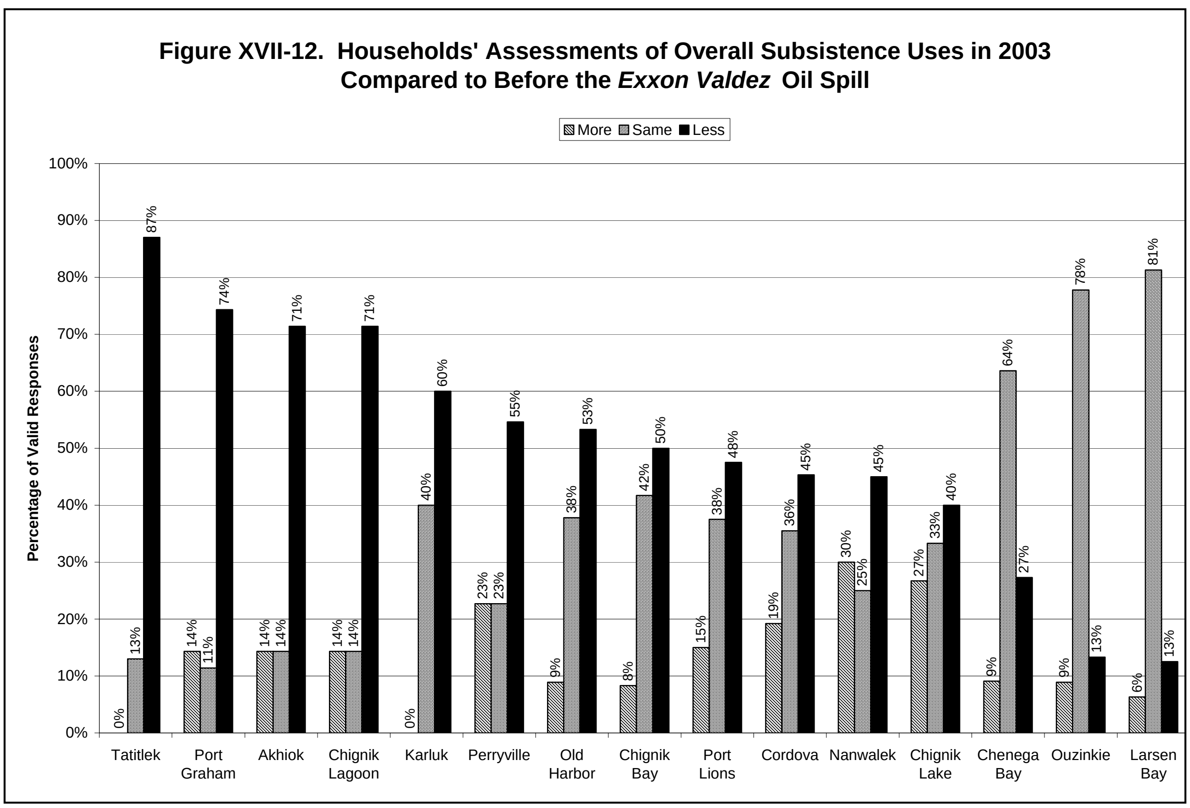


Figure XVII-12. Households' Assessments of Overall Subsistence Uses in 2003 Compared to Before the *Exxon Valdez* Oil Spill
More
Same
Less
Percentage of Valid Responses
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Tatitlek 0% 13% 87%
Port Graham 14% 11% 74%
Akhiok 14% 14% 71%
Chignik Lagoon 14% 14% 71%
Karluk 0% 40% 60%
Perryville 23% 23% 55%
Old Harbor 9% 38% 53%
Chignik Bay 8% 42% 50%
Port Lions 15% 38% 48%
Cordova 19% 36% 45%
Nanwalek 30% 25% 45%
Chignik Lake 27% 33% 40%
Chenega Bay 9% 64% 27%
Ouzinkie 9% 78% 13%
Larsen Bay 6% 81% 13%

Figure XVII-13. Reasons for Lower Overall Subsistence Uses in 2003 Compared to 1988, the Year Before the EVOS

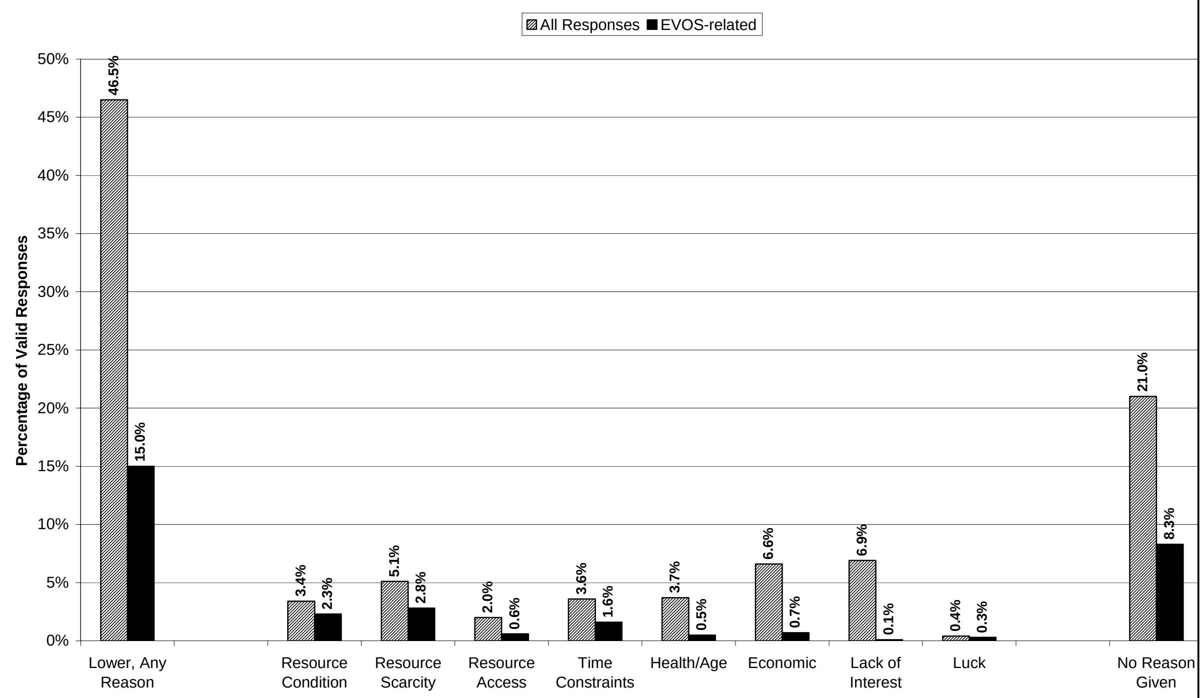


Figure XVII-14. Household Assessments of Overall Subsistence Uses Compared to Before EVOS, 1989, 1993, 1998, and 2003 (Seven Communities Combined[1])

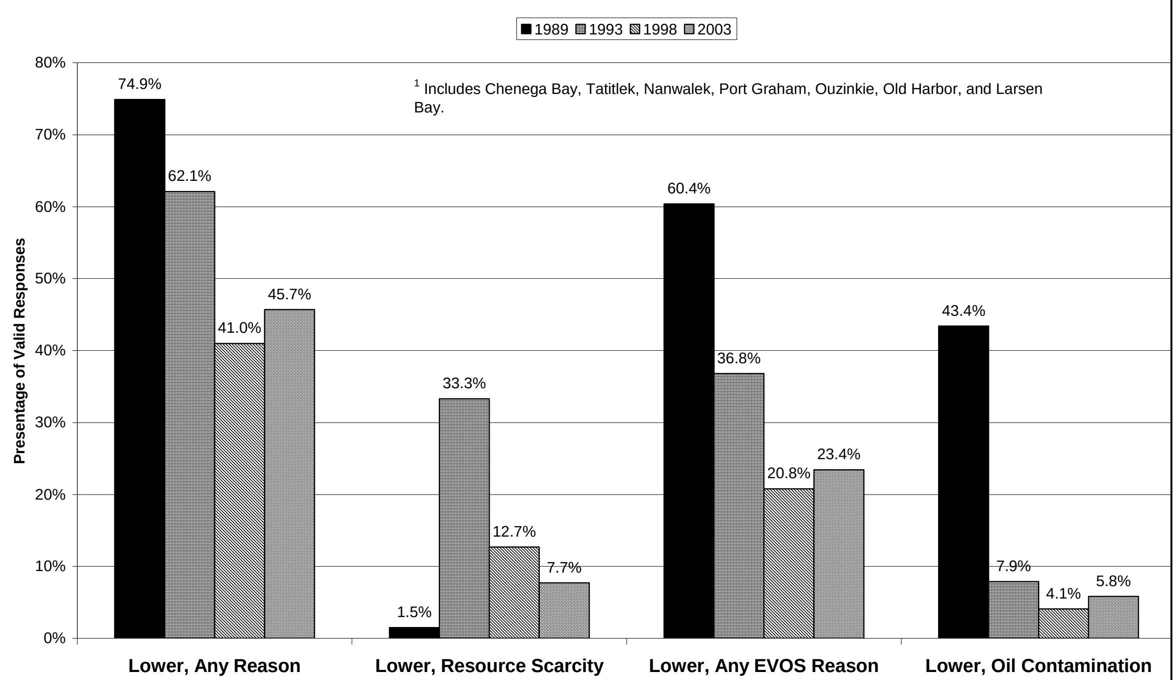


Figure XVII-15. Percentage of Households in Eight Study Communities with Lower Overall Subsistence Uses Compared to Before EVOS Due to Spill-Related Reasons

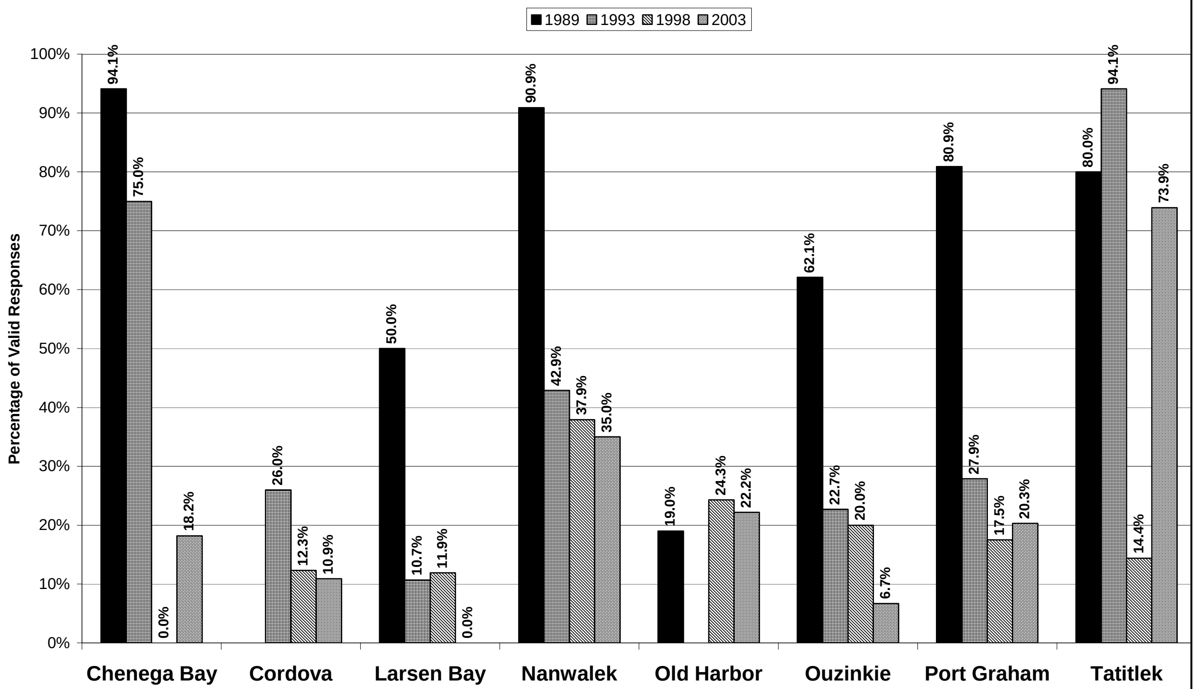
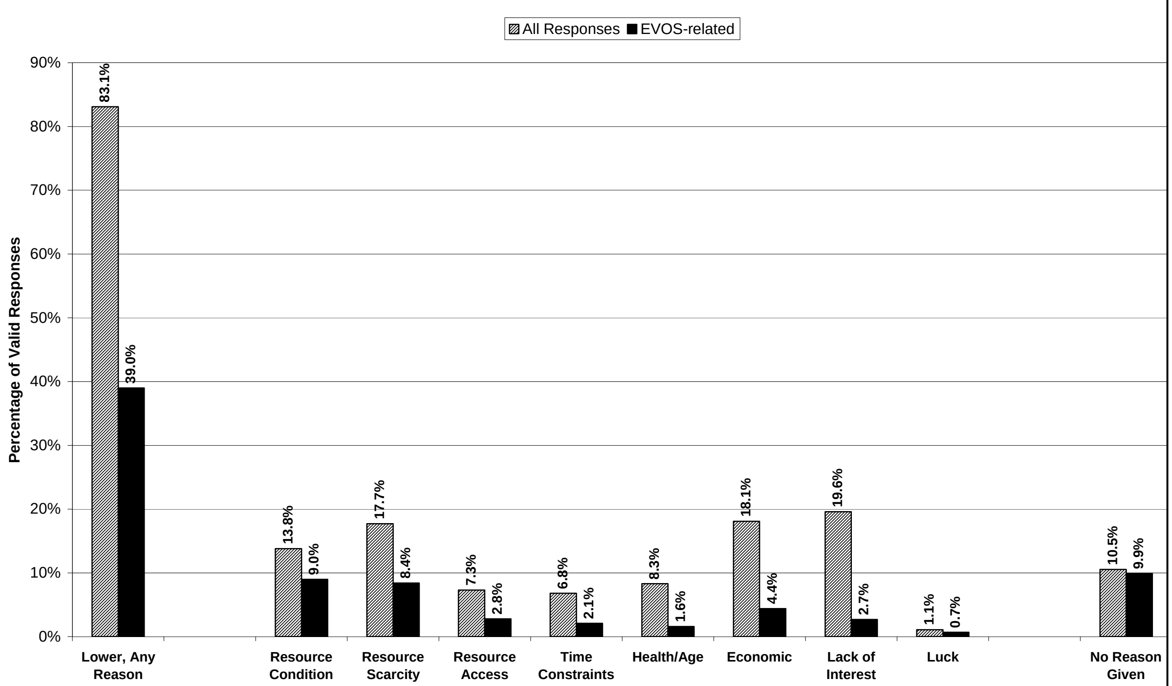


Figure XVII-16. Reasons for Lower Subsistence Use of Any Resource Category in 2003 Compared to 1988, the Year Before the EVOS



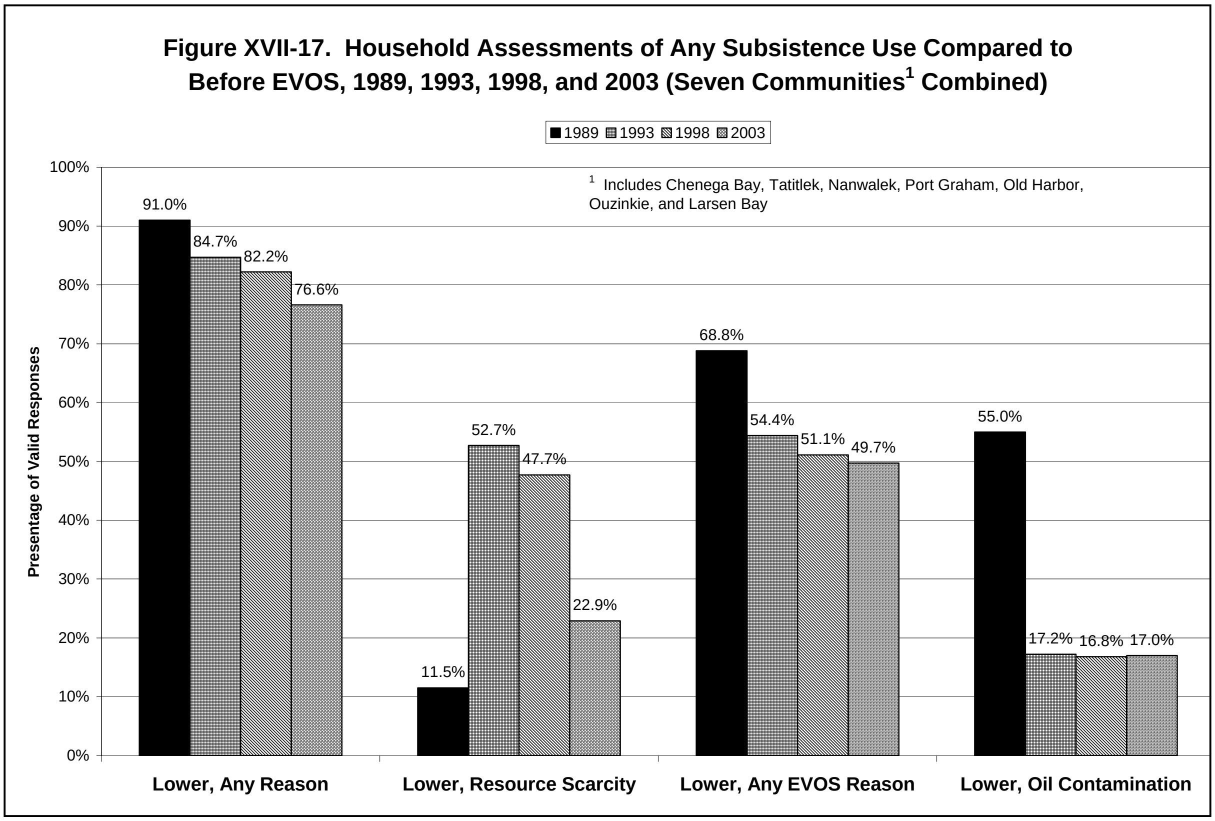


Figure XVII-17. Household Assessments of Any Subsistence Use Compared to Before EVOS, 1989, 1993, 1998, and 2003 (Seven Communities[1] Combined)
1989 1993 1998 2003
1 Includes Chenega Bay, Tatitlek, Nanwalek, Port Graham, Old Harbor, Ouzinkie, and Larsen Bay
Presentage of Valid Responses
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
91.0%
84.7%
82.2%
76.6%
11.5%
52.7%
47.7%
22.9%
68.8%
54.4%
51.1%
49.7%
55.0%
17.2%
16.8%
17.0%
Lower, Any Reason
Lower, Resource Scarcity
Lower, Any EVOS Reason
Lower, Oil Contamination

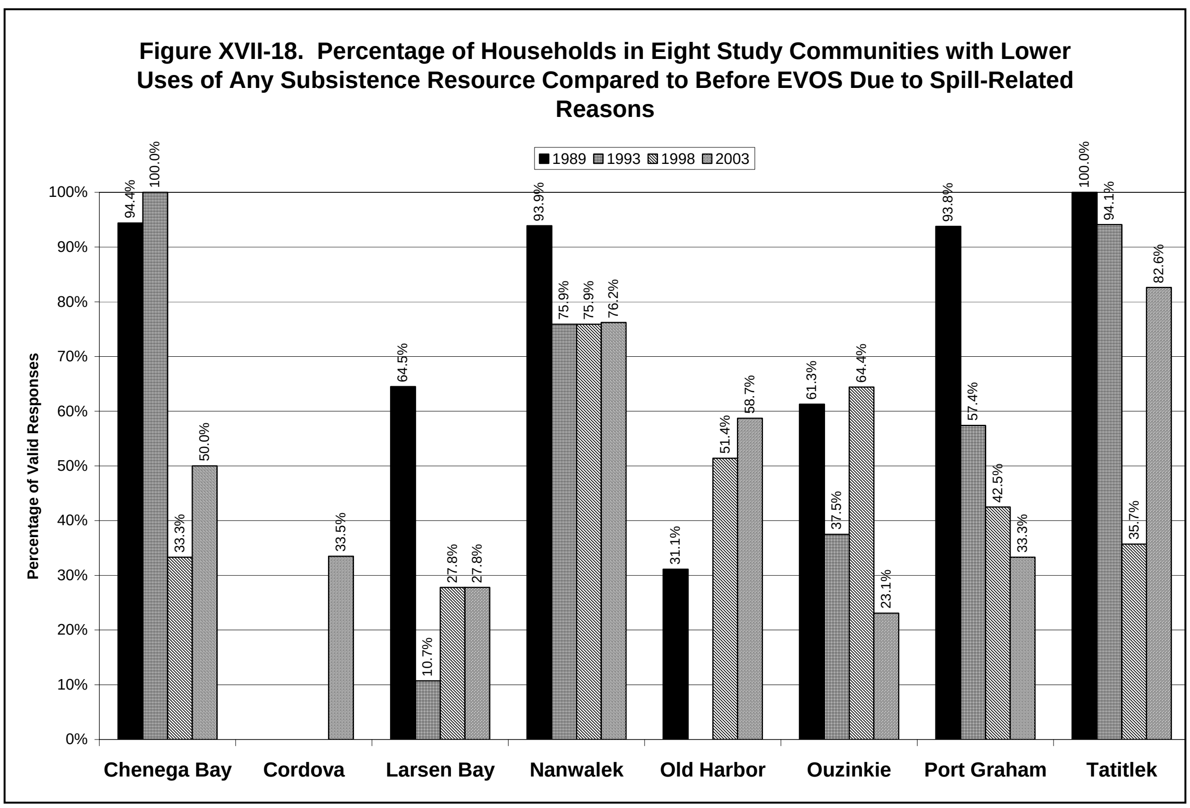


Figure XVII-18. Percentage of Households in Eight Study Communities with Lower Uses of Any Subsistence Resource Compared to Before EVOS Due to Spill-Related Reasons
1989 1993 1998 2003
Percentage of Valid Responses
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
94.4%
100.0%
33.3%
50.0%
33.5%
64.5%
10.7%
27.8%
27.8%
93.9%
75.9%
75.9%
76.2%
31.1%
51.4%
58.7%
61.3%
37.5%
64.4%
23.1%
93.8%
57.4%
42.5%
33.3%
100.0%
94.1%
35.7%
82.6%
Chenega Bay
Cordova
Larsen Bay
Nanwalek
Old Harbor
Ouzinkie
Port Graham
Tatitlek

Figure XVII-19. Assessment of Effort to Harvest Resource Categories in 2003 Compared to Five Years Ago, All Study Communities Combined

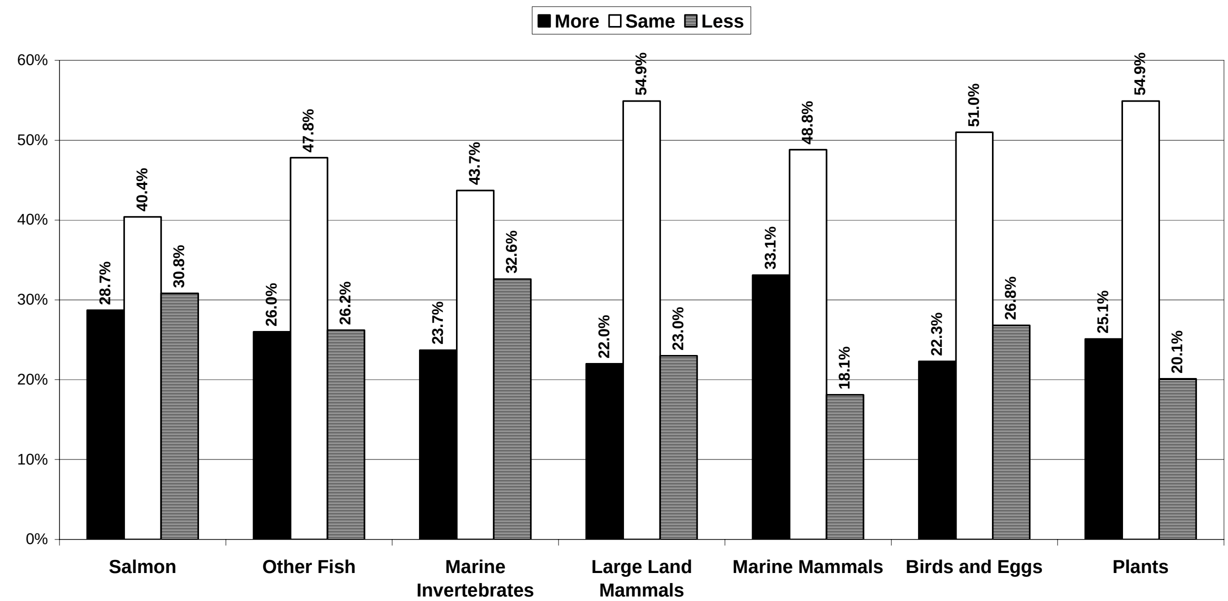
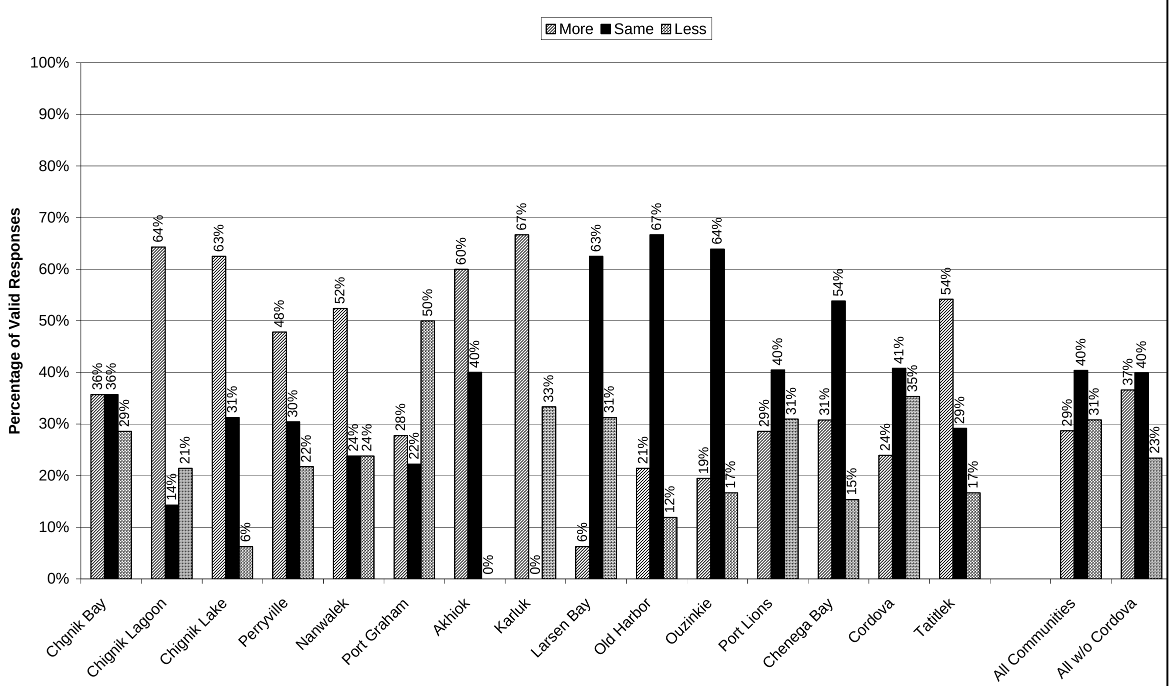


Figure XVII-20. Assessment of Households' Harvest Effort for Salmon in 2003 Compared to Five Years Ago (1998)



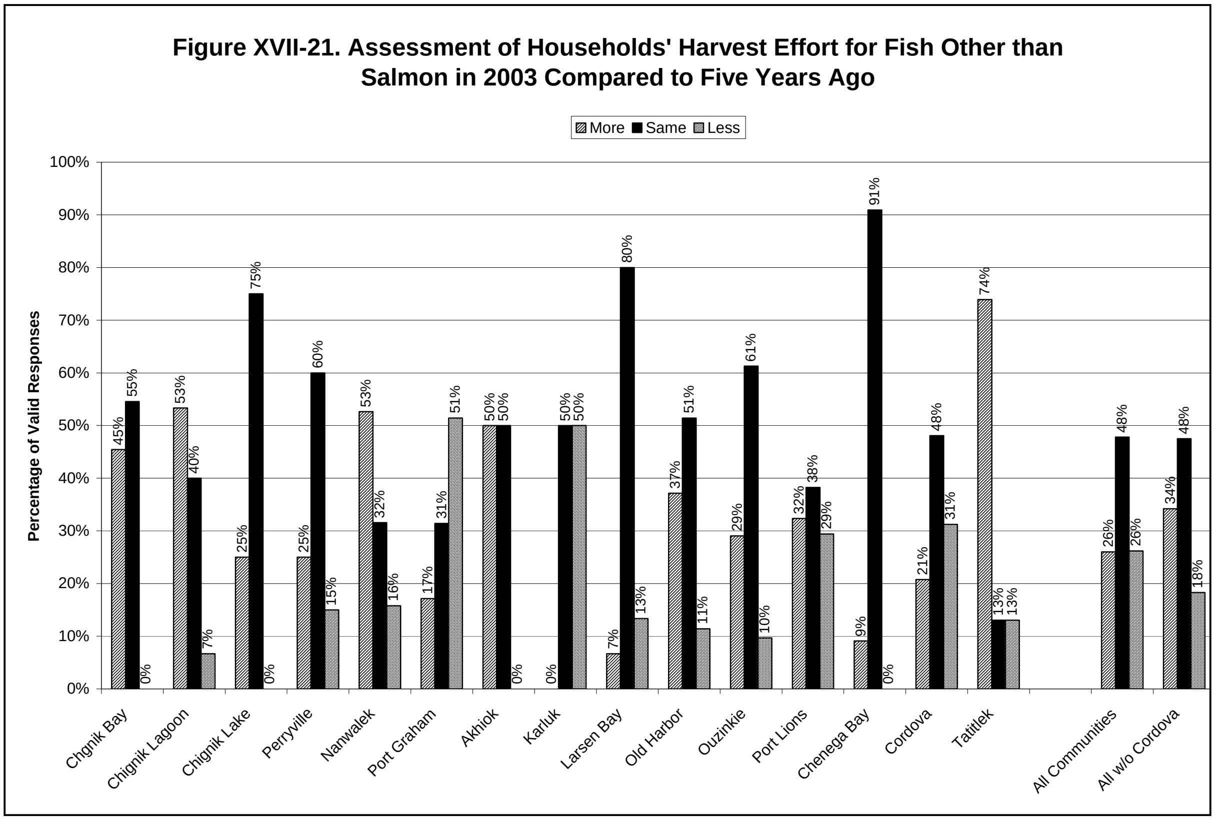


Figure XVII-21. Assessment of Households' Harvest Effort for Fish Other than Salmon in 2003 Compared to Five Years Ago
More
Same
Less
Percentage of Valid Responses
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Chgnik Bay
Chignik Lagoon
Chignik Lake
Perryville
Nanwalek
Port Graham
Akhiok
Karluk
Larsen Bay
Old Harbor
Ouzinkie
Port Lions
Chenega Bay
Cordova
Tatitlek
All Communities
All w/o Cordova

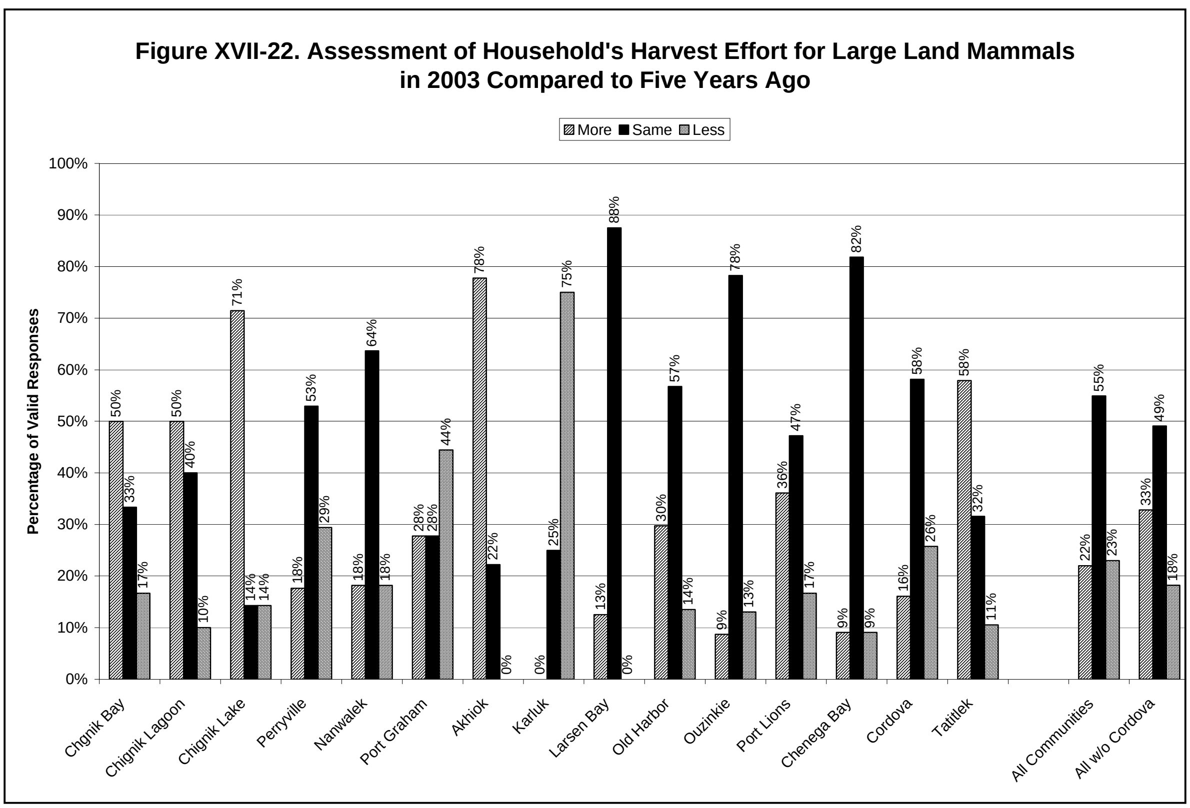


Figure XVII-22. Assessment of Household's Harvest Effort for Large Land Mammals in 2003 Compared to Five Years Ago
More
Same
Less
Percentage of Valid Responses
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Chgnik Bay
Chignik Lagoon
Chignik Lake
Perryville
Nanwalek
Port Graham
Akhiok
Karluk
Larsen Bay
Old Harbor
Ouzinkie
Port Lions
Chenega Bay
Cordova
Tatitlek
All Communities
All w/o Cordova

Figure XVII-23. Assessment of Household's Harvest Effort for Marine Mammals in 2003 Compared to Five Years Ago

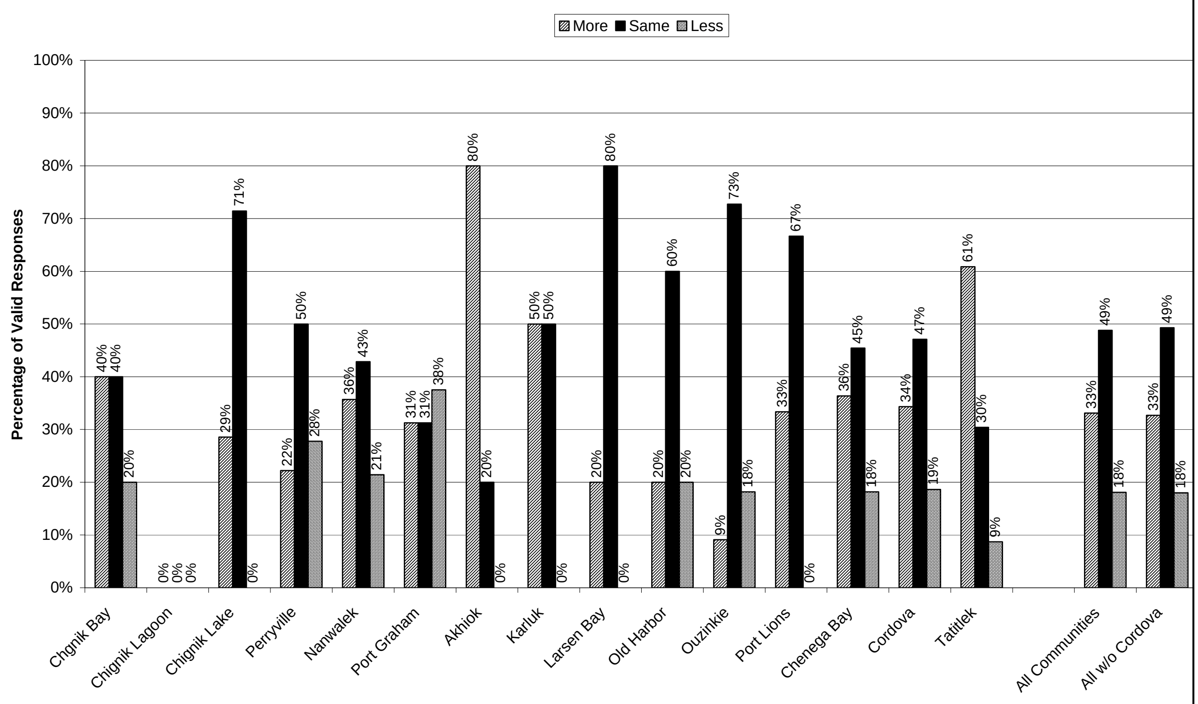
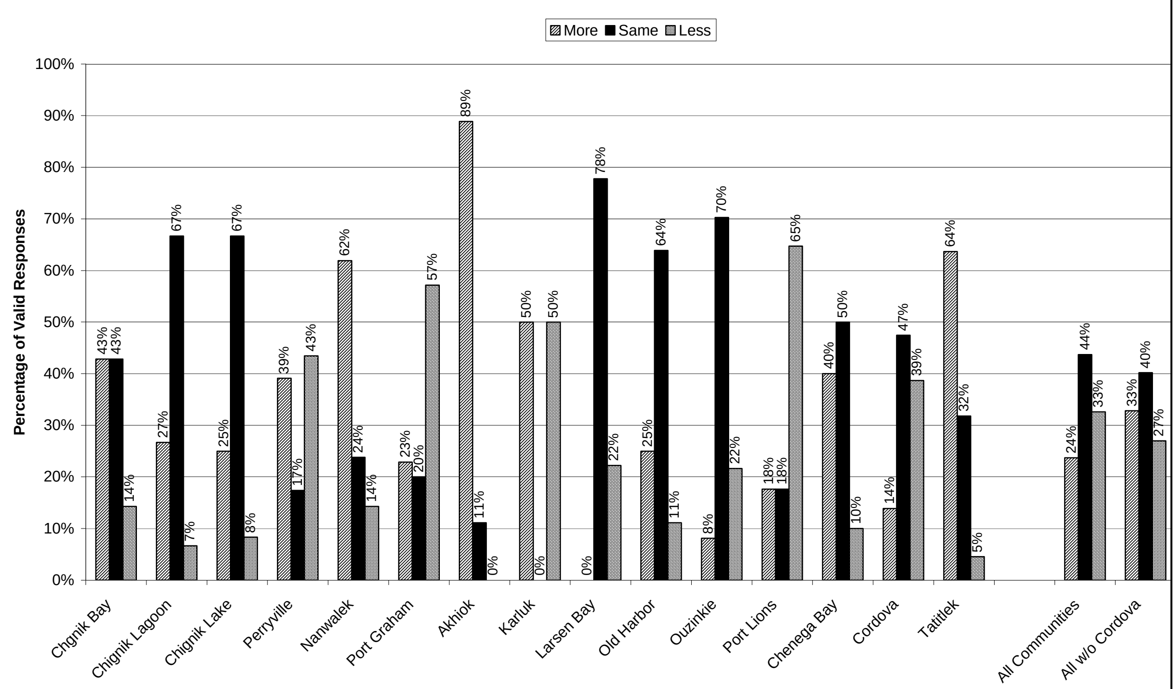


Figure XVII-24. Assessment of Household's Harvest Effort for Shellfish in 2003 Compared to Five Years Ago



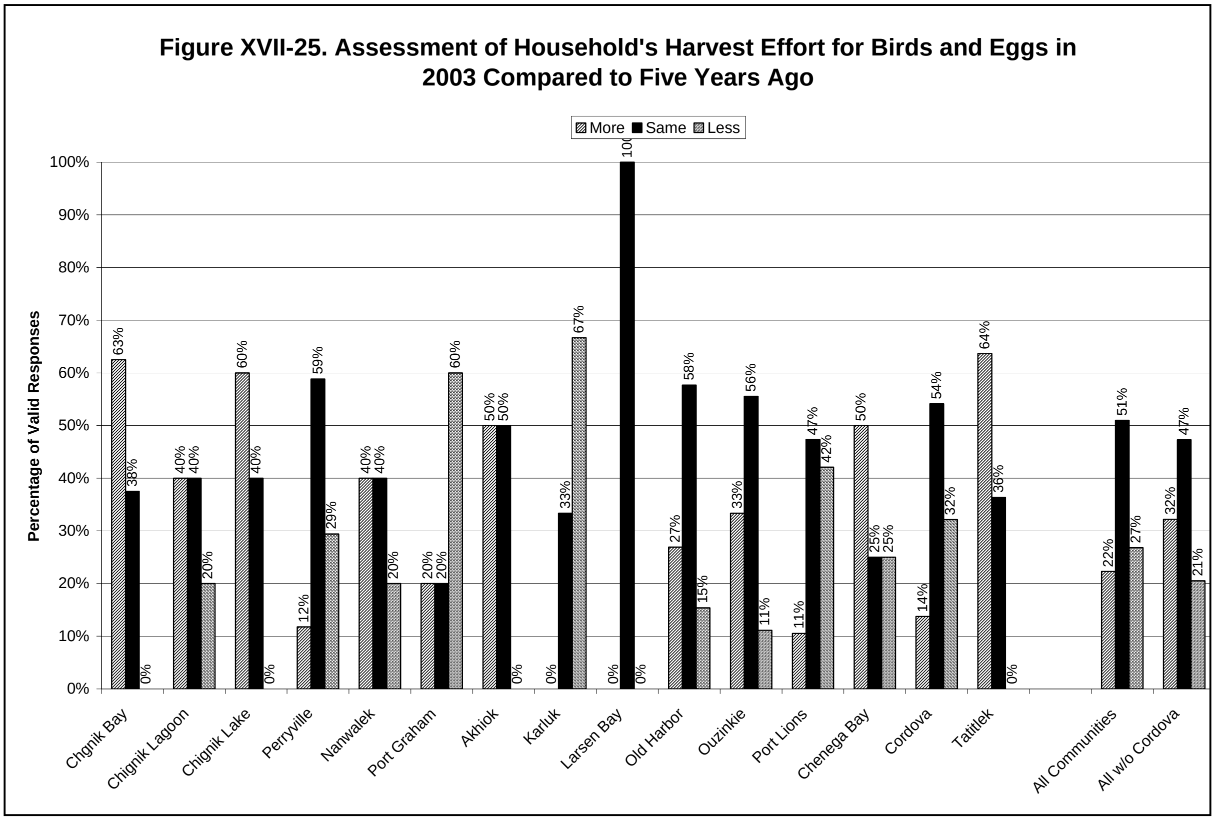


Figure XVII-25. Assessment of Household's Harvest Effort for Birds and Eggs in 2003 Compared to Five Years Ago
More
Same
Less
Percentage of Valid Responses
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Chgnik Bay
Chignik Lagoon
Chignik Lake
Perryville
Nanwalek
Port Graham
Akhiok
Karluk
Larsen Bay
Old Harbor
Ouzinkie
Port Lions
Chenega Bay
Cordova
Tatitlek
All Communities
All w/o Cordova

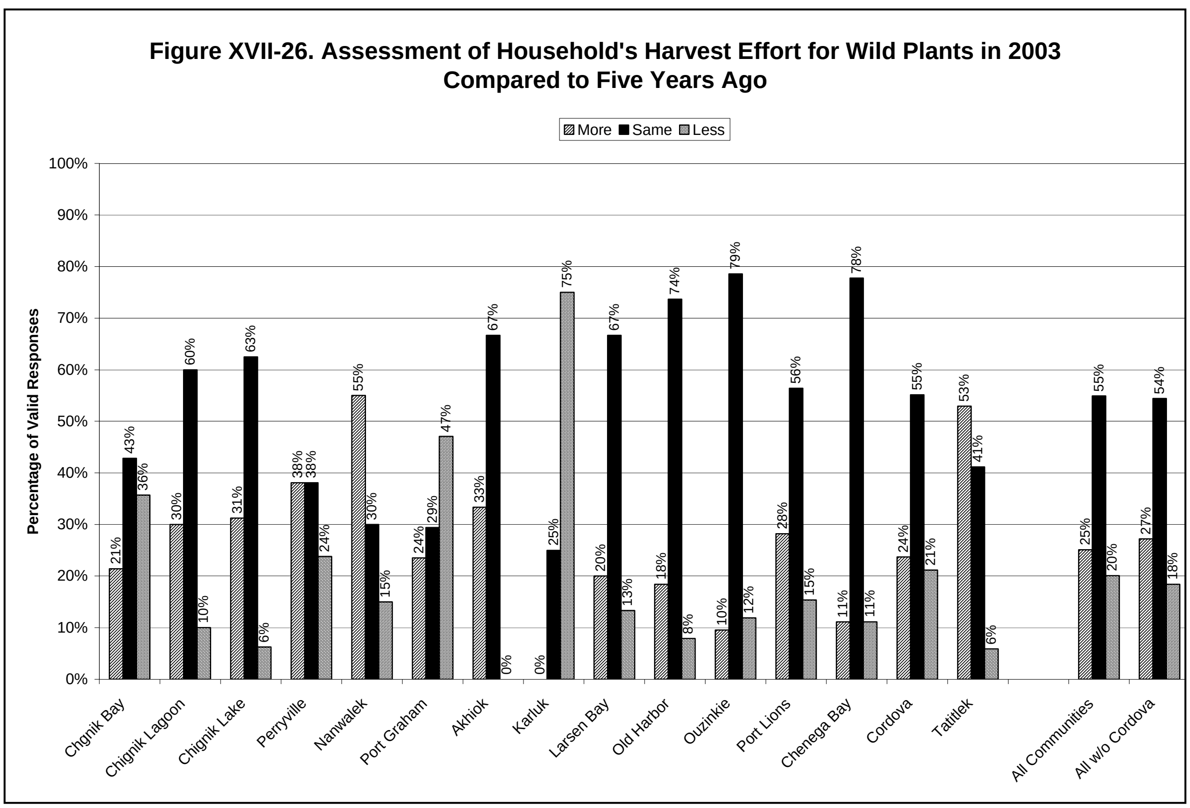


Figure XVII-26. Assessment of Household's Harvest Effort for Wild Plants in 2003 Compared to Five Years Ago
More
Same
Less
Percentage of Valid Responses
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Chgnik Bay
Chignik Lagoon
Chignik Lake
Perryville
Nanwalek
Port Graham
Akhiok
Karluk
Larsen Bay
Old Harbor
Ouzinkie
Port Lions
Chenega Bay
Cordova
Tatitlek
All Communities
All w/o Cordova

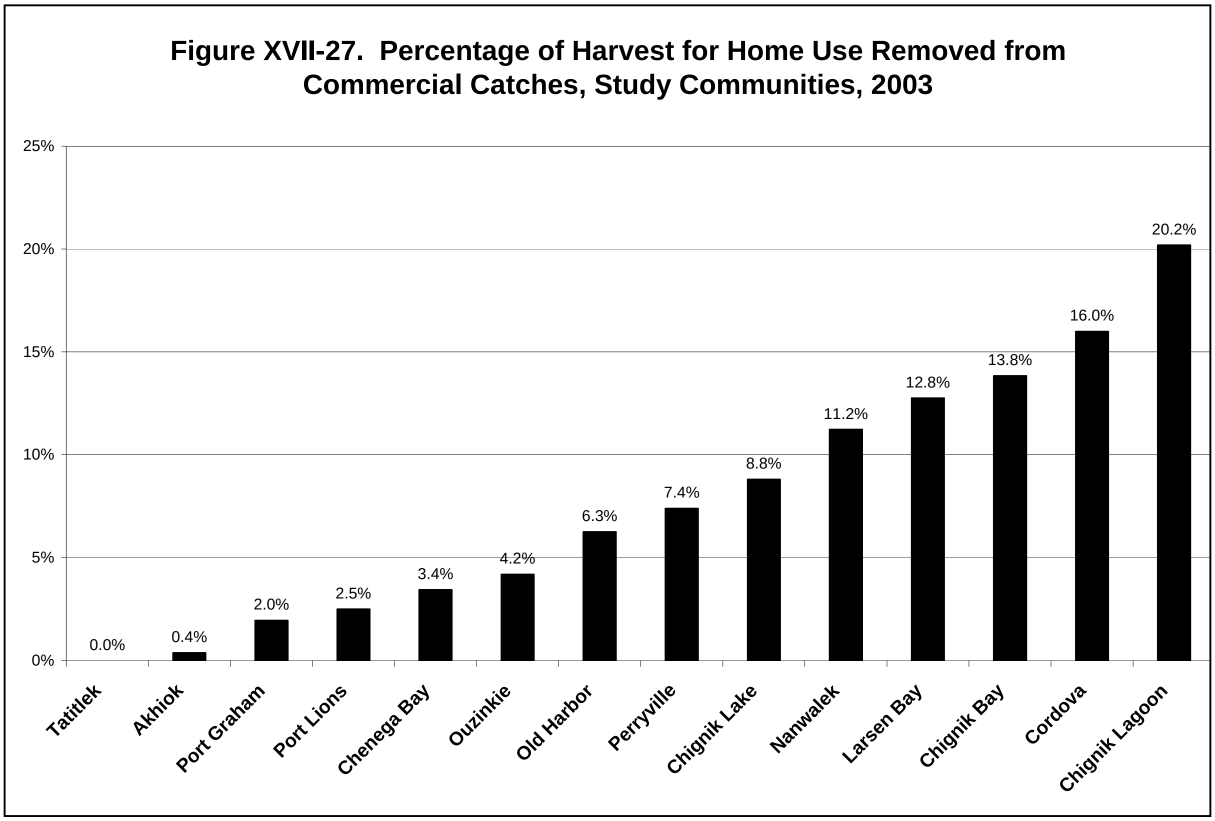


Figure XVII-27. Percentage of Harvest for Home Use Removed from Commercial Catches, Study Communities, 2003
25%
20%
15%
10%
5%
0%
0.0%
0.4%
2.0%
2.5%
3.4%
4.2%
6.3%
7.4%
8.8%
11.2%
12.8%
13.8%
16.0%
20.2%
Tatitlek
Akhiok
Port Graham
Port Lions
Chenega Bay
Ouzinkie
Old Harbor
Perryville
Chignik Lake
Nanwalek
Larsen Bay
Chignik Bay
Cordova
Chignik Lagoon

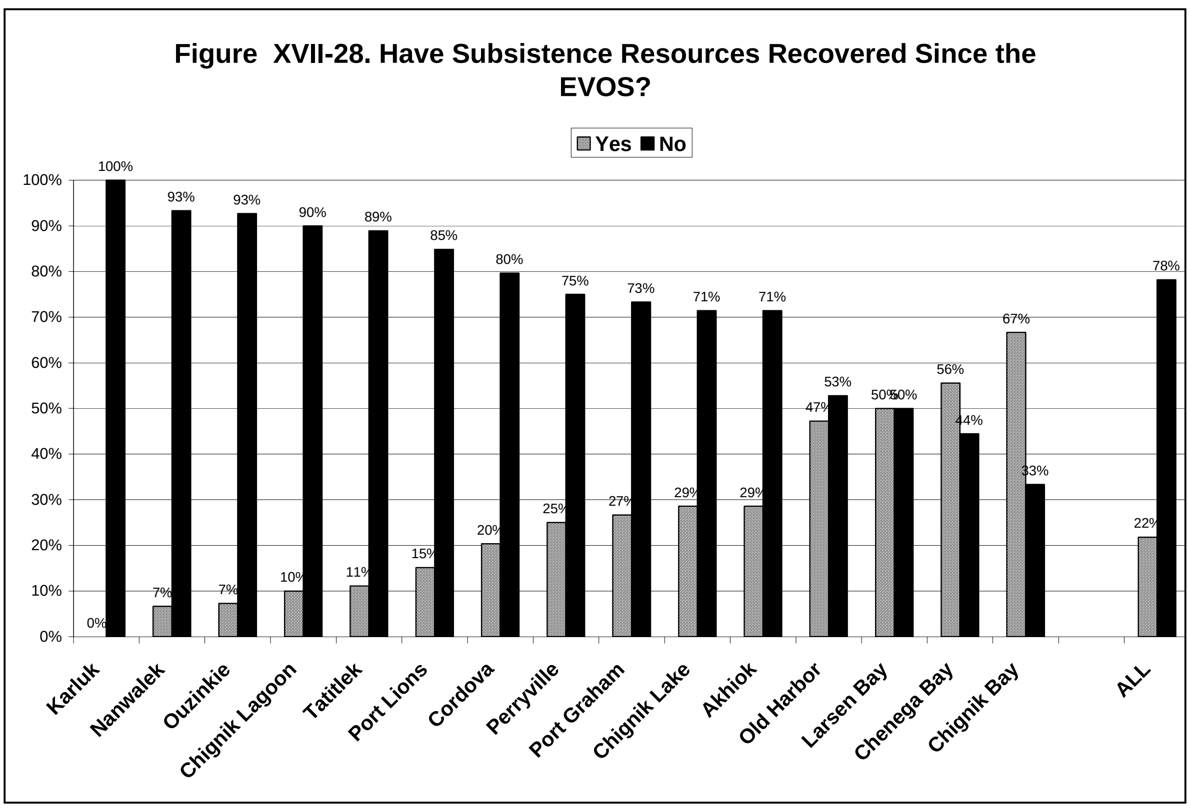


Figure XVII-28. Have Subsistence Resources Recovered Since the EVOS?
Yes
No
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Karluk
Nanwalek
Ouzinkie
Chignik Lagoon
Tatitlek
Port Lions
Cordova
Perryville
Port Graham
Chignik Lake
Akhiok
Old Harbor
Larsen Bay
Chenega Bay
Chignik Bay
ALL

Figure XVII-29. Have Subsistence Resources Recovered Since EVOS? Percentage Saying "No" for 1998 and 2003

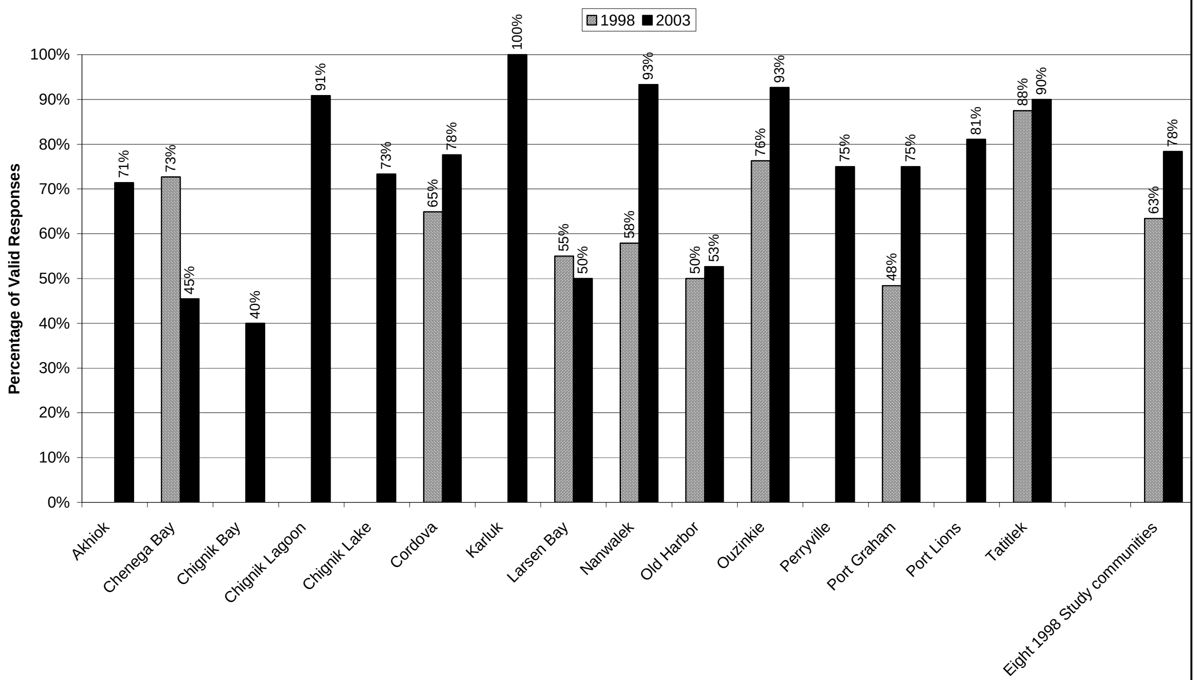
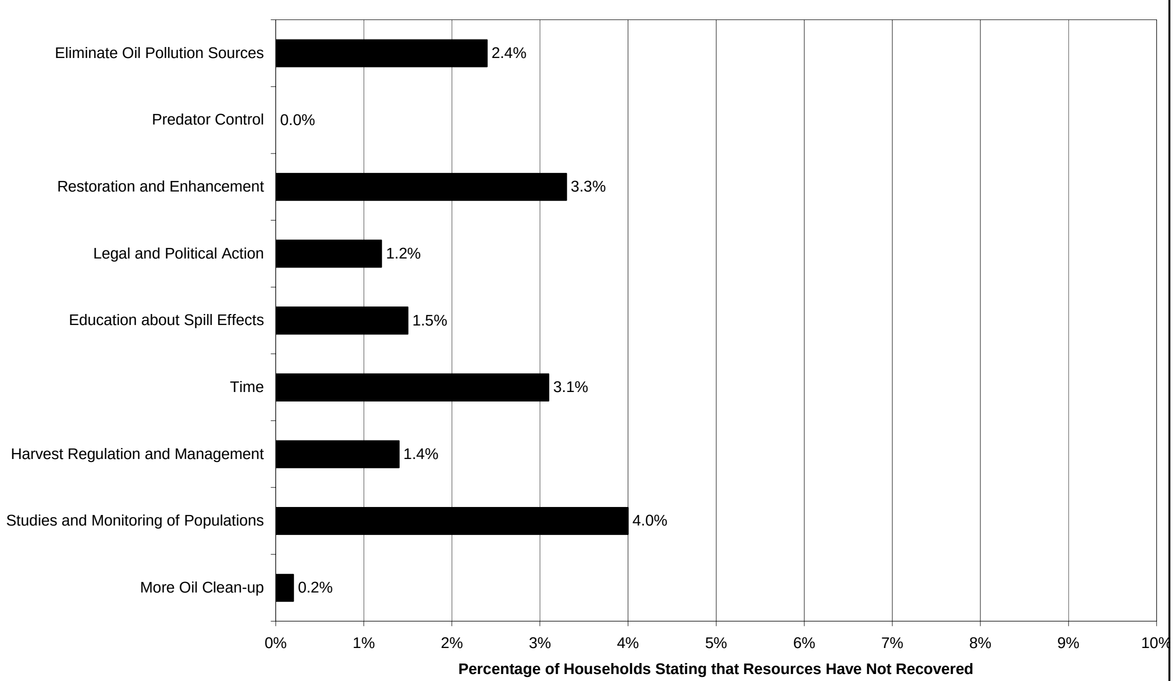


Figure XVII-30. What Should Be Done to Help in the Recovery of Subsistence Resources, All Communities Combined, 2004



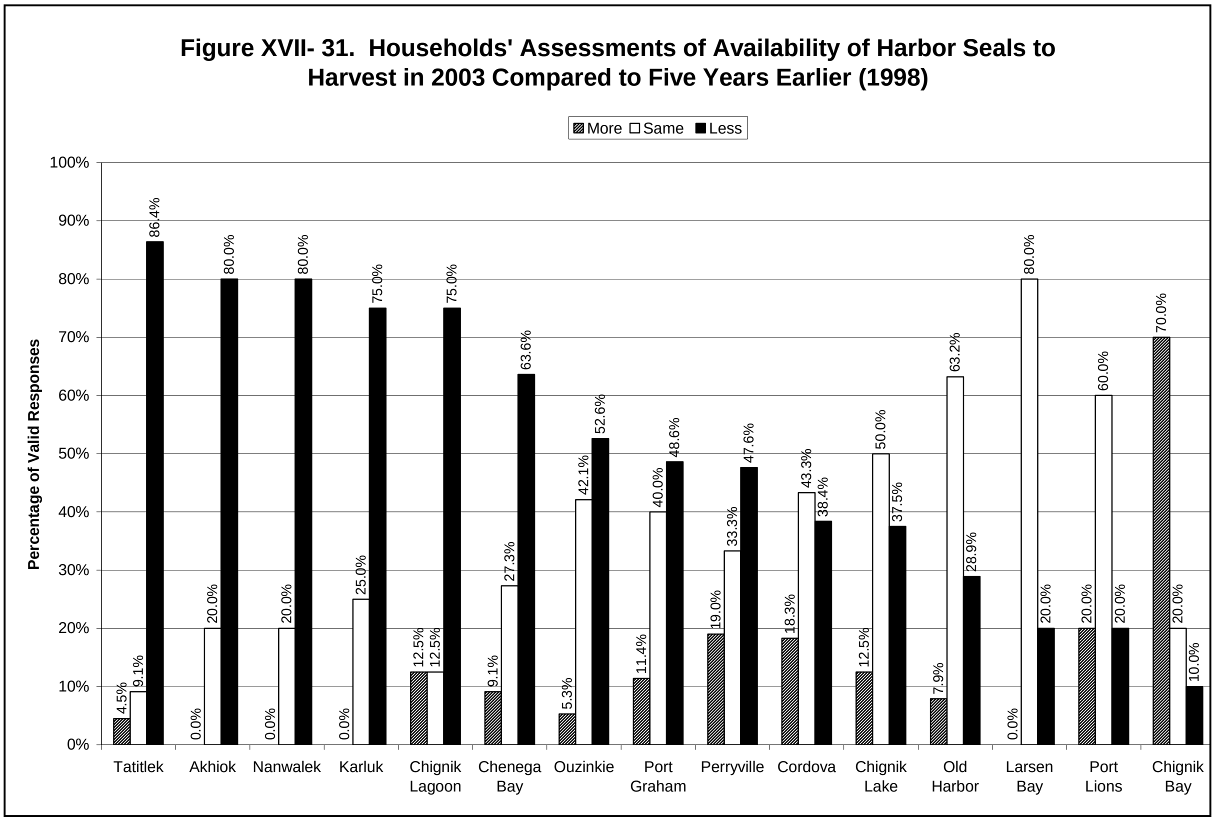


Figure XVII- 31. Households' Assessments of Availability of Harbor Seals to Harvest in 2003 Compared to Five Years Earlier (1998)
More
Same
Less
Percentage of Valid Responses
Tatitlek
Akhiok
Nanwalek
Karluk
Chignik Lagoon
Chenega Bay
Ouzinkie
Port Graham
Perryville
Cordova
Chignik Lake
Old Harbor
Larsen Bay
Port Lions
Chignik Bay

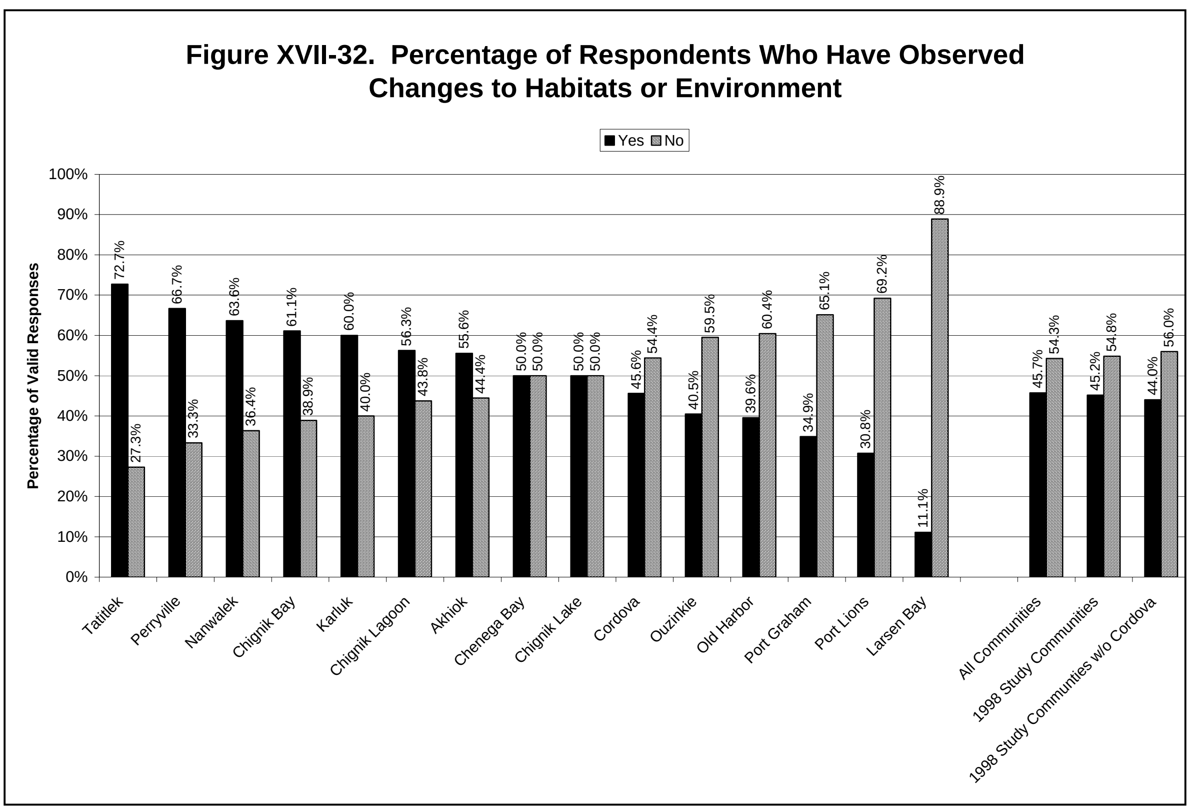


Figure XVII-32. Percentage of Respondents Who Have Observed Changes to Habitats or Environment
Yes
No
Percentage of Valid Responses
Tatitlek
Perryville
Nanwalek
Chignik Bay
Karluk
Chignik Lagoon
Akhiok
Chenega Bay
Chignik Lake
Cordova
Ouzinkie
Old Harbor
Port Graham
Port Lions
Larsen Bay
All Communities
1998 Study Communities
1998 Study Communities w/o Cordova

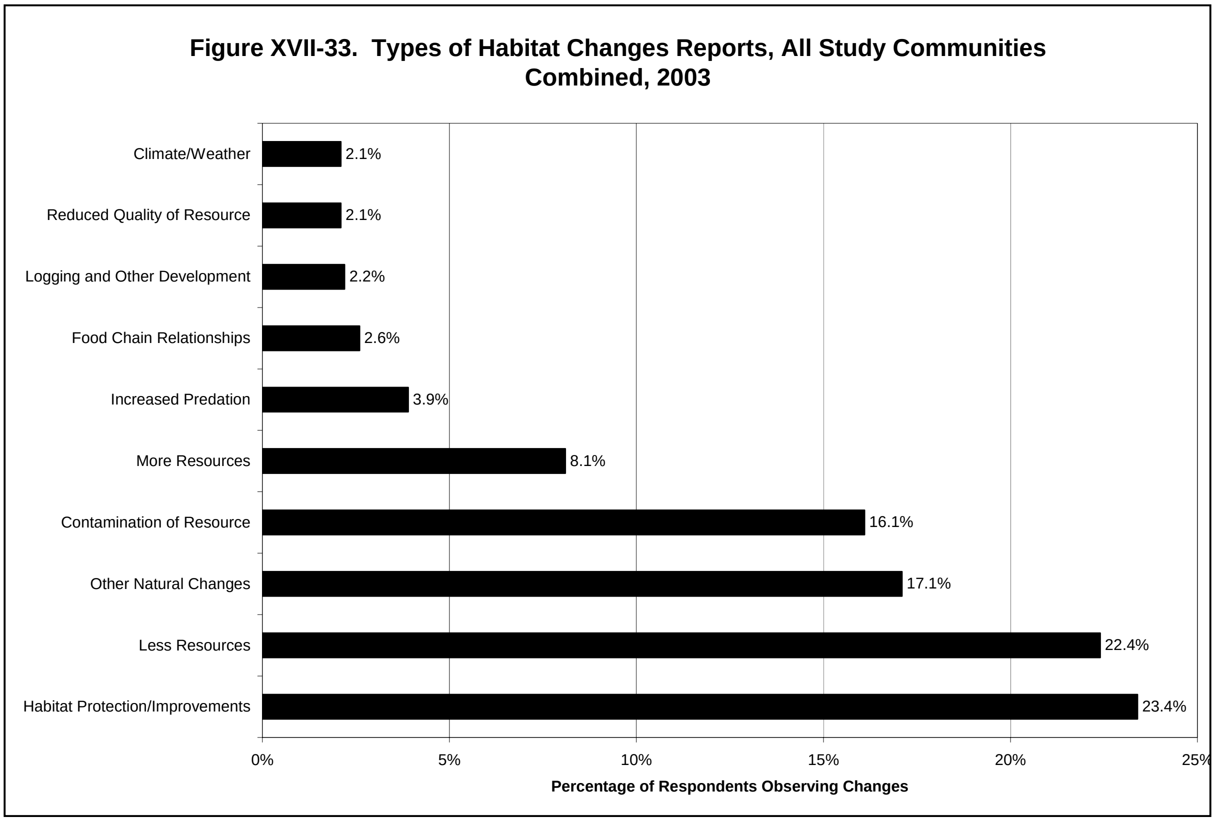


Figure XVII-33. Types of Habitat Changes Reports, All Study Communities Combined, 2003
Climate/Weather 2.1%
Reduced Quality of Resource 2.1%
Logging and Other Development 2.2%
Food Chain Relationships 2.6%
Increased Predation 3.9%
More Resources 8.1%
Contamination of Resource 16.1%
Other Natural Changes 17.1%
Less Resources 22.4%
Habitat Protection/Improvements 23.4%
0%
5%
10%
15%
20%
25%
Percentage of Respondents Observing Changes

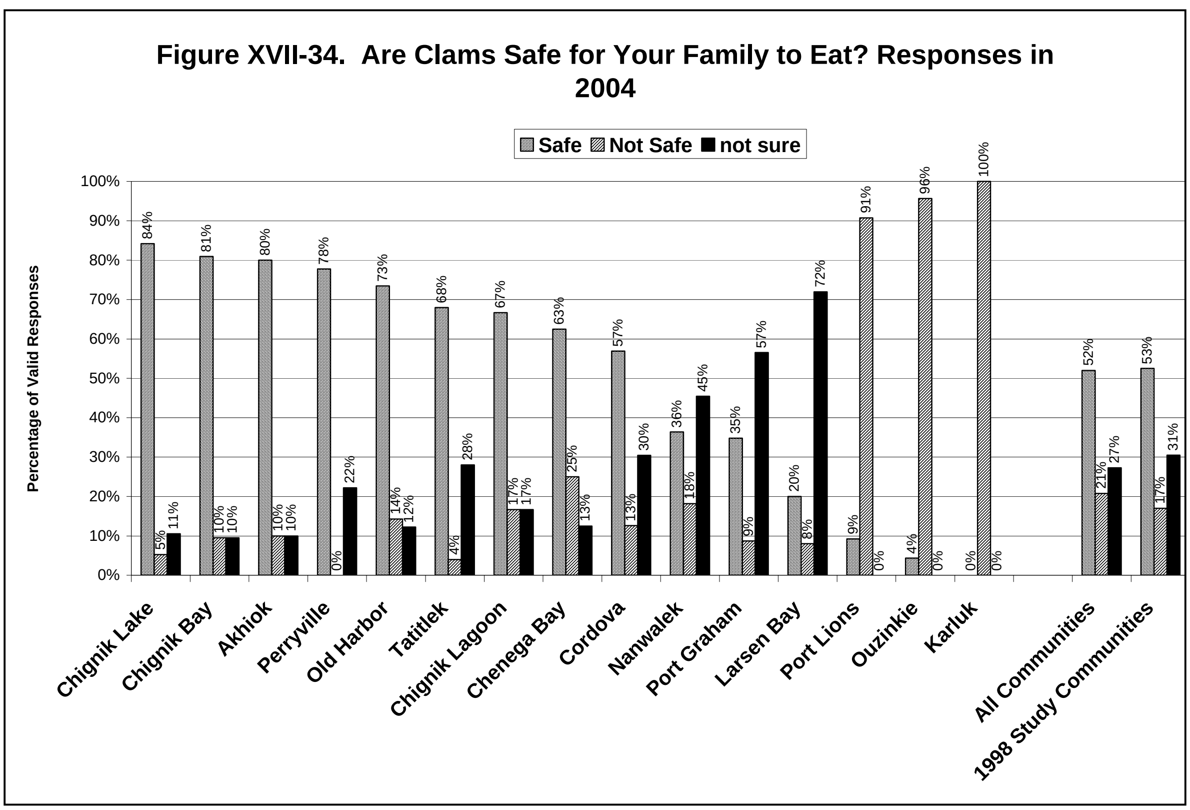


Figure XVII-34. Are Clams Safe for Your Family to Eat? Responses in 2004
Safe
Not Safe
not sure
Percentage of Valid Responses
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Chignik Lake 84% 5% 11%
Chignik Bay 81% 10% 10%
Akhiok 80% 10% 10%
Perryville 78% 0% 22%
Old Harbor 73% 14% 12%
Tatitlek 68% 4% 28%
Chignik Lagoon 67% 17% 17%
Chenega Bay 63% 25% 13%
Cordova 57% 13% 30%
Nanwalek 36% 18% 45%
Port Graham 35% 9% 57%
Larsen Bay 20% 8% 72%
Port Lions 9% 91% 0%
Ouzinkie 4% 96% 0%
Karluk 0% 100% 0%
All Communities 52% 21% 27%
1998 Study Communities 53% 17% 31%

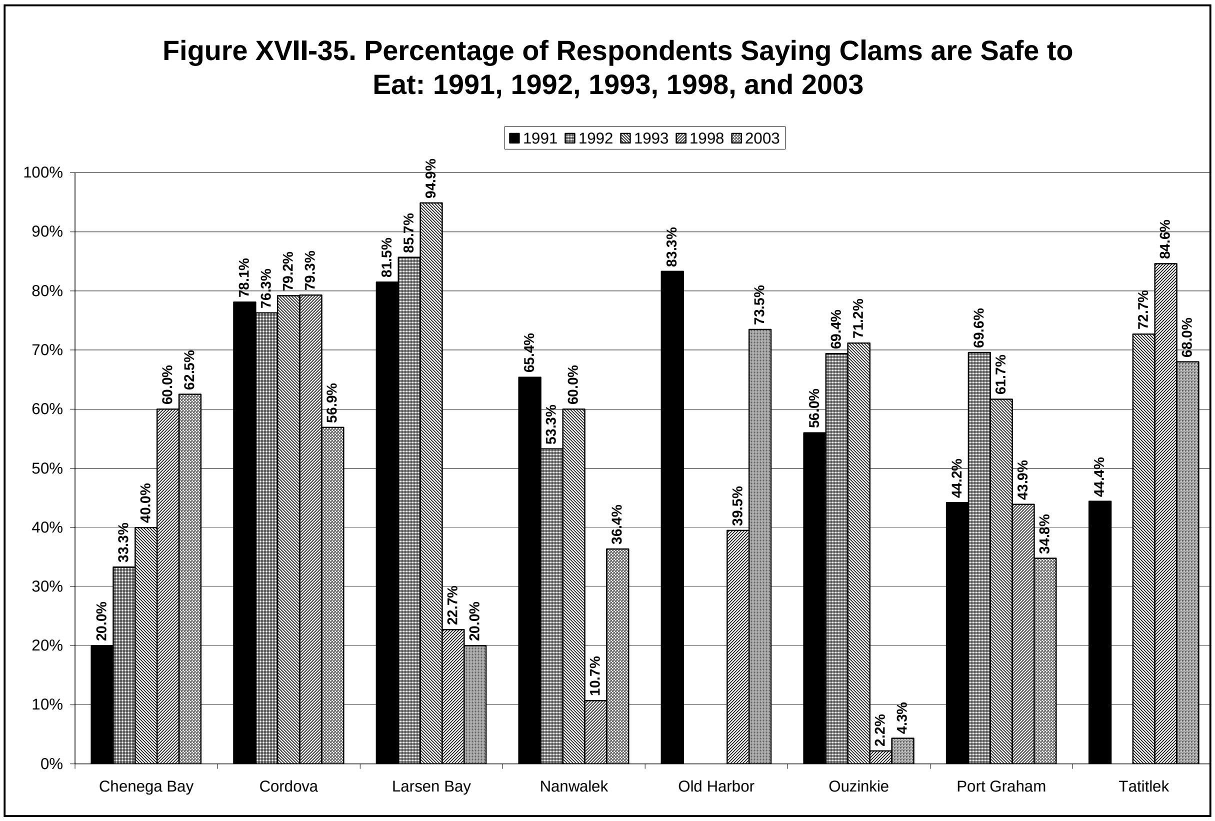


Figure XVII-35. Percentage of Respondents Saying Clams are Safe to Eat: 1991, 1992, 1993, 1998, and 2003
1991
1992
1993
1998
2003
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
20.0%
33.3%
40.0%
60.0%
62.5%
78.1%
76.3%
79.2%
79.3%
56.9%
81.5%
85.7%
94.9%
22.7%
20.0%
65.4%
53.3%
60.0%
10.7%
36.4%
83.3%
39.5%
73.5%
56.0%
69.4%
71.2%
2.2%
4.3%
44.2%
69.6%
61.7%
43.9%
34.8%
44.4%
72.7%
84.6%
68.0%
Chenega Bay
Cordova
Larsen Bay
Nanwalek
Old Harbor
Ouzinkie
Port Graham
Tatitlek

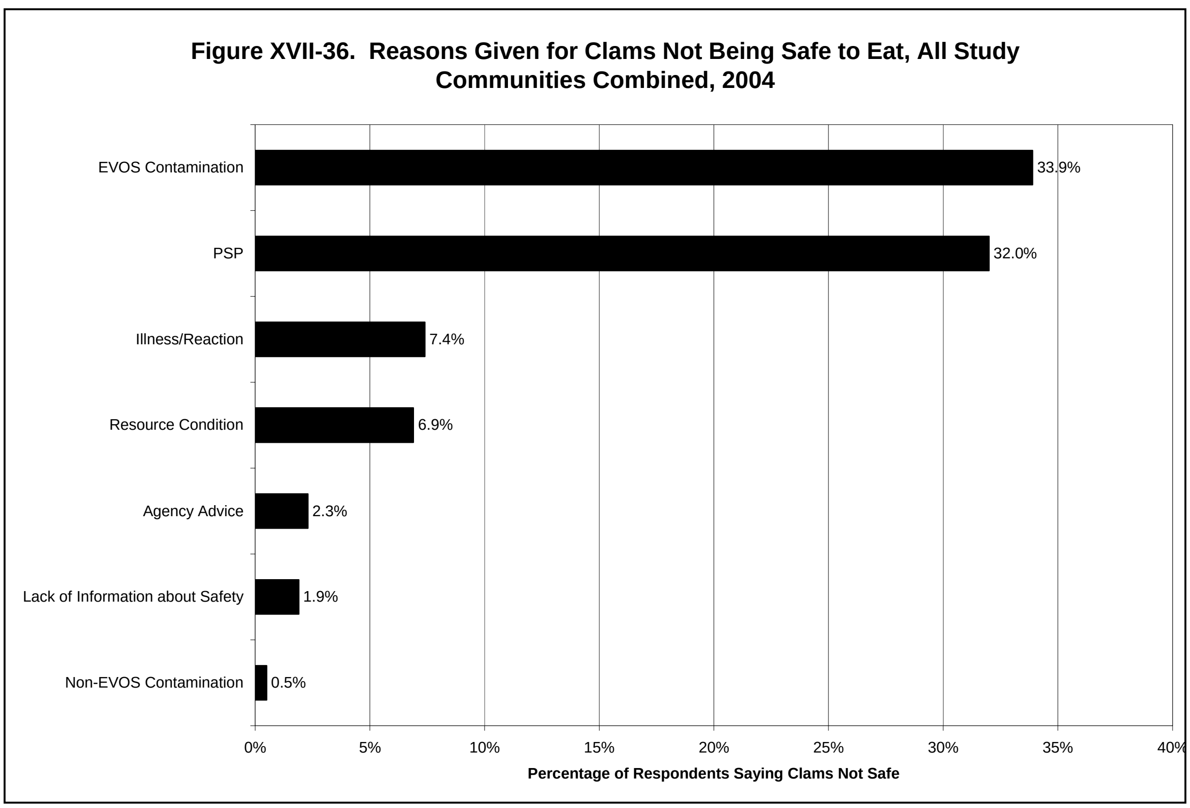


Figure XVII-36. Reasons Given for Clams Not Being Safe to Eat, All Study Communities Combined, 2004
EVOS Contamination
33.9%
PSP
32.0%
Illness/Reaction
7.4%
Resource Condition
6.9%
Agency Advice
2.3%
Lack of Information about Safety
1.9%
Non-EVOS Contamination
0.5%
0%
5%
10%
15%
20%
25%
30%
35%
40%
Percentage of Respondents Saying Clams Not Safe

Figure XVII-37. Percentage of Respondents Citing EVOS Contamination as Reason for Clams Not Being Safe to Eat, Eight Study Communities, 1991 to 2003

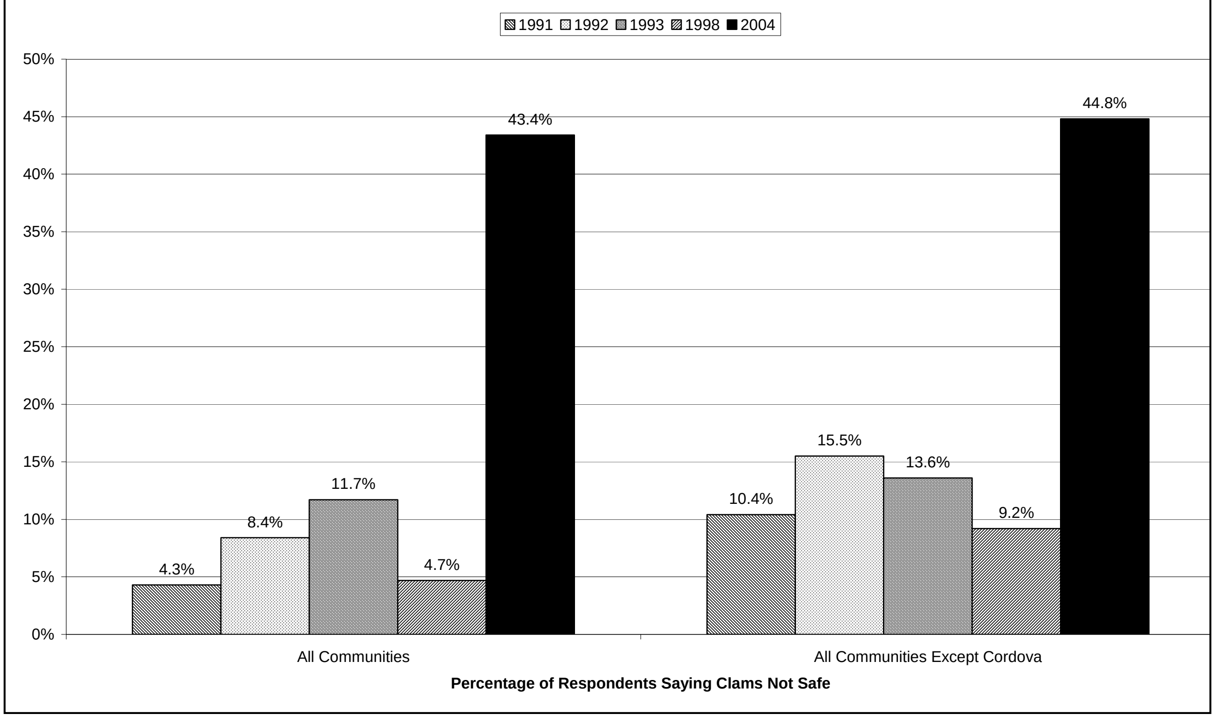
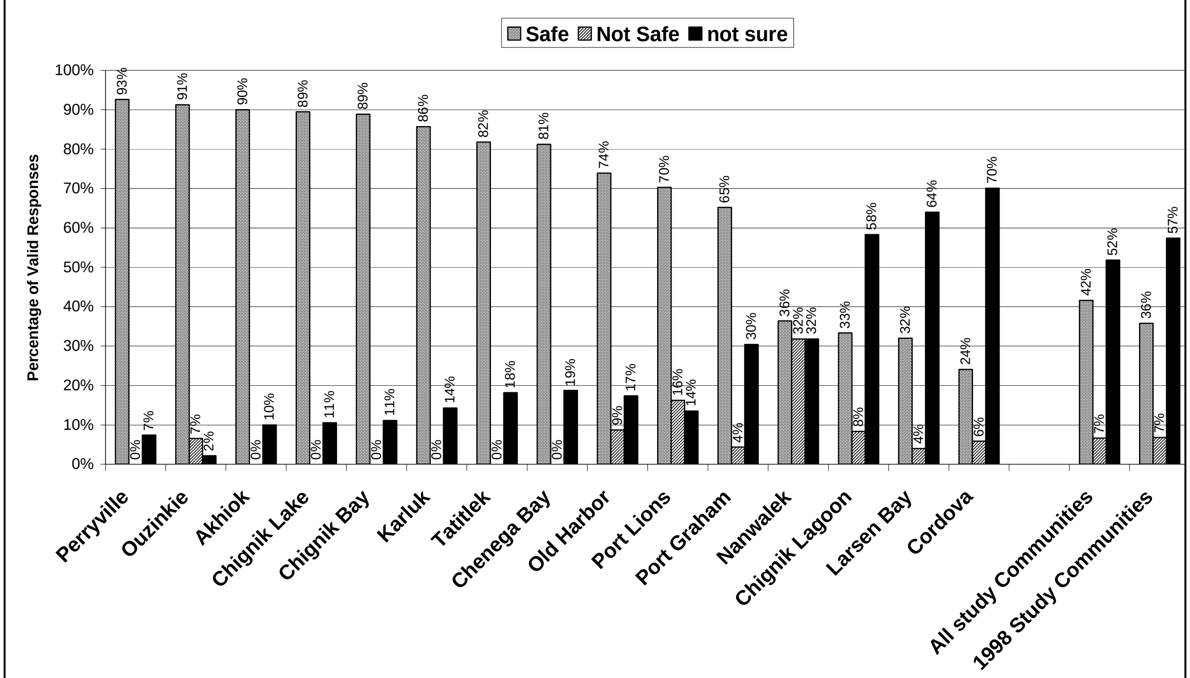


Figure XVII-38. Are Bidarkies (Chitons) Safe for Your Family to Eat? Responses in 2004



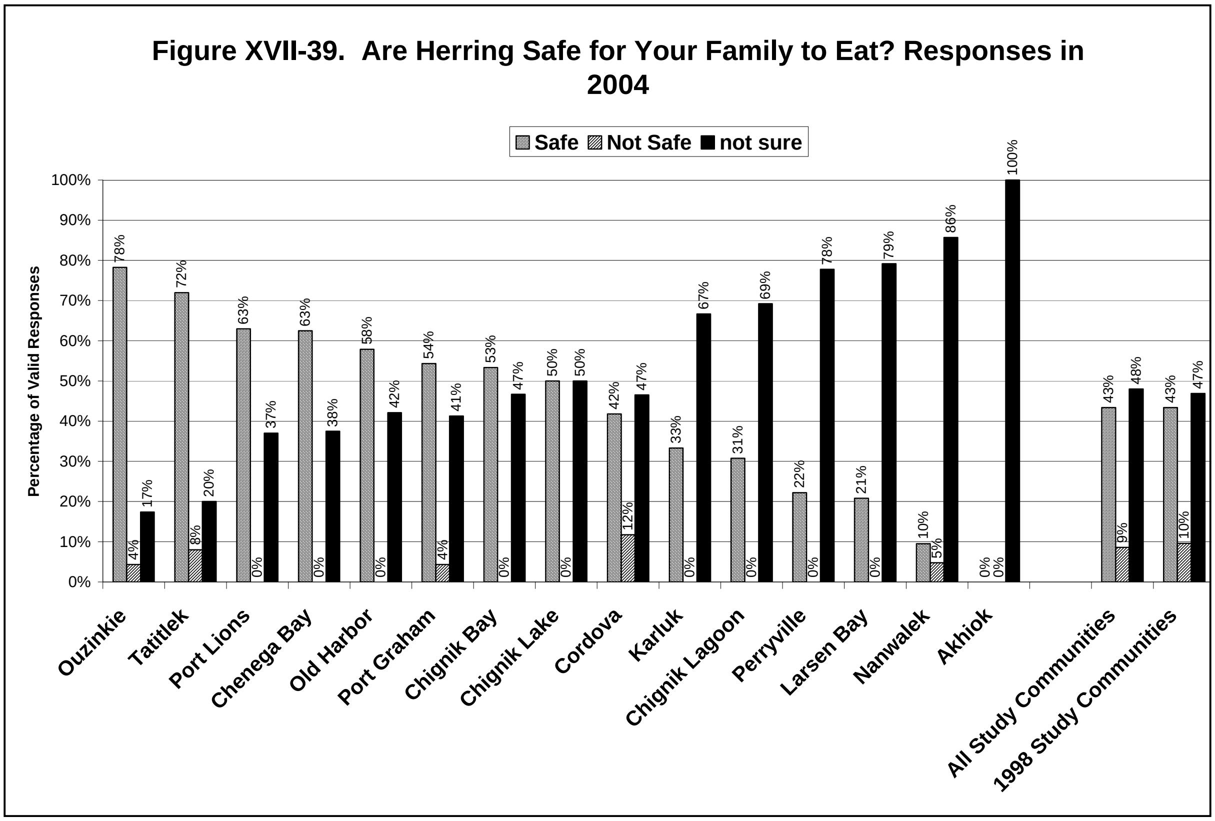


Figure XVII-39. Are Herring Safe for Your Family to Eat? Responses in 2004
Safe
Not Safe
not sure
Percentage of Valid Responses
Ouzinkie
Tatitlek
Port Lions
Chenega Bay
Old Harbor
Port Graham
Chignik Bay
Chignik Lake
Cordova
Karluk
Chignik Lagoon
Perryville
Larsen Bay
Nanwalek
Akhiok
All Study Communities
1998 Study Communities

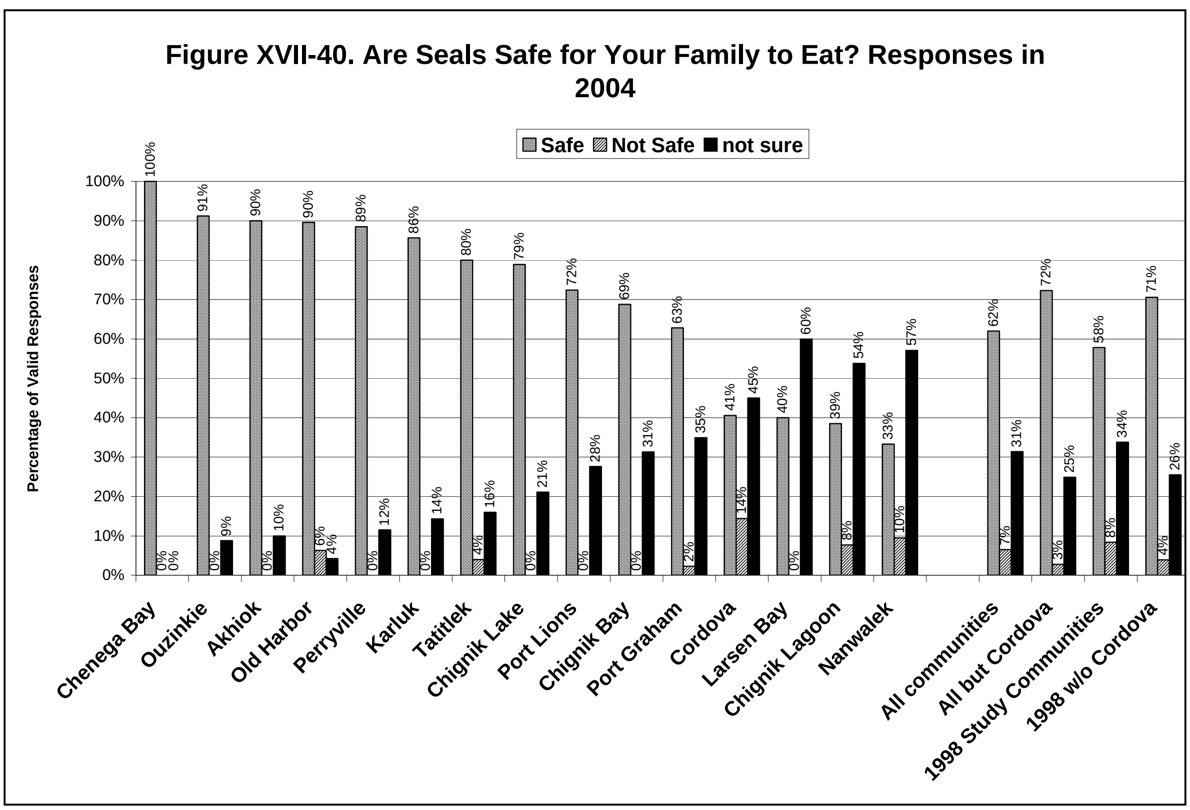


Figure XVII-40. Are Seals Safe for Your Family to Eat? Responses in 2004
Safe
Not Safe
not sure
Percentage of Valid Responses
Chenega Bay
Ouzinkie
Akhiok
Old Harbor
Perryville
Karluk
Tatitlek
Chignik Lake
Port Lions
Chignik Bay
Port Graham
Cordova
Larsen Bay
Chignik Lagoon
Nanwalek
All communities
All but Cordova
1998 Study Communities
1998 w/o Cordova

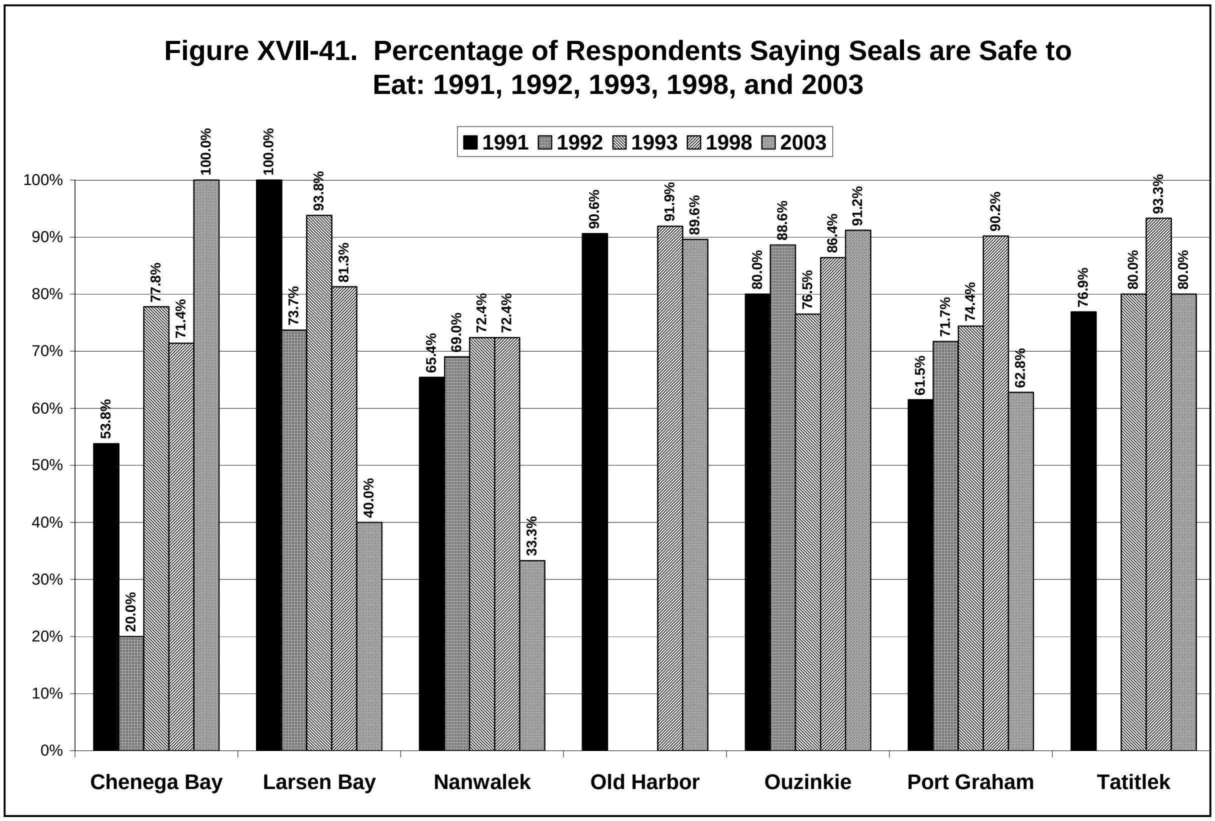


Figure XVII-41. Percentage of Respondents Saying Seals are Safe to Eat: 1991, 1992, 1993, 1998, and 2003
1991 1992 1993 1998 2003
Chenega Bay: 53.8% 20.0% 77.8% 71.4% 100.0%
Larsen Bay: 100.0% 73.7% 93.8% 81.3% 40.0%
Nanwalek: 65.4% 69.0% 72.4% 72.4% 33.3%
Old Harbor: 90.6% 91.9% 89.6%
Ouzinkie: 80.0% 88.6% 76.5% 86.4% 91.2%
Port Graham: 61.5% 71.7% 74.4% 90.2% 62.8%
Tatitlek: 76.9% 80.0% 93.3% 80.0%

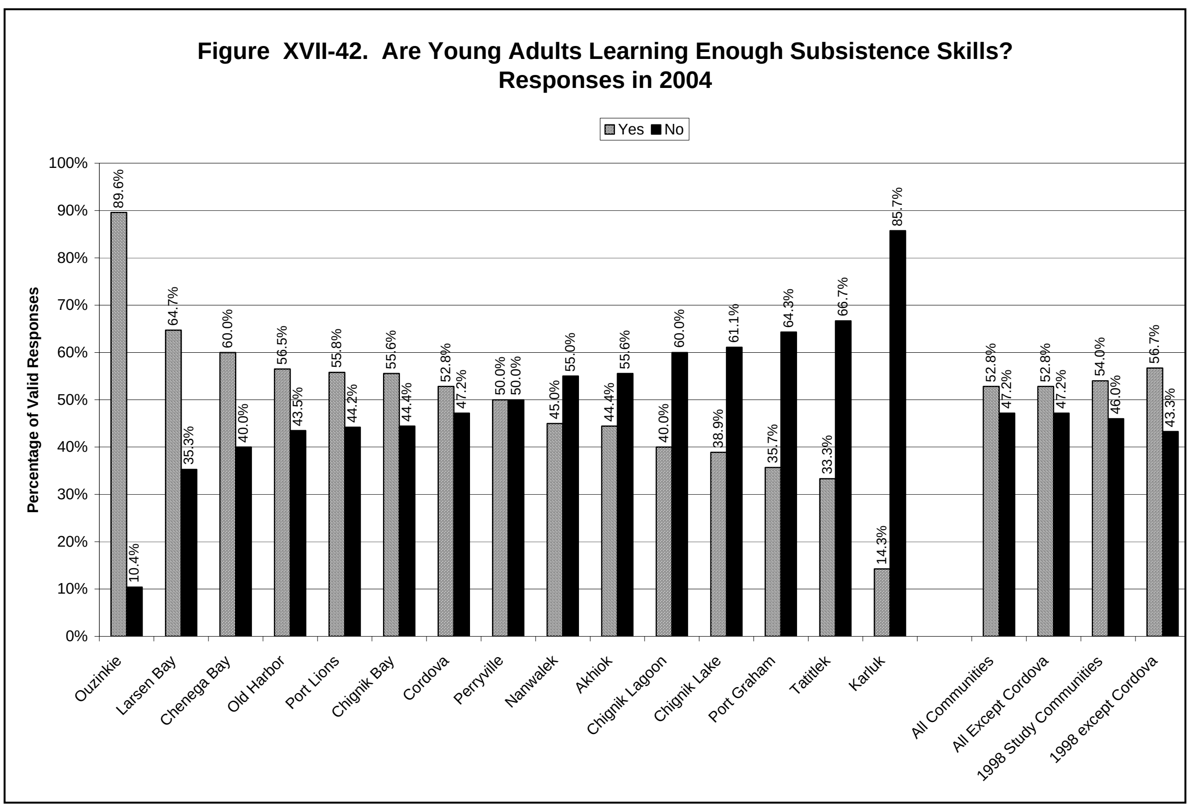


Figure XVII-42. Are Young Adults Learning Enough Subsistence Skills? Responses in 2004
Yes No
Percentage of Valid Responses
Ouzinkie 89.6% 10.4%
Larsen Bay 64.7% 35.3%
Chenega Bay 60.0% 40.0%
Old Harbor 56.5% 43.5%
Port Lions 55.8% 44.2%
Chignik Bay 55.6% 44.4%
Cordova 52.8% 47.2%
Perryville 50.0% 50.0%
Nanwalek 45.0% 55.0%
Akhiok 44.4% 55.6%
Chignik Lagoon 40.0% 60.0%
Chignik Lake 38.9% 61.1%
Port Graham 35.7% 64.3%
Tatitlek 33.3% 66.7%
Karluk 14.3% 85.7%
All Communities 52.8% 47.2%
All Except Cordova 52.8% 47.2%
1998 Study Communities 54.0% 46.0%
1998 except Cordova 56.7% 43.3%

Figure XVII-43. Are Young Adults Learning Enough Subsistence Skills? Percentage Saying "Yes" in 1991, 1998, and 2003

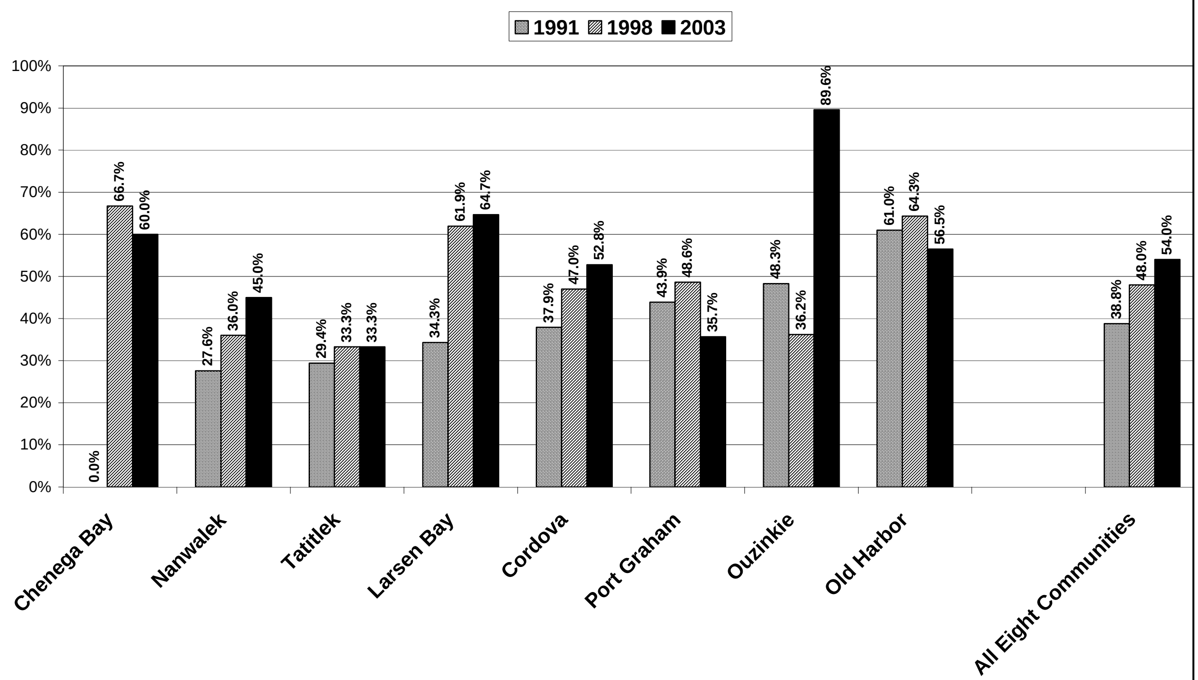


Figure XVII-44. Reasons Why Young Adults are Not Learning Enough Subsistence Skills, 2004

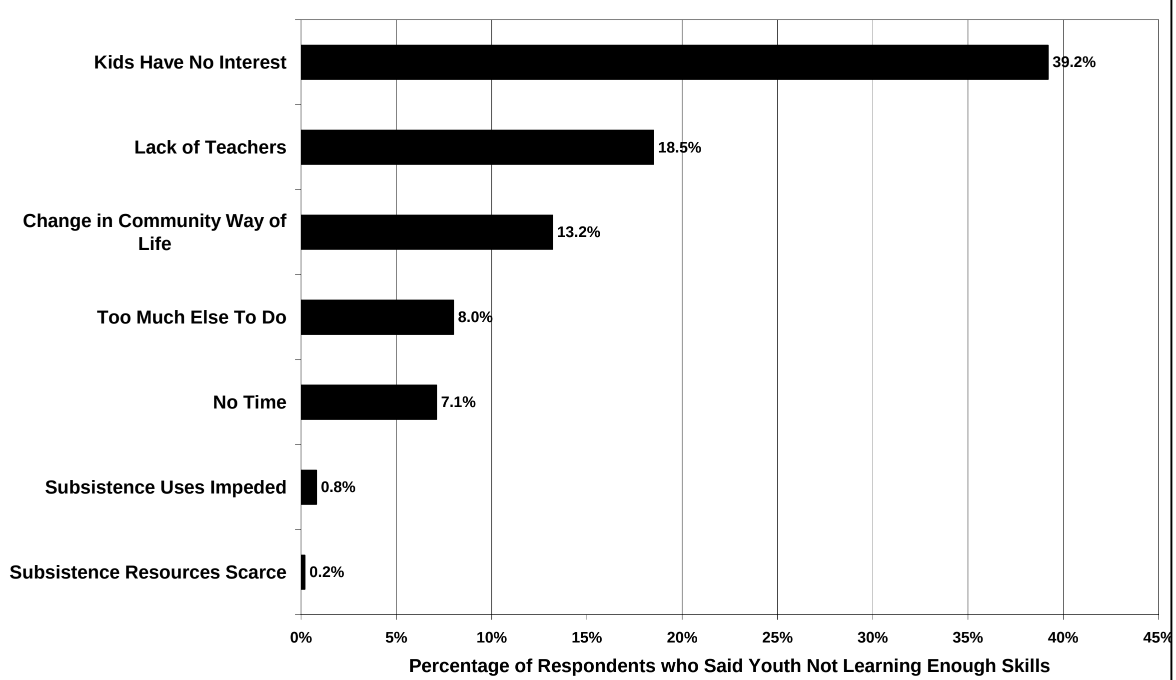


Figure XVII-45. Ways by Which Youth Are Learning Subsistence Skills, 2003

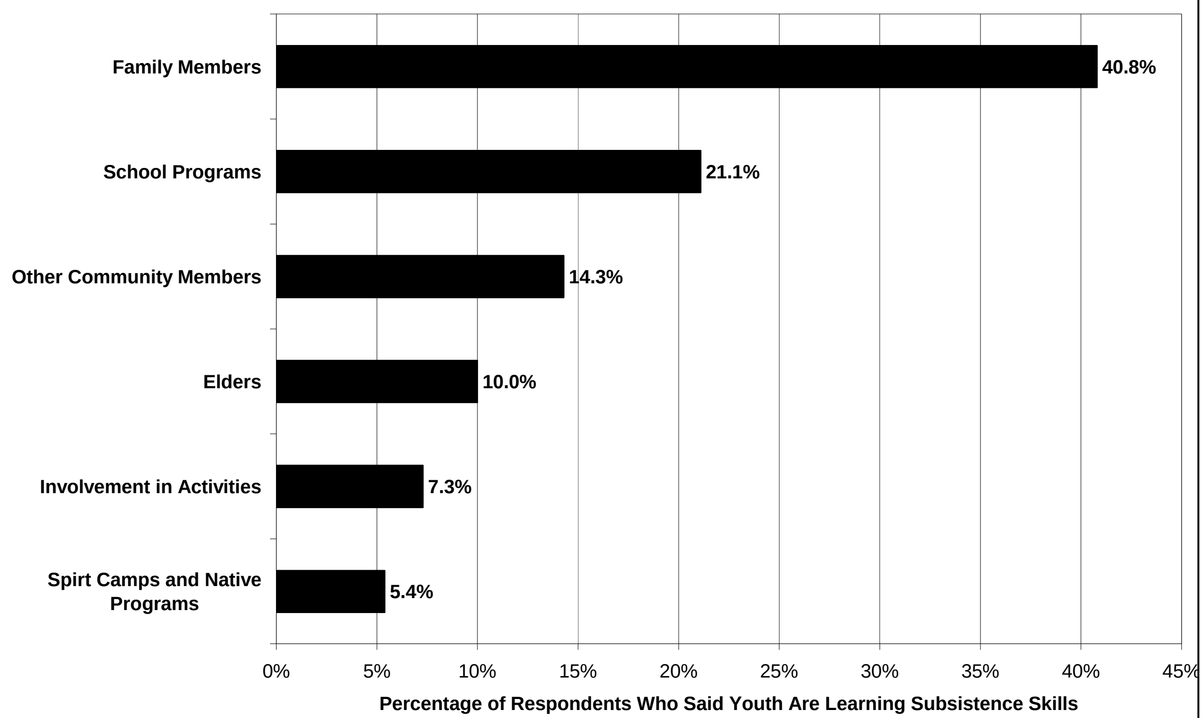


Figure XVII-46. Change in Elders' Influence in Teaching Subsistence Skills Compared to Five Years Ago

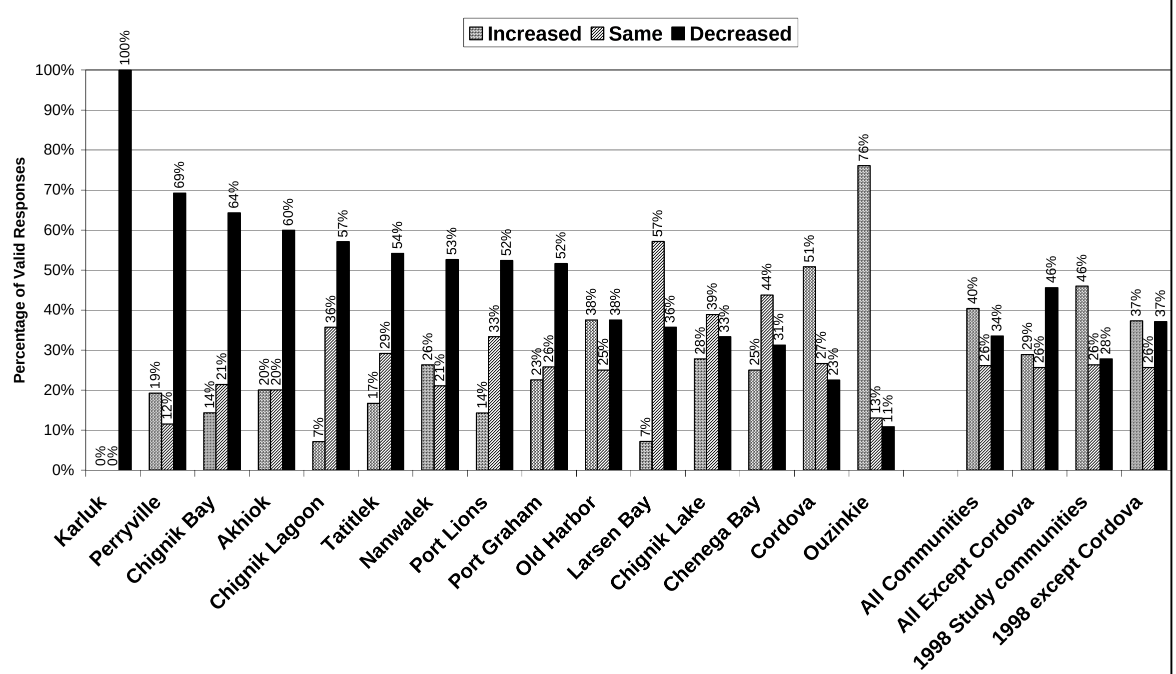


Figure XVII-47. Change in Sharing of Subsistence Resources Compared to Five Years Ago. Responses in 2004

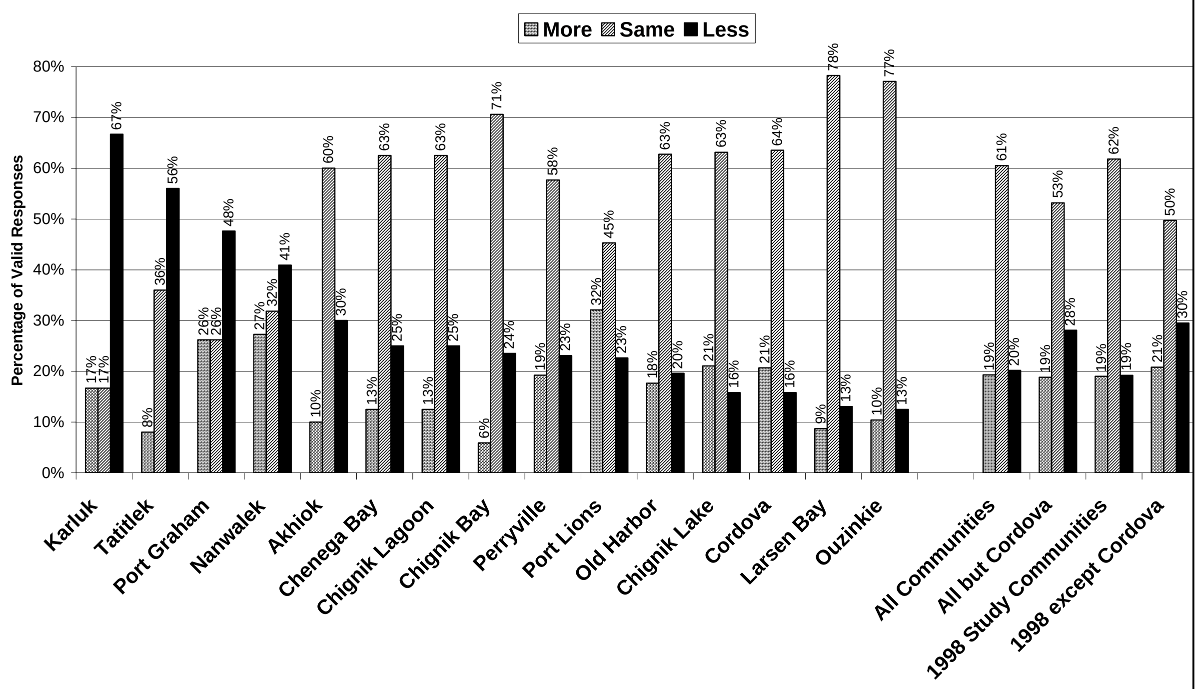
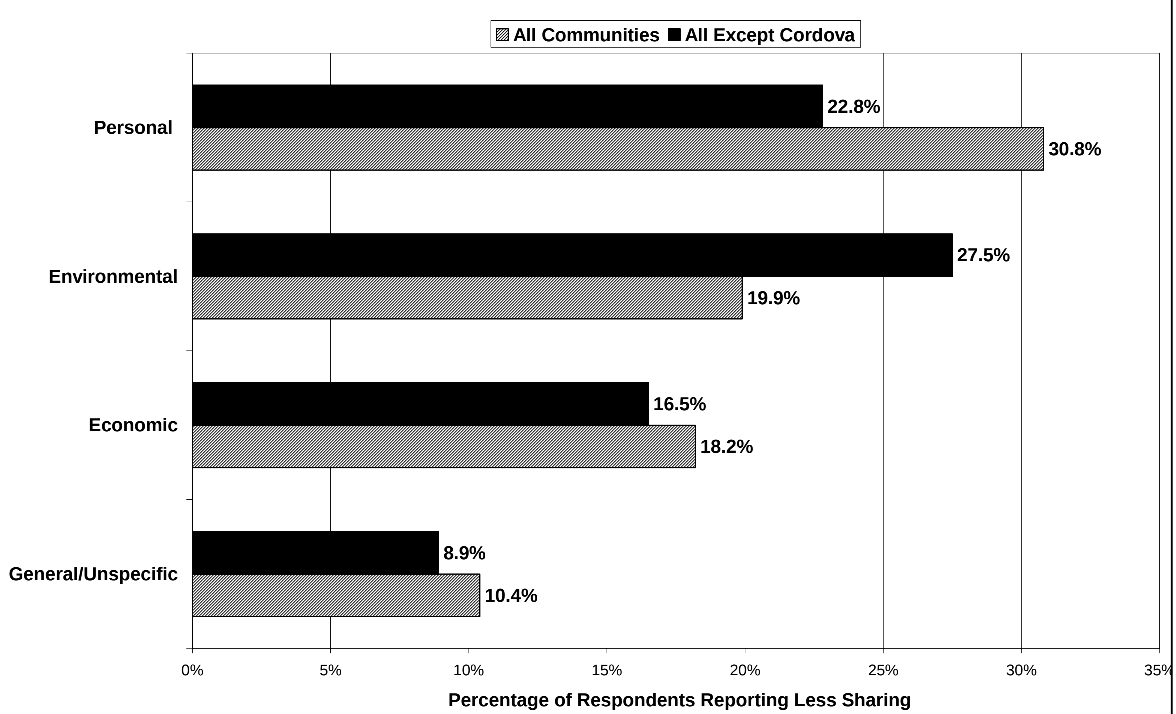


Figure XVII-48. Reasons for Decreased Sharing, All Communities Combined, 2004



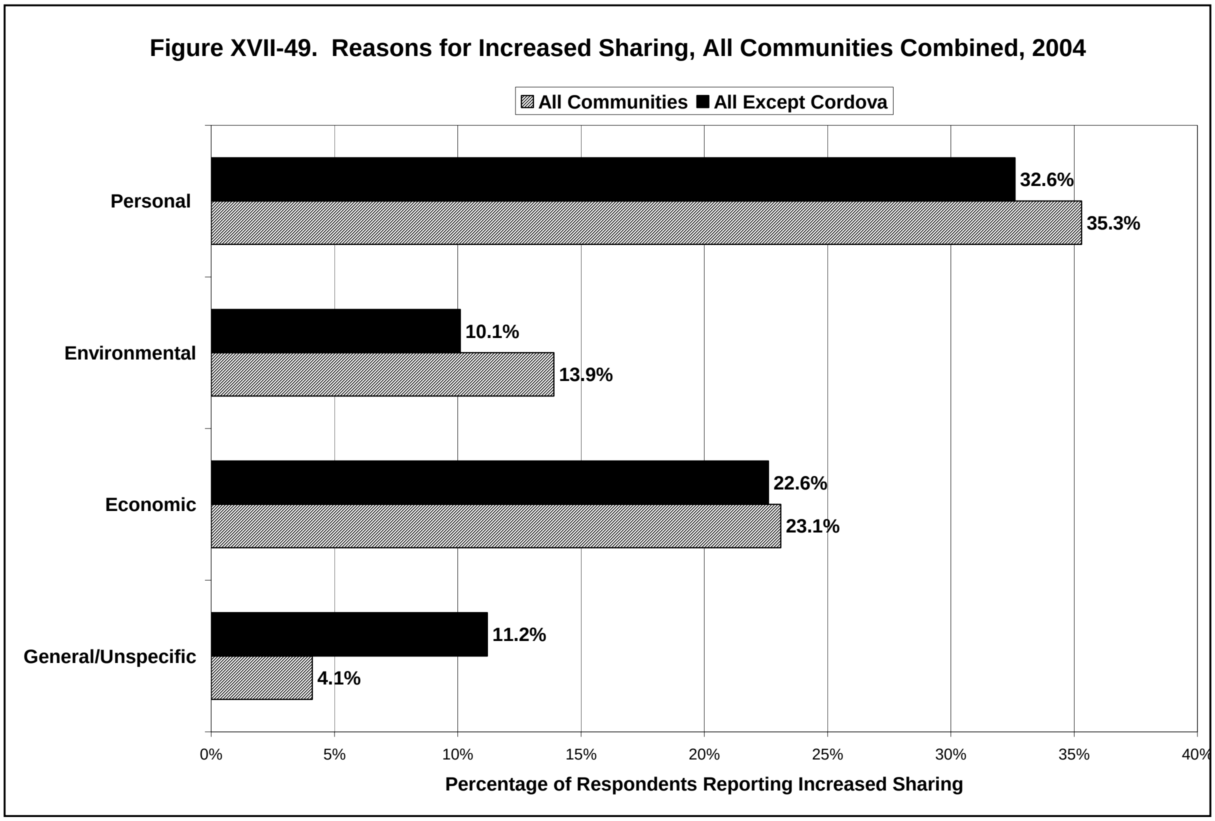


Figure XVII-49. Reasons for Increased Sharing, All Communities Combined, 2004
All Communities
All Except Cordova
Personal
Environmental
Economic
General/Unspecific
32.6%
35.3%
10.1%
13.9%
22.6%
23.1%
11.2%
4.1%
0%
5%
10%
15%
20%
25%
30%
35%
40%
Percentage of Respondents Reporting Increased Sharing

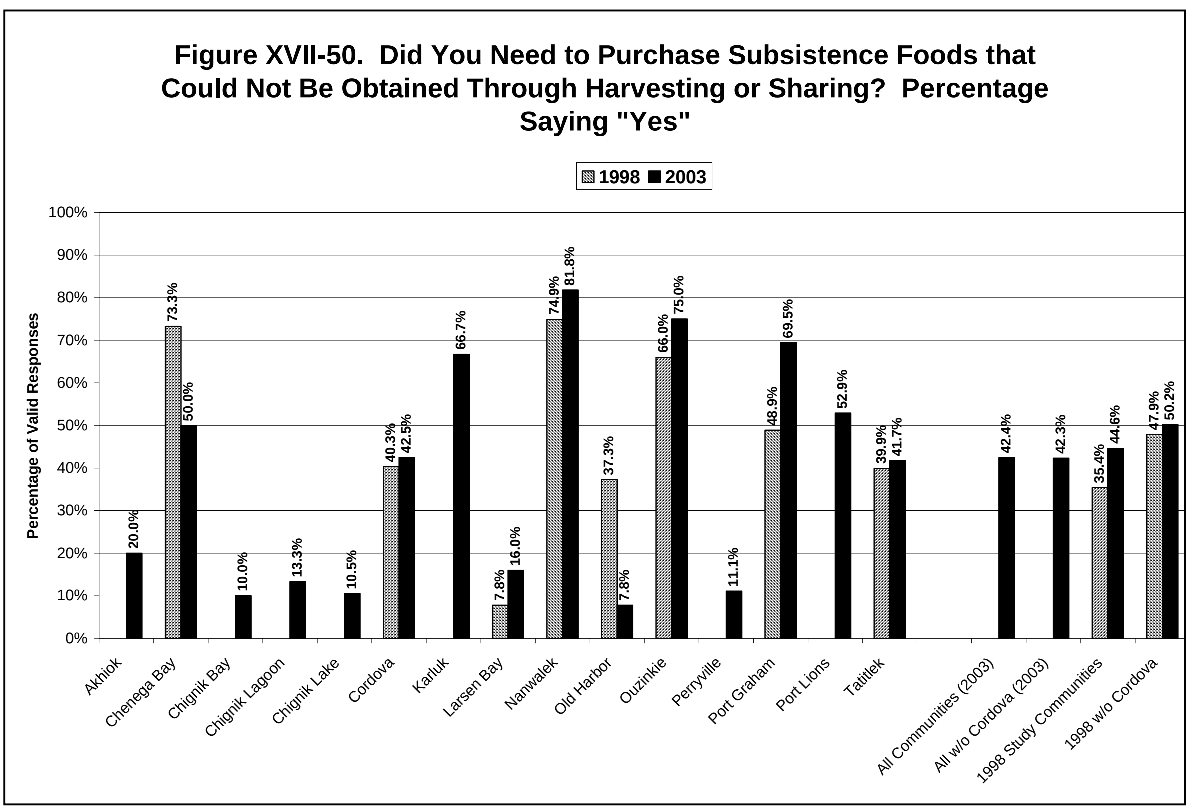


Figure XVII-50. Did You Need to Purchase Subsistence Foods that Could Not Be Obtained Through Harvesting or Sharing? Percentage Saying "Yes"
1998
2003
Percentage of Valid Responses
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
20.0%
73.3%
50.0%
10.0%
13.3%
10.5%
40.3%
42.5%
66.7%
7.8%
16.0%
74.9%
81.8%
37.3%
7.8%
66.0%
75.0%
11.1%
48.9%
69.5%
52.9%
39.9%
41.7%
42.4%
42.3%
35.4%
44.6%
47.9%
50.2%
Akhiok
Chenega Bay
Chignik Bay
Chignik Lagoon
Chignik Lake
Cordova
Karluk
Larsen Bay
Nanwalek
Old Harbor
Ouzinkie
Perryville
Port Graham
Port Lions
Tatitlek
All Communities (2003)
All w/o Cordova (2003)
1998 Study Communities
1998 w/o Cordova

Figure XVII-51. Did You Need to Buy Store Foods to Replace Subsistence Foods? Percentage Saying "Yes"

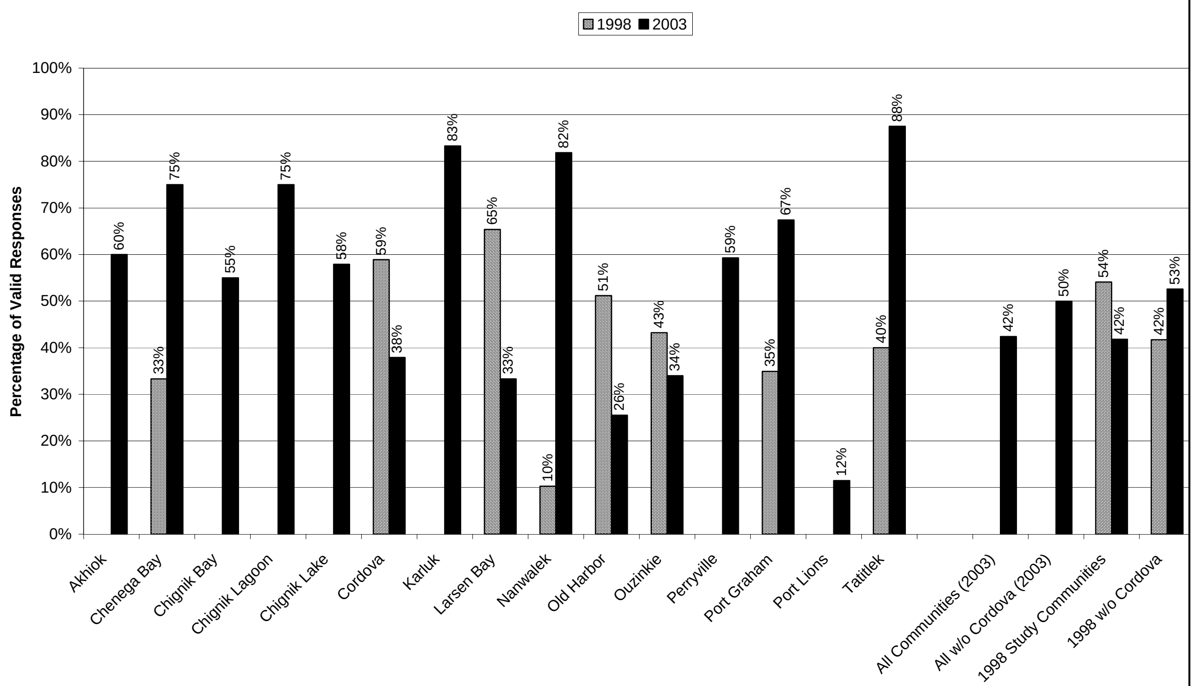


Figure XVII-52. Was the Traditional Way of Life Affected by EVOS? Percentage Saying "Yes"

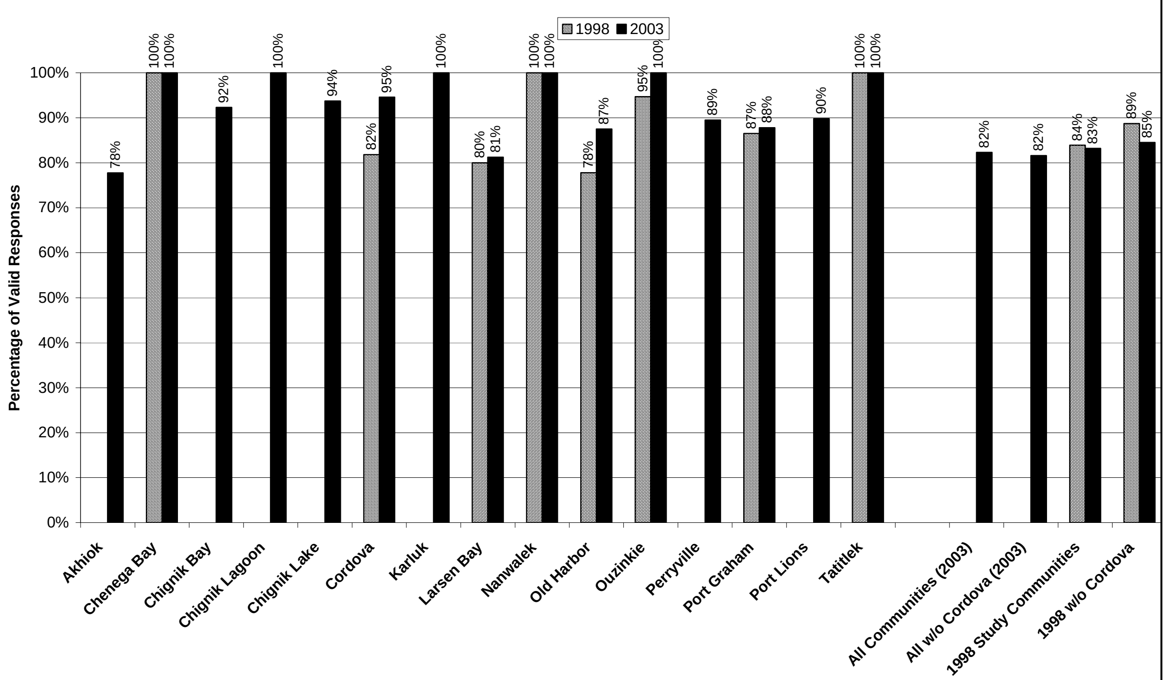


Figure XVII-53. Study Findings: Has the Traditional Way of Life Recovered Since EVOS? Percentage of Respondents Saying "No" in 1998 and 2003

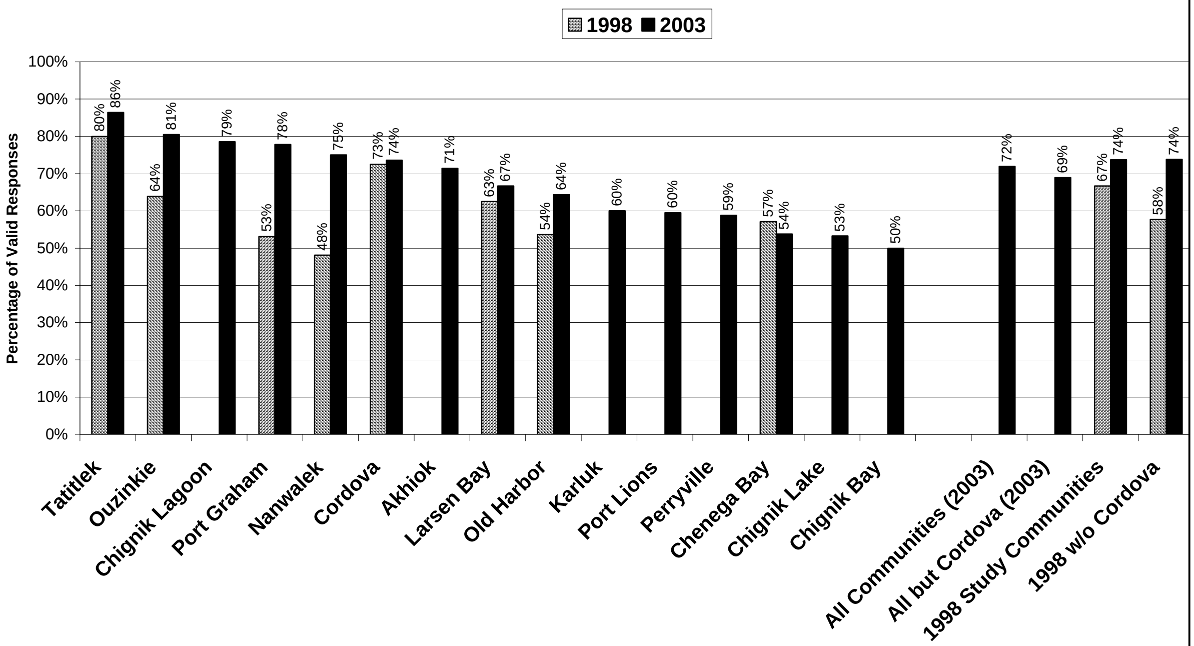


Figure XVII-54. What Should Be Done to Help the Traditional Way of Life Recover? (All Communities Combined) Asked in 2004

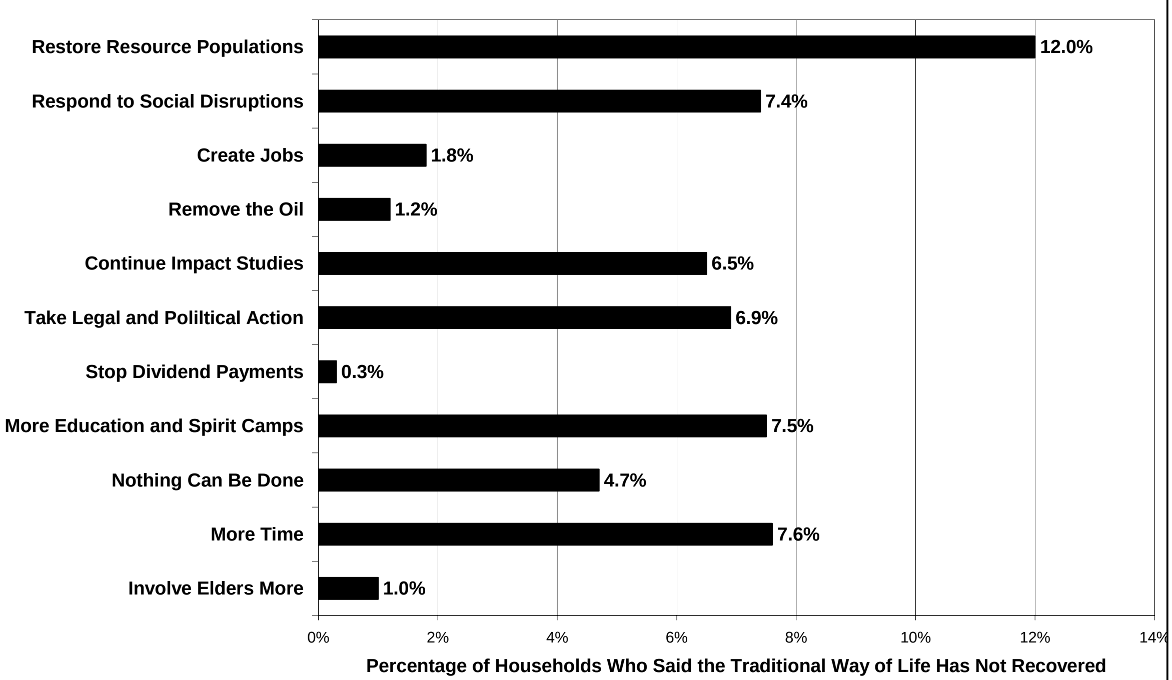


Figure XVII-55. Do You Feel That You Are Adequately Informed about the Trustee Council's GEM Program? Asked in 2004

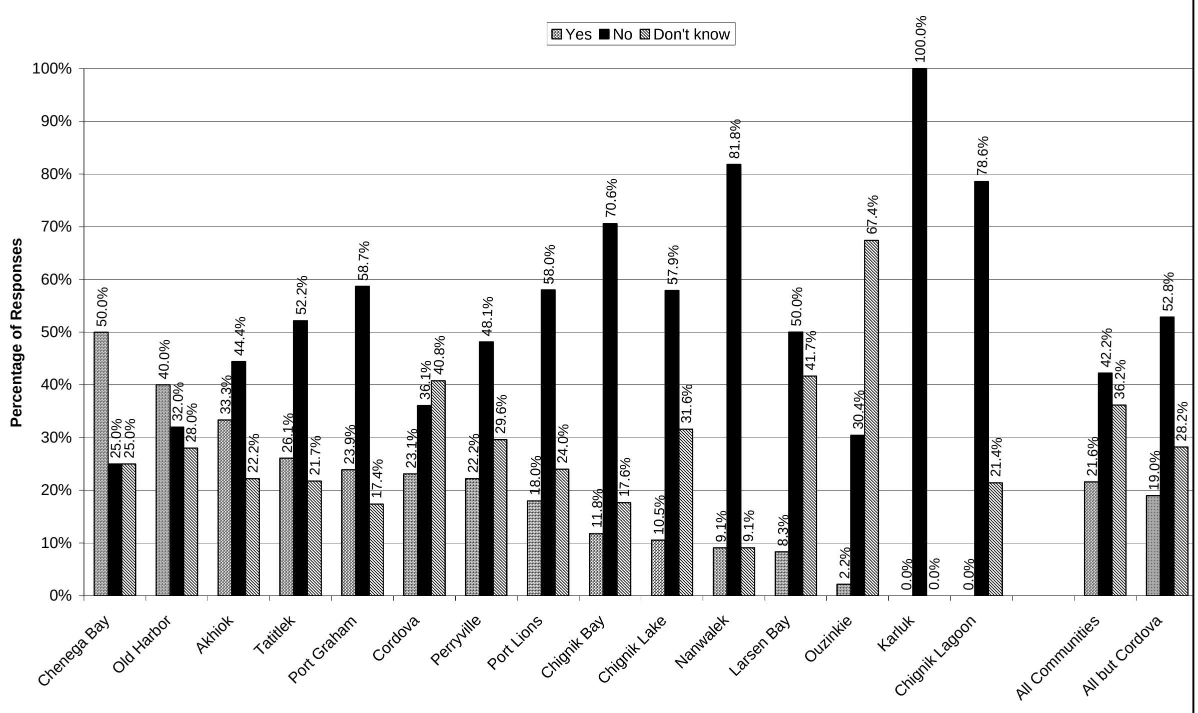
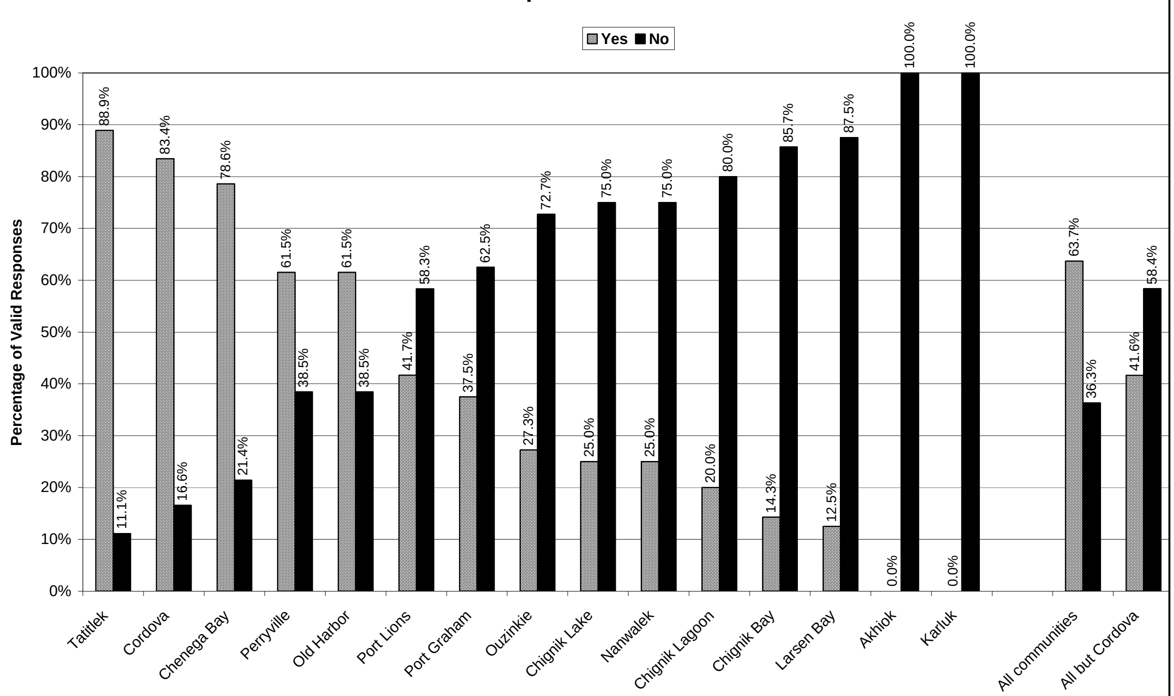


Figure XVII-56. Is Your Tribal Council Adequately Involved in the GEM Program? Responses in 2004



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APPENDIX A: TABLES

Table A-1. Household Assessment of Change in Harvest and Use of Salmon, 2003 Study Year Compared to Five Years Ago

			Change Compared to Five Years Ago									
Region		Estimated	No Response		Valid Responses		More		Same		Less	
	Community	Households	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	29	6.6	22.7%	22.4	77.3%	1.3	5.9%	13.2	58.8%	7.9	35.3%
	Chignik Lagoon	22	2.8	12.5%	19.3	87.5%	5.5	28.6%	4.1	21.4%	9.6	50.0%
	Chignik Lake	31	3.0	9.5%	28.0	90.5%	10.3	36.8%	8.9	31.6%	8.9	31.6%
	Perryville	33	2.4	7.4%	30.6	92.6%	7.3	24.0%	13.4	44.0%	9.8	32.0%
Kenai Peninsula	Nanwalek	51	0.0	0.0%	51.0	100.0%	20.9	40.9%	18.5	36.4%	11.6	22.7%
	Port Graham	65	8.3	12.8%	56.7	87.2%	13.8	24.4%	13.8	24.4%	29.0	51.2%
Kodiak Island	Akhiok	15	1.4	9.1%	13.6	90.9%	6.8	50.0%	2.7	20.0%	4.1	30.0%
	Karluk	15	2.1	14.3%	12.9	85.7%	2.1	16.7%	2.1	16.7%	8.6	66.7%
	Larsen Bay	31	5.0	16.0%	26.0	84.0%	2.5	9.5%	18.6	71.4%	5.0	19.0%
	Old Harbor	76	8.8	11.5%	67.2	88.5%	5.8	8.7%	46.8	69.6%	14.6	21.7%
	Ouzinkie	69	16.2	23.5%	52.8	76.5%	2.7	5.1%	40.6	76.9%	9.5	17.9%
	Port Lions	71	13.1	18.5%	57.9	81.5%	7.9	13.6%	27.6	47.7%	22.4	38.6%
Prince William Sound	Chenega Bay	20	2.5	12.5%	17.5	87.5%	5.0	28.6%	10.0	57.1%	2.5	14.3%
	Cordova	910	84.4	9.3%	825.6	90.7%	224.7	27.2%	419.6	50.8%	181.3	22.0%
	Tatitlek	27	1.1	4.0%	25.9	96.0%	2.2	8.3%	8.6	33.3%	15.1	58.3%

Note: 'No Response' includes those who responded 'Don't Know.'

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-2. Reasons for Decreased Harvest and Use of Salmon, 2003 Study Year Compared to Five Years Ago

Region	Community	Estimated Households	Responses*		Change Compared to Five Years Ago**																	
					Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	29	7.9	35.3%	0.0	0.0%	2.6	33.3%	1.3	16.7%	0.0	0.0%	0.0	0.0%	2.6	33.3%	0.0	0.0%	0.0	0.0%	4.0	50.0%
	Chignik Lagoon	22	9.6	50.0%	0.0	0.0%	1.4	14.3%	2.8	28.6%	2.8	28.6%	0.0	0.0%	1.4	14.3%	0.0	0.0%	0.0	0.0%	1.4	14.3%
	Chignik Lake	31	8.9	31.6%	0.0	0.0%	3.0	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.0	33.3%	0.0	0.0%	0.0	0.0%	3.0	33.3%
	Perryville	33	9.8	32.0%	1.2	12.5%	2.4	25.0%	1.2	12.5%	0.0	0.0%	0.0	0.0%	1.2	12.5%	0.0	0.0%	2.4	25.0%	2.4	25.0%
Kenai Peninsula	Nanwalek	51	11.6	22.7%	2.3	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	9.3	80.0%
	Port Graham	65	29.0	51.2%	1.4	4.8%	2.8	9.5%	0.0	0.0%	0.0	0.0%	2.8	9.5%	16.6	57.1%	1.4	4.8%	0.0	0.0%	5.5	19.0%
Kodiak Island	Akhiok	15	4.1	30.0%	0.0	0.0%	1.4	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	33.3%	0.0	0.0%	0.0	0.0%	1.4	33.3%
	Karluk	15	8.6	66.7%	0.0	0.0%	0.0	0.0%	2.1	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.4	75.0%
	Larsen Bay	31	5.0	19.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	25.0%	0.0	0.0%	2.5	50.0%	0.0	0.0%	1.2	25.0%	0.0	0.0%
	Old Harbor	76	14.6	21.7%	2.9	20.0%	5.8	40.0%	1.5	10.0%	0.0	0.0%	0.0	0.0%	4.4	30.0%	0.0	0.0%	0.0	0.0%	4.4	30.0%
	Ouzinkie	69	9.5	17.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.7	28.6%	0.0	0.0%	0.0	0.0%	6.8	71.4%
	Port Lions	71	22.4	38.6%	1.3	5.9%	0.0	0.0%	0.0	0.0%	5.3	23.5%	1.3	5.9%	11.8	52.9%	0.0	0.0%	0.0	0.0%	5.3	23.5%
Prince William Sound	Chenega Bay	20	2.5	14.3%	0.0	0.0%	0.0	0.0%	1.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%	0.0	0.0%	0.0	0.0%
	Cordova	910	181.3	22.0%	8.0	4.4%	11.1	6.1%	3.1	1.7%	14.2	7.9%	0.0	0.0%	27.1	14.9%	43.1	23.8%	0.0	0.0%	74.7	41.2%
	Tatitlek	27	15.1	58.3%	0.0	0.0%	1.1	7.1%	0.0	0.0%	1.1	7.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	13.0	85.7%

* Percentages are based on total households giving a valid response to change in harvest and use of resources compared to five years ago.
** Percentages may not add to 100% because multiple reasons were permitted.
SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-3. Oil Spill-Related Reasons for Decreased Harvest and Use of Salmon, 2003 Study Year Compared to Five Years Ago

Region	Community	Estimated Households	Responses*		Change Compared to Five Years Ago**																	
					Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	29	1.3	5.9%	0.0	0.0%	1.3	100.0%	1.3	100.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Chignik Lagoon	22	2.8	14.3%	0.0	0.0%	1.4	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%
	Chignik Lake	31	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Perryville	33	1.2	4.0%	0.0	0.0%	1.2	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Kenai Peninsula	Nanwalek	51	4.6	9.1%	2.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	50.0%
	Port Graham	65	6.9	12.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	20.0%	2.8	40.0%	0.0	0.0%	0.0	0.0%	4.1	60.0%
Kodiak Island	Akhiok	15	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Karluk	15	8.6	66.7%	0.0	0.0%	0.0	0.0%	2.1	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.4	75.0%
	Larsen Bay	31	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	76	8.8	13.0%	2.9	33.3%	5.8	66.7%	1.5	16.7%	0.0	0.0%	0.0	0.0%	2.9	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Ouzinkie	69	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Port Lions	71	2.6	4.5%	1.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Prince William Sound	Chenega Bay	20	2.5	14.3%	0.0	0.0%	0.0	0.0%	1.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%	0.0	0.0%	0.0	0.0%
	Cordova	910	55.6	6.7%	0.0	0.0%	3.1	5.6%	3.1	5.6%	0.0	0.0%	0.0	0.0%	3.1	5.6%	8.0	14.4%	0.0	0.0%	38.2	68.8%
	Tatitlek	27	10.8	41.7%	0.0	0.0%	1.1	10.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	9.7	90.0%

* Percentages are based on total households giving a valid response to change in harvest and use of resources compared to five years ago.
** Percentages may not add to 100% because multiple reasons were permitted.
SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-4. Household Assessment of Change in Harvest and Use of Non-Salmon Fish, 2003 Study Year Compared to Five Years Ago

Region	Community	Estimated Households	Change Compared to Five Years Ago: No Response No.	No Response Pctg.	Valid Responses No.	Valid Responses Pctg.	More No.	More Pctg.	Same No.	Same Pctg.	Less No.	Less Pctg.
Alaska Peninsula	Chignik Bay	29	9.2	31.8%	19.8	68.2%	1.3	6.7%	11.9	60.0%	6.6	33.3%
	Chignik Lagoon	22	2.8	12.5%	19.3	87.5%	2.8	14.3%	5.5	28.6%	11.0	57.1%
	Chignik Lake	31	7.4	23.8%	23.6	76.2%	8.9	37.5%	11.8	50.0%	3.0	12.5%
	Perryville	33	3.7	11.1%	29.3	88.9%	3.7	12.5%	14.7	50.0%	11.0	37.5%
Kenai Peninsula	Nanwalek	51	0.0	0.0%	51.0	100.0%	11.6	22.7%	30.1	59.1%	9.3	18.2%
	Port Graham	65	5.5	8.5%	59.5	91.5%	5.5	9.3%	20.7	34.9%	33.2	55.8%
Kodiak Island	Akhiok	15	1.4	9.1%	13.6	90.9%	5.5	40.0%	4.1	30.0%	4.1	30.0%
	Karluk	15	4.3	28.6%	10.7	71.4%	0.0	0.0%	4.3	40.0%	6.4	60.0%
	Larsen Bay	31	6.2	20.0%	24.8	80.0%	2.5	10.0%	18.6	75.0%	3.7	15.0%
	Old Harbor	76	10.2	13.5%	65.8	86.5%	5.8	8.9%	45.3	68.9%	14.6	22.2%
	Ouzinkie	69	12.2	17.6%	56.8	82.4%	5.4	9.5%	40.6	71.4%	10.8	19.0%
	Port Lions	71	18.4	25.9%	52.6	74.1%	7.9	15.0%	25.0	47.5%	19.7	37.5%
Prince William Sound	Chenega Bay	20	5.0	25.0%	15.0	75.0%	1.3	8.3%	12.5	83.3%	1.3	8.3%
	Cordova	910	92.4	10.2%	817.6	89.8%	124.3	15.2%	490.1	59.9%	203.2	24.9%
	Tatitlek	27	1.1	4.0%	25.9	96.0%	0.0	0.0%	10.8	41.7%	15.1	58.3%

Note: 'No Response' includes those who responded 'Don't Know.'
SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-5. Reasons for Decreased Harvest and Use of Non-Salmon Fish, 2003 Study Year Compared to Five Years Ago

Region	Community	Estimated Households	Responses*		Change Compared to Five Years Ago**																	
					Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	29	6.6	33.3%	0.0	0.0%	1.3	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.0	60.0%	0.0	0.0%	0.0	0.0%	1.3	20.0%
	Chignik Lagoon	22	11.0	57.1%	0.0	0.0%	4.1	37.5%	0.0	0.0%	1.4	12.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	12.5%	4.1	37.5%
	Chignik Lake	31	3.0	12.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	50.0%
	Perryville	33	11.0	37.5%	0.0	0.0%	3.7	33.3%	1.2	11.1%	1.2	11.1%	2.4	22.2%	3.7	33.3%	0.0	0.0%	0.0	0.0%	6.1	55.6%
Kenai Peninsula	Nanwalek	51	9.3	18.2%	2.3	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.6	50.0%
	Port Graham	65	33.2	55.8%	4.1	12.5%	2.8	8.3%	1.4	4.2%	1.4	4.2%	4.1	12.5%	15.2	45.8%	2.8	8.3%	0.0	0.0%	4.1	12.5%
Kodiak Island	Akhiok	15	4.1	30.0%	0.0	0.0%	1.4	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.7	66.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Karluk	15	6.4	60.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.4	100.0%
	Larsen Bay	31	3.7	15.0%	0.0	0.0%	1.2	33.3%	0.0	0.0%	1.2	33.3%	0.0	0.0%	2.5	66.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	76	14.6	22.2%	2.9	20.0%	4.4	30.0%	2.9	20.0%	0.0	0.0%	4.4	30.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	5.8	40.0%
	Ouzinkie	69	10.8	19.0%	0.0	0.0%	0.0	0.0%	1.4	12.5%	0.0	0.0%	2.7	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.8	62.5%
	Port Lions	71	19.7	37.5%	1.3	6.7%	2.6	13.3%	1.3	6.7%	2.6	13.3%	0.0	0.0%	5.3	26.7%	0.0	0.0%	0.0	0.0%	10.5	53.3%
Prince William Sound	Chenega Bay	20	1.3	8.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Cordova	910	203.2	24.9%	3.1	1.5%	9.4	4.6%	17.4	8.5%	11.1	5.5%	8.0	3.9%	27.1	13.3%	38.2	18.8%	0.0	0.0%	92.0	45.3%
	Tatitlek	27	15.1	58.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	15.1	100.0%

* Percentages are based on total households giving a valid response to change in harvest and use of resources compared to five years ago.
** Percentages may not add to 100% because multiple reasons were permitted.
SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-6. Oil Spill-Related Reasons for Decreased Harvest and Use of Non-Salmon Fish, 2003 Study Year Compared to Five Years Ago

Region	Community	Estimated Households	Responses*		Change Compared to Five Years Ago**																	
					Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	29	2.6	13.3%	0.0	0.0%	1.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%
	Chignik Lagoon	22	4.1	21.4%	0.0	0.0%	1.4	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	33.3%	1.4	33.3%
	Chignik Lake	31	1.5	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Perryville	33	1.2	4.2%	0.0	0.0%	1.2	100.0%	0.0	0.0%	0.0	0.0%	1.2	100.0%	1.2	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Kenai Peninsula	Nanwalek	51	4.6	9.1%	2.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	50.0%
	Port Graham	65	4.1	7.0%	1.4	33.3%	2.8	66.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Kodiak Island	Akhiok	15	1.4	10.0%	0.0	0.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Karluk	15	6.4	60.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.4	100.0%
	Larsen Bay	31	1.2	5.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	76	8.8	13.3%	2.9	33.3%	4.4	50.0%	2.9	33.3%	0.0	0.0%	2.9	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	16.7%
	Ouzinkie	69	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Port Lions	71	2.6	5.0%	0.0	0.0%	1.3	50.0%	1.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%
Prince William Sound	Chenega Bay	20	1.3	8.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Cordova	910	64.6	7.9%	3.1	4.8%	6.3	9.7%	6.3	9.7%	0.0	0.0%	0.0	0.0%	3.1	4.8%	0.0	0.0%	0.0	0.0%	45.8	71.0%
	Tatitlek	27	13.0	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	13.0	100.0%

* Percentages are based on total households giving a valid response to change in harvest and use of resources compared to five years ago.
** Percentages may not add to 100% because multiple reasons were permitted.
SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-7. Household Assessment of Change in Harvest and Use of Marine Invertebrates, 2003 Study Year Compared to Five Years Ago

Region	Community	Estimated Households	Change Compared to Five Years Ago: No Response No.	No Response Pctg.	Valid Responses No.	Valid Responses Pctg.	More No.	More Pctg.	Same No.	Same Pctg.	Less No.	Less Pctg.
Alaska Peninsula	Chignik Bay	29	9.2	31.8%	19.8	68.2%	0.0	0.0%	9.2	46.7%	10.5	53.3%
	Chignik Lagoon	22	4.1	18.8%	17.9	81.3%	1.4	7.7%	11.0	61.5%	5.5	30.8%
	Chignik Lake	31	7.4	23.8%	23.6	76.2%	4.4	18.8%	10.3	43.8%	8.9	37.5%
	Perryville	33	2.4	7.4%	30.6	92.6%	4.9	16.0%	12.2	40.0%	13.4	44.0%
Kenai Peninsula	Nanwalek	51	0.0	0.0%	51.0	100.0%	11.6	22.7%	18.5	36.4%	20.9	40.9%
	Port Graham	65	6.9	10.6%	58.1	89.4%	6.9	11.9%	15.2	26.2%	36.0	61.9%
Kodiak Island	Akhiok	15	1.4	9.1%	13.6	90.9%	4.1	30.0%	4.1	30.0%	5.5	40.0%
	Karluk	15	4.3	28.6%	10.7	71.4%	0.0	0.0%	4.3	40.0%	6.4	60.0%
	Larsen Bay	31	18.6	60.0%	12.4	40.0%	1.2	10.0%	6.2	50.0%	5.0	40.0%
	Old Harbor	76	14.6	19.2%	61.4	80.8%	4.4	7.1%	38.0	61.9%	19.0	31.0%
	Ouzinkie	69	14.9	21.6%	54.1	78.4%	1.4	2.5%	35.2	65.0%	17.6	32.5%
	Port Lions	71	22.4	31.5%	48.6	68.5%	0.0	0.0%	10.5	21.6%	38.1	78.4%
Prince William Sound	Chenega Bay	20	6.3	31.3%	13.8	68.8%	2.5	18.2%	3.8	27.3%	7.5	54.5%
	Cordova	910	167.4	18.4%	742.6	81.6%	63.9	8.6%	357.7	48.2%	320.9	43.2%
	Tatitlek	27	1.1	4.0%	25.9	96.0%	0.0	0.0%	6.5	25.0%	19.4	75.0%

Note: 'No Response' includes those who responded 'Don't Know.'
SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-8. Reasons for Decreased Harvest and Use of Marine Invertebrates, 2003 Study Year Compared to Five Years Ago

Region	Community	Estimated Households	Responses*		Change Compared to Five Years Ago**																			
					Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	29	10.5	53.3%	2.6	25.0%	6.6	62.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	12.5%	2.6	25.0%
	Chignik Lagoon	22	5.5	30.8%	0.0	0.0%	1.4	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	25.0%	0.0	0.0%	0.0	0.0%	2.8	50.0%
	Chignik Lake	31	8.9	37.5%	3.0	33.3%	1.5	16.7%	1.5	16.7%	0.0	0.0%	1.5	16.7%	1.5	16.7%	0.0	0.0%	0.0	0.0%	3.0	33.3%
	Perryville	33	13.4	44.0%	1.2	9.1%	2.4	18.2%	2.4	18.2%	0.0	0.0%	2.4	18.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	7.3	54.5%
Kenai Peninsula	Nanwalek	51	20.9	40.9%	2.3	11.1%	7.0	33.3%	4.6	22.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	11.6	55.6%
	Port Graham	65	36.0	61.9%	2.8	7.7%	5.5	15.4%	0.0	0.0%	1.4	3.8%	4.1	11.5%	9.7	26.9%	1.4	3.8%	0.0	0.0%	11.1	30.8%
Kodiak Island	Akhiok	15	5.5	40.0%	1.4	25.0%	1.4	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.7	50.0%
	Karluk	15	6.4	60.0%	2.1	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.3	66.7%
	Larsen Bay	31	5.0	40.0%	3.7	75.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	76	19.0	31.0%	8.8	46.2%	1.5	7.7%	0.0	0.0%	1.5	7.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.8	46.2%
	Ouzinkie	69	17.6	32.5%	10.8	61.5%	4.1	23.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.8	38.5%
	Port Lions	71	38.1	78.4%	22.4	58.6%	5.3	13.8%	0.0	0.0%	2.6	6.9%	2.6	6.9%	3.9	10.3%	1.3	3.4%	0.0	0.0%	11.8	31.0%
Prince William Sound	Chenega Bay	20	7.5	54.5%	0.0	0.0%	2.5	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.5	33.3%	0.0	0.0%	0.0	0.0%	2.5	33.3%
	Cordova	910	320.9	43.2%	3.1	1.0%	50.7	15.8%	14.2	4.4%	24.0	7.5%	16.0	5.0%	30.2	9.4%	43.1	13.4%	0.0	0.0%	150.7	47.0%
	Tatitlek	27	19.4	75.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	19.4	100.0%

* Percentages are based on total households giving a valid response to change in harvest and use of resources compared to five years ago.

** Percentages may not add to 100% because multiple reasons were permitted.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-9. Oil Spill-Related Reasons for Decreased Harvest and Use of Marine Invertebrates, 2003 Study Year Compared to Five Years Ago

Region	Community	Estimated Households	Responses*		Change Compared to Five Years Ago**																			
					Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	29	2.6	13.3%	2.6	100.0%	2.6	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Chignik Lagoon	22	4.1	23.1%	0.0	0.0%	1.4	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.8	66.7%
	Chignik Lake	31	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Perryville	33	3.7	12.0%	1.2	33.3%	0.0	0.0%	2.4	66.7%	0.0	0.0%	1.2	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	33.3%
Kenai Peninsula	Nanwalek	51	13.9	27.3%	2.3	16.7%	4.6	33.3%	4.6	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	7.0	50.0%
	Port Graham	65	15.2	26.2%	1.4	9.1%	4.1	27.3%	0.0	0.0%	0.0	0.0%	1.4	9.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.3	54.5%
Kodiak Island	Akhiok	15	1.4	10.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Karluk	15	6.4	60.0%	2.1	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.3	66.7%
	Larsen Bay	31	2.5	20.0%	2.5	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	76	5.8	9.5%	2.9	50.0%	1.5	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.9	50.0%
	Ouzinkie	69	8.1	15.0%	8.1	100.0%	4.1	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Port Lions	71	6.6	13.5%	5.3	80.0%	1.3	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	20.0%
Prince William Sound	Chenega Bay	20	5.0	36.4%	0.0	0.0%	2.5	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	25.0%	0.0	0.0%	0.0	0.0%	1.3	25.0%
	Cordova	910	93.4	12.6%	3.1	3.3%	12.5	13.4%	6.3	6.7%	0.0	0.0%	0.0	0.0%	11.1	11.9%	0.0	0.0%	0.0	0.0%	63.6	68.0%
	Tatitlek	27	15.1	58.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	15.1	100.0%

* Percentages are based on total households giving a valid response to change in harvest and use of resources compared to five years ago.

** Percentages may not add to 100% because multiple reasons were permitted.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-10. Household Assessment of Change in Harvest and Use of Large Land Mammals, 2003 Study Year Compared to Five Years Ago

Region	Community	Estimated Households	No Response No.	No Response Pctg.	Valid Responses No.	Valid Responses Pctg.	More No.	More Pctg.	Same No.	Same Pctg.	Less No.	Less Pctg.
Alaska Peninsula	Chignik Bay	29	7.9	27.3%	21.1	72.7%	0.0	0.0%	6.6	31.3%	14.5	68.8%
	Chignik Lagoon	22	4.1	18.8%	17.9	81.3%	2.8	15.4%	8.3	46.2%	6.9	38.5%
	Chignik Lake	31	5.9	19.0%	25.1	81.0%	5.9	23.5%	11.8	47.1%	7.4	29.4%
	Perryville	33	2.4	7.4%	30.6	92.6%	4.9	16.0%	12.2	40.0%	13.4	44.0%
Kenai Peninsula	Nanwalek	51	11.6	22.7%	39.4	77.3%	2.3	5.9%	20.9	52.9%	16.2	41.2%
	Port Graham	65	11.1	17.0%	53.9	83.0%	6.9	12.8%	33.2	61.5%	13.8	25.6%
Kodiak Island	Akhiok	15	1.4	9.1%	13.6	90.9%	2.7	20.0%	2.7	20.0%	8.2	60.0%
	Karluk	15	2.1	14.3%	12.9	85.7%	0.0	0.0%	2.1	16.7%	10.7	83.3%
	Larsen Bay	31	11.2	36.0%	19.8	64.0%	2.5	12.5%	16.1	81.3%	1.2	6.3%
	Old Harbor	76	16.1	21.2%	59.9	78.8%	2.9	4.9%	43.8	73.2%	13.2	22.0%
	Ouzinkie	69	23.0	33.3%	46.0	66.7%	2.7	5.9%	37.9	82.4%	5.4	11.8%
	Port Lions	71	18.4	25.9%	52.6	74.1%	7.9	15.0%	22.4	42.5%	22.4	42.5%
Prince William Sound	Chenega Bay	20	5.0	25.0%	15.0	75.0%	2.5	16.7%	11.3	75.0%	1.3	8.3%
	Cordova	910	116.4	12.8%	793.6	87.2%	111.5	14.0%	523.1	65.9%	159.1	20.0%
	Tatitlek	27	3.2	12.0%	23.8	88.0%	1.1	4.5%	9.7	40.9%	13.0	54.5%

Note: 'No Response' includes those who responded 'Don't Know.'
SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-11. Reasons for Decreased Harvest and Use of Large Land Mammals, 2003 Study Year Compared to Five Years Ago

Region	Community	Estimated Households	Responses*		Change Compared to Five Years Ago**																	
					Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	29	14.5	68.7%	1.3	9.1%	5.3	36.4%	0.0	0.0%	1.3	9.1%	0.0	0.0%	6.6	45.5%	0.0	0.0%	1.3	9.1%	1.3	9.1%
	Chignik Lagoon	22	6.9	38.5%	0.0	0.0%	2.8	40.0%	0.0	0.0%	1.4	20.0%	0.0	0.0%	1.4	20.0%	0.0	0.0%	0.0	0.0%	1.4	20.0%
	Chignik Lake	31	7.4	29.4%	0.0	0.0%	7.4	100.0%	1.5	20.0%	0.0	0.0%	0.0	0.0%	1.5	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Perryville	33	13.4	44.0%	0.0	0.0%	3.7	27.3%	1.2	9.1%	0.0	0.0%	2.4	18.2%	3.7	27.3%	0.0	0.0%	0.0	0.0%	6.1	45.5%
Kenai Peninsula	Nanwalek	51	16.2	41.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	14.3%	13.9	85.7%
	Port Graham	65	13.8	25.6%	1.4	10.0%	1.4	10.0%	1.4	10.0%	2.8	20.0%	1.4	10.0%	2.8	20.0%	1.4	10.0%	0.0	0.0%	2.8	20.0%
Kodiak Island	Akhiok	15	8.2	60.0%	1.4	16.7%	1.4	16.7%	2.7	33.3%	0.0	0.0%	0.0	0.0%	1.4	16.7%	1.4	16.7%	0.0	0.0%	1.4	16.7%
	Karluk	15	10.7	83.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	10.7	100.0%
	Larsen Bay	31	1.2	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	100.0%
	Old Harbor	76	13.2	22.0%	1.5	11.1%	0.0	0.0%	2.9	22.2%	1.5	11.1%	0.0	0.0%	1.5	11.1%	0.0	0.0%	0.0	0.0%	7.3	55.6%
	Ouzinkie	69	5.4	11.8%	0.0	0.0%	1.4	25.0%	1.4	25.0%	0.0	0.0%	1.4	25.0%	1.4	25.0%	0.0	0.0%	0.0	0.0%	1.4	25.0%
	Port Lions	71	22.4	42.5%	1.3	5.9%	1.3	5.9%	1.3	5.9%	3.9	17.6%	0.0	0.0%	5.3	23.5%	2.6	11.8%	0.0	0.0%	10.5	47.1%
Prince William Sound	Chenega Bay	20	1.3	8.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Cordova	910	159.1	20.0%	0.0	0.0%	0.0	0.0%	3.1	2.0%	0.0	0.0%	24.0	15.1%	27.1	17.0%	70.2	44.1%	0.0	0.0%	42.7	26.9%
	Tatitlek	27	13.0	54.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	13.0	100.0%

* Percentages are based on total households giving a valid response to change in harvest and use of resources compared to five years ago.
** Percentages may not add to 100% because multiple reasons were permitted.
SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-12. Oil Spill-Related Reasons for Decreased Harvest and Use of Large Land Mammals, 2003 Study Year Compared to Five Years Ago

Region	Community	Estimated Households	Responses*		Change Compared to Five Years Ago**																	
					Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	29	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Chignik Lagoon	22	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Chignik Lake	31	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Perryville	33	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Kenai Peninsula	Nanwalek	51	7.0	17.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	7.0	100.0%
	Port Graham	65	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Kodiak Island	Akhiok	15	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Karluk	15	8.6	66.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.6	100.0%
	Larsen Bay	31	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	76	5.8	9.8%	1.5	25.0%	0.0	0.0%	0.0	0.0%	1.5	25.0%	0.0	0.0%	1.5	25.0%	0.0	0.0%	0.0	0.0%	2.9	50.0%
	Ouzinkie	69	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Port Lions	71	1.3	2.5%	0.0	0.0%	0.0	0.0%	1.3	100.0%	1.3	100.0%	0.0	0.0%	1.3	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Prince William Sound	Chenega Bay	20	1.3	8.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Cordova	910	31.6	4.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.1	9.9%	0.0	0.0%	28.5	90.1%
	Tatitlek	27	8.6	36.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.6	100.0%

* Percentages are based on total households giving a valid response to change in harvest and use of resources compared to five years ago.
** Percentages may not add to 100% because multiple reasons were permitted.
SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-13. Household Assessment of Change in Harvest and Use of Small Game and Furbearers, 2003 Study Year Compared to Five Years Ago

Region	Community	Estimated Households	Change Compared to Five Years Ago: No Response No.	Pctg.	Valid Responses No.	Pctg.	More No.	Pctg.	Same No.	Pctg.	Less No.	Pctg.
Alaska Peninsula	Chignik Bay	29	17.1	59.1%	11.9	40.9%	1.3	11.1%	10.5	88.9%	0.0	0.0%
	Chignik Lagoon	22	9.6	43.8%	12.4	56.3%	0.0	0.0%	9.6	77.8%	2.8	22.2%
	Chignik Lake	31	26.6	85.7%	4.4	14.3%	0.0	0.0%	3.0	66.7%	1.5	33.3%
	Perryville	33	12.2	37.0%	20.8	63.0%	1.2	5.9%	12.2	58.8%	7.3	35.3%
Kenai Peninsula	Nanwalek	51	30.1	59.1%	20.9	40.9%	4.6	22.2%	16.2	77.8%	0.0	0.0%
	Port Graham	65	13.8	21.3%	51.2	78.7%	2.8	5.4%	37.3	73.0%	11.1	21.6%
Kodiak Island	Akhiok	15	15.0	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Karluk	15	15.0	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Larsen Bay	31	27.3	88.0%	3.7	12.0%	0.0	0.0%	2.5	66.7%	1.2	33.3%
	Old Harbor	76	58.5	76.9%	17.5	23.1%	5.8	33.3%	11.7	66.7%	0.0	0.0%
	Ouzinkie	69	58.2	84.3%	10.8	15.7%	0.0	0.0%	9.5	87.5%	1.4	12.5%
	Port Lions	71	53.9	75.9%	17.1	24.1%	1.3	7.7%	7.9	46.2%	7.9	46.2%
Prince William Sound	Chenega Bay	20	17.5	87.5%	2.5	12.5%	0.0	0.0%	1.3	50.0%	1.3	50.0%
	Cordova	910	283.8	31.2%	626.2	68.8%	54.2	8.7%	438.7	70.0%	133.4	21.3%
	Tatitlek	27	27.0	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

Note: 'No Response' includes those who responded 'Don't Know.'

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-14. Reasons for Decreased Harvest and Use of Small Game and Furbearers, 2003 Study Year Compared to Five Years Ago

Region	Community	Estimated Households	Responses*		Change Compared to Five Years Ago**																	
					Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	29	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Chignik Lagoon	22	2.8	22.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%
	Chignik Lake	31	1.5	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	100.0%
	Perryville	33	7.3	35.3%	0.0	0.0%	1.2	16.7%	0.0	0.0%	0.0	0.0%	1.2	16.7%	3.7	50.0%	0.0	0.0%	0.0	0.0%	1.2	16.7%
Kenai Peninsula	Nanwalek	51	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Port Graham	65	11.1	21.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.8	25.0%	1.4	12.5%	2.8	25.0%	1.4	12.5%	0.0	0.0%	2.8	25.0%
Kodiak Island	Akhiok	15	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Karluk	15	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Larsen Bay	31	1.2	33.3%	0.0	0.0%	0.0	0.0%	1.2	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	76	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Ouzinkie	69	1.4	12.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%
	Port Lions	71	7.9	46.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	16.7%	5.3	66.7%	0.0	0.0%	2.6	33.3%
Prince William Sound	Chenega Bay	20	1.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%	0.0	0.0%	0.0	0.0%
	Cordova	910	133.4	21.3%	0.0	0.0%	11.1	8.3%	24.0	18.0%	8.0	6.0%	3.1	2.3%	11.1	8.3%	41.3	31.0%	0.0	0.0%	45.8	34.4%
	Tatitlek	27	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

* Percentages are based on total households giving a valid response to change in harvest and use of resources compared to five years ago.
** Percentages may not add to 100% because multiple reasons were permitted.
SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-15. Oil Spill-Related Reasons for Decreased Harvest and Use of Small Game and Furbearers, 2003 Study Year Compared to Five Years Ago

Region	Community	Estimated Households	Responses*		Change Compared to Five Years Ago**																	
					Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	29	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Chignik Lagoon	22	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Chignik Lake	31	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Perryville	33	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Kenai Peninsula	Nanwalek	51	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Port Graham	65	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Kodiak Island	Akhiok	15	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Karluk	15	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Larsen Bay	31	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	76	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Ouzinkie	69	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Port Lions	71	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Prince William Sound	Chenega Bay	20	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Cordova	910	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Tatitlek	27	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

* Percentages are based on total households giving a valid response to change in harvest and use of resources compared to five years ago.
** Percentages may not add to 100% because multiple reasons were permitted.
SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-16. Household Assessment of Change in Harvest and Use of Marine Mammals, 2003 Study Year Compared to Five Years Ago

Region	Community	Estimated Households	No Response No.	No Response Pctg.	Valid Responses No.	Valid Responses Pctg.	More No.	More Pctg.	Same No.	Same Pctg.	Less No.	Less Pctg.
			Change Compared to Five Years Ago									
Alaska Peninsula	Chignik Bay	29	13.2	45.5%	15.8	54.5%	2.6	16.7%	13.2	83.3%	0.0	0.0%
	Chignik Lagoon	22	12.4	56.3%	9.6	43.8%	0.0	0.0%	4.1	42.9%	5.5	57.1%
	Chignik Lake	31	10.3	33.3%	20.7	66.7%	1.5	7.1%	14.8	71.4%	4.4	21.4%
	Perryville	33	3.7	11.1%	29.3	88.9%	4.9	16.7%	13.4	45.8%	11.0	37.5%
Kenai Peninsula	Nanwalek	51	4.6	9.1%	46.4	90.9%	2.3	5.0%	16.2	35.0%	27.8	60.0%
	Port Graham	65	6.9	10.6%	58.1	89.4%	8.3	14.3%	31.8	54.8%	18.0	31.0%
Kodiak Island	Akhiok	15	2.7	18.2%	12.3	81.8%	0.0	0.0%	6.8	55.6%	5.5	44.4%
	Karluk	15	2.1	14.3%	12.9	85.7%	0.0	0.0%	2.1	16.7%	10.7	83.3%
	Larsen Bay	31	23.6	76.0%	7.4	24.0%	0.0	0.0%	7.4	100.0%	0.0	0.0%
	Old Harbor	76	17.5	23.1%	58.5	76.9%	0.0	0.0%	40.9	70.0%	17.5	30.0%
	Ouzinkie	69	39.2	56.9%	29.8	43.1%	0.0	0.0%	23.0	77.3%	6.8	22.7%
	Port Lions	71	56.5	79.6%	14.5	20.4%	1.3	9.1%	9.2	63.6%	3.9	27.3%
Prince William Sound	Chenega Bay	20	6.3	31.3%	13.8	68.8%	1.3	9.1%	10.0	72.7%	2.5	18.2%
	Cordova	910	453.3	49.8%	456.7	50.2%	17.4	3.8%	376.5	82.4%	62.9	13.8%
	Tatitlek	27	3.2	12.0%	23.8	88.0%	0.0	0.0%	5.4	22.7%	18.4	77.3%

Note: 'No Response' includes those who responded 'Don't Know.'
SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-17. Reasons for Decreased Harvest and Use of Marine Mammals, 2003 Study Year Compared to Five Years Ago

Region	Community	Estimated Households	Responses*		Change Compared to Five Years Ago**																	
					Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	29	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Chignik Lagoon	22	5.5	57.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.8	50.0%	0.0	0.0%	0.0	0.0%	2.8	50.0%
	Chignik Lake	31	4.4	21.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	33.3%	0.0	0.0%	0.0	0.0%	3.0	66.7%
	Perryville	33	11.0	37.5%	0.0	0.0%	3.7	33.3%	0.0	0.0%	0.0	0.0%	1.2	11.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.1	55.6%
Kenai Peninsula	Nanwalek	51	27.8	60.0%	2.3	8.3%	2.3	8.3%	2.3	8.3%	0.0	0.0%	4.6	16.7%	0.0	0.0%	0.0	0.0%	2.3	8.3%	16.2	58.3%
	Port Graham	65	18.0	31.0%	2.8	15.4%	2.8	15.4%	0.0	0.0%	1.4	7.7%	1.4	7.7%	5.5	30.8%	1.4	7.7%	0.0	0.0%	4.1	23.1%
Kodiak Island	Akhiok	15	5.5	44.4%	0.0	0.0%	2.7	50.0%	0.0	0.0%	1.4	25.0%	0.0	0.0%	0.0	0.0%	2.7	50.0%	0.0	0.0%	0.0	0.0%
	Karluk	15	10.7	83.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	10.7	100.0%
	Larsen Bay	31	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	76	17.5	30.0%	1.5	8.3%	1.5	8.3%	1.5	8.3%	1.5	8.3%	0.0	0.0%	2.9	16.7%	0.0	0.0%	0.0	0.0%	13.2	75.0%
	Ouzinkie	69	6.8	22.7%	0.0	0.0%	1.4	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	20.0%	0.0	0.0%	0.0	0.0%	4.1	60.0%
	Port Lions	71	3.9	27.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	33.3%	1.3	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.6	66.7%
Prince William Sound	Chenega Bay	20	2.5	18.2%	0.0	0.0%	0.0	0.0%	1.3	50.0%	1.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%
	Cordova	910	62.9	13.8%	3.1	5.0%	3.1	5.0%	0.0	0.0%	11.1	17.7%	0.0	0.0%	3.1	5.0%	6.3	9.9%	0.0	0.0%	36.1	57.5%
	Tatitlek	27	18.4	77.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	18.4	100.0%

* Percentages are based on total households giving a valid response to change in harvest and use of resources compared to five years ago.
** Percentages may not add to 100% because multiple reasons were permitted.
SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-18. Oil Spill-Related Reasons for Decreased Harvest and Use of Marine Mammals, 2003 Study Year Compared to Five Years Ago

Region	Community	Estimated Households	Responses*		Change Compared to Five Years Ago**																	
					Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	29	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Chignik Lagoon	22	1.4	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%
	Chignik Lake	31	1.5	7.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	100.0%
	Perryville	33	3.7	12.5%	0.0	0.0%	2.4	66.7%	0.0	0.0%	0.0	0.0%	1.2	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Kenai Peninsula	Nanwalek	51	18.5	40.0%	2.3	12.5%	2.3	12.5%	0.0	0.0%	0.0	0.0%	2.3	12.5%	0.0	0.0%	0.0	0.0%	2.3	12.5%	11.6	62.5%
	Port Graham	65	1.4	2.4%	1.4	100.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Kodiak Island	Akhiok	15	1.4	11.1%	0.0	0.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%
	Karluk	15	10.7	83.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	10.7	100.0%
	Larsen Bay	31	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	76	7.3	12.5%	1.5	20.0%	1.5	20.0%	1.5	20.0%	1.5	20.0%	0.0	0.0%	2.9	40.0%	0.0	0.0%	0.0	0.0%	2.9	40.0%
	Ouzinkie	69	1.4	4.5%	0.0	0.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Port Lions	71	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Prince William Sound	Chenega Bay	20	1.3	9.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%
	Cordova	910	31.3	6.8%	3.1	10.0%	3.1	10.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	25.0	80.0%
	Tatitlek	27	15.1	63.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	15.1	100.0%

* Percentages are based on total households giving a valid response to change in harvest and use of resources compared to five years ago.
** Percentages may not add to 100% because multiple reasons were permitted.
SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-19. Household Assessment of Change in Harvest and Use of Birds and Eggs, 2003 Study Year Compared to Five Years Ago

Region	Community	Estimated Households	Change Compared to Five Years Ago									
			No Response		Valid Responses		More		Same		Less	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	29	9.2	31.8%	19.8	68.2%	2.6	13.3%	11.9	60.0%	5.3	26.7%
	Chignik Lagoon	22	6.9	31.3%	15.1	68.8%	0.0	0.0%	6.9	45.5%	8.3	54.5%
	Chignik Lake	31	8.9	28.6%	22.1	71.4%	1.5	6.7%	14.8	66.7%	5.9	26.7%
	Perryville	33	2.4	7.4%	30.6	92.6%	1.2	4.0%	15.9	52.0%	13.4	44.0%
Kenai Peninsula	Nanwalek	51	7.0	13.6%	44.0	86.4%	7.0	15.8%	18.5	42.1%	18.5	42.1%
	Port Graham	65	11.1	17.0%	53.9	83.0%	0.0	0.0%	37.3	69.2%	16.6	30.8%
Kodiak Island	Akhiok	15	2.7	18.2%	12.3	81.8%	0.0	0.0%	5.5	44.4%	6.8	55.6%
	Karluk	15	6.4	42.9%	8.6	57.1%	0.0	0.0%	2.1	25.0%	6.4	75.0%
	Larsen Bay	31	23.6	76.0%	7.4	24.0%	0.0	0.0%	6.2	83.3%	1.2	16.7%
	Old Harbor	76	29.2	38.5%	46.8	61.5%	5.8	12.5%	29.2	62.5%	11.7	25.0%
	Ouzinkie	69	24.4	35.3%	44.6	64.7%	4.1	9.1%	31.1	69.7%	9.5	21.2%
	Port Lions	71	36.8	51.9%	34.2	48.1%	3.9	11.5%	17.1	50.0%	13.1	38.5%
Prince William Sound	Chenega Bay	20	13.8	68.8%	6.3	31.3%	2.5	40.0%	1.3	20.0%	2.5	40.0%
	Cordova	910	261.5	28.7%	648.5	71.3%	46.2	7.1%	435.2	67.1%	167.1	25.8%
	Tatitlek	27	14.0	52.0%	13.0	48.0%	0.0	0.0%	4.3	33.3%	8.6	66.7%

Note: 'No Response' includes those who responded 'Don't Know.'

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-20. Reasons for Decreased Harvest and Use of Birds and Eggs, 2003 Study Year Compared to Five Years Ago

Region	Community	Estimated Households	Responses*		Change Compared to Five Years Ago**																	
					Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	29	5.3	26.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	25.0%	0.0	0.0%	2.6	50.0%	0.0	0.0%	0.0	0.0%	1.3	25.0%
	Chignik Lagoon	22	8.3	54.5%	1.4	16.7%	1.4	16.7%	0.0	0.0%	1.4	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.1	50.0%
	Chignik Lake	31	5.9	26.7%	0.0	0.0%	1.5	25.0%	0.0	0.0%	1.5	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.0	50.0%
	Perryville	33	13.4	44.0%	0.0	0.0%	3.7	27.3%	1.2	9.1%	0.0	0.0%	1.2	9.1%	4.9	36.4%	3.7	27.3%	0.0	0.0%	3.7	27.3%
Kenai Peninsula	Nanwalek	51	18.5	42.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	18.5	100.0%
	Port Graham	65	16.6	30.8%	1.4	8.3%	1.4	8.3%	0.0	0.0%	2.8	16.7%	2.8	16.7%	0.0	0.0%	2.8	16.7%	0.0	0.0%	8.3	50.0%
Kodiak Island	Akhiok	15	6.8	55.6%	1.4	20.0%	0.0	0.0%	0.0	0.0%	1.4	20.0%	0.0	0.0%	2.7	40.0%	1.4	20.0%	0.0	0.0%	1.4	20.0%
	Karluk	15	6.4	75.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.4	100.0%
	Larsen Bay	31	1.2	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	76	11.7	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.9	25.0%	0.0	0.0%	0.0	0.0%	8.8	75.0%
	Ouzinkie	69	9.5	21.2%	1.4	14.3%	0.0	0.0%	2.7	28.6%	1.4	14.3%	0.0	0.0%	1.4	14.3%	0.0	0.0%	0.0	0.0%	4.1	42.9%
	Port Lions	71	13.1	38.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.9	30.0%	1.3	10.0%	5.3	40.0%	0.0	0.0%	0.0	0.0%	5.3	40.0%
Prince William Sound	Chenega Bay	20	2.5	40.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.5	100.0%
	Cordova	910	167.1	25.8%	3.1	1.9%	16.0	9.6%	3.1	1.9%	16.0	9.6%	8.0	4.8%	16.0	9.6%	33.3	20.0%	0.0	0.0%	82.7	49.5%
	Tatitlek	27	8.6	66.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.6	100.0%

* Percentages are based on total households giving a valid response to change in harvest and use of resources compared to five years ago.
** Percentages may not add to 100% because multiple reasons were permitted.
SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-21. Oil Spill-Related Reasons for Decreased Harvest and Use of Birds and Eggs, 2003 Study Year Compared to Five Years Ago

Region	Community	Estimated Households	Responses*		Change Compared to Five Years Ago**																	
					Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	29	4.0	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.6	66.7%	0.0	0.0%	0.0	0.0%	1.3	33.3%
	Chignik Lagoon	22	4.1	27.3%	1.4	33.3%	1.4	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	33.3%
	Chignik Lake	31	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Perryville	33	1.2	4.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Kenai Peninsula	Nanwalek	51	9.3	21.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	9.3	100.0%
	Port Graham	65	2.8	5.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%	0.0	0.0%	1.4	50.0%
Kodiak Island	Akhiok	15	1.4	11.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%
	Karluk	15	6.4	75.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.4	100.0%
	Larsen Bay	31	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	76	2.9	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	50.0%	0.0	0.0%	0.0	0.0%	1.5	50.0%
	Ouzinkie	69	1.4	3.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Port Lions	71	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Prince William Sound	Chenega Bay	20	1.3	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%
	Cordova	910	28.5	4.4%	3.1	11.0%	0.0	0.0%	3.1	11.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	25.4	89.0%
	Tatitlek	27	7.6	58.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	7.6	100.0%

* Percentages are based on total households giving a valid response to change in harvest and use of resources compared to five years ago.
** Percentages may not add to 100% because multiple reasons were permitted.
SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-22. Household Assessment of Change in Harvest and Use of Wild Plants, 2003 Study Year Compared to Five Years Ago

Region	Community	Estimated Households	Change Compared to Five Years Ago: No Response No.	No Response Pctg.	Valid Responses No.	Valid Responses Pctg.	More No.	More Pctg.	Same No.	Same Pctg.	Less No.	Less Pctg.
Alaska Peninsula	Chignik Bay	29	7.9	27.3%	21.1	72.7%	1.3	6.3%	10.5	50.0%	9.2	43.8%
	Chignik Lagoon	22	4.1	18.8%	17.9	81.3%	4.1	23.1%	11.0	61.5%	2.8	15.4%
	Chignik Lake	31	7.4	23.8%	23.6	76.2%	4.4	18.8%	14.8	62.5%	4.4	18.8%
	Perryville	33	2.4	7.4%	30.6	92.6%	7.3	24.0%	13.4	44.0%	9.8	32.0%
Kenai Peninsula	Nanwalek	51	0.0	0.0%	51.0	100.0%	13.9	27.3%	18.5	36.4%	18.5	36.4%
	Port Graham	65	6.9	10.6%	58.1	89.4%	9.7	16.7%	18.0	31.0%	30.4	52.4%
Kodiak Island	Akhiok	15	1.4	9.1%	13.6	90.9%	2.7	20.0%	8.2	60.0%	2.7	20.0%
	Karluk	15	4.3	28.6%	10.7	71.4%	0.0	0.0%	2.1	20.0%	8.6	80.0%
	Larsen Bay	31	9.9	32.0%	21.1	68.0%	2.5	11.8%	16.1	76.5%	2.5	11.8%
	Old Harbor	76	8.8	11.5%	67.2	88.5%	5.8	8.7%	51.2	76.1%	10.2	15.2%
	Ouzinkie	69	8.1	11.8%	60.9	88.2%	6.8	11.1%	50.1	82.2%	4.1	6.7%
	Port Lions	71	17.1	24.1%	53.9	75.9%	5.3	9.8%	35.5	65.9%	13.1	24.4%
Prince William Sound	Chenega Bay	20	8.8	43.8%	11.3	56.3%	3.8	33.3%	7.5	66.7%	0.0	0.0%
	Cordova	910	146.6	16.1%	763.4	83.9%	116.4	15.2%	417.8	54.7%	229.2	30.0%
	Tatitlek	27	4.3	16.0%	22.7	84.0%	3.2	14.3%	8.6	38.1%	10.8	47.6%

Note: 'No Response' includes those who responded 'Don't Know.'

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-23. Reasons for Decreased Harvest and Use of Wild Plants, 2003 Study Year Compared to Five Years Ago

Region	Community	Estimated Households	Responses*		Change Compared to Five Years Ago*: Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	29	9.2	43.8%	0.0	0.0%	4.0	42.9%	1.3	14.3%	1.3	14.3%	0.0	0.0%	0.0	0.0%	2.6	28.6%	1.3	14.3%	1.3	14.3%
	Chignik Lagoon	22	2.8	15.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.8	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Chignik Lake	31	4.4	18.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.4	100.0%
	Perryville	33	9.8	32.0%	0.0	0.0%	3.7	37.5%	2.4	25.0%	0.0	0.0%	3.7	37.5%	2.4	25.0%	0.0	0.0%	0.0	0.0%	1.2	12.5%
Kenai Peninsula	Nanwalek	51	18.5	36.4%	0.0	0.0%	0.0	0.0%	2.3	12.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	16.2	87.5%
	Port Graham	65	30.4	52.4%	2.8	9.1%	11.1	36.4%	2.8	9.1%	2.8	9.1%	2.8	9.1%	4.1	13.6%	1.4	4.5%	0.0	0.0%	5.5	18.2%
Kodiak Island	Akhiok	15	2.7	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%	0.0	0.0%	1.4	50.0%
	Karluk	15	8.6	80.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.6	100.0%
	Larsen Bay	31	2.5	11.8%	0.0	0.0%	1.2	50.0%	0.0	0.0%	0.0	0.0%	1.2	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	76	10.2	15.2%	0.0	0.0%	0.0	0.0%	1.5	14.3%	0.0	0.0%	1.5	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	7.3	71.4%
	Ouzinkie	69	4.1	6.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	33.3%	2.7	66.7%	1.4	33.3%	0.0	0.0%	0.0	0.0%
	Port Lions	71	13.1	24.4%	0.0	0.0%	1.3	10.0%	0.0	0.0%	2.6	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	10.0%	9.2	70.0%
Prince William Sound	Chenega Bay	20	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Cordova	910	229.2	30.0%	0.0	0.0%	9.4	4.1%	14.2	6.2%	16.0	7.0%	24.0	10.5%	24.0	10.5%	59.0	25.8%	0.0	0.0%	93.8	40.9%
	Tatitlek	27	10.8	47.6%	0.0	0.0%	2.2	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.6	80.0%

* Percentages are based on total households giving a valid response to change in harvest and use of resources compared to five years ago.
** Percentages may not add to 100% because multiple reasons were permitted.
SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-24. Oil Spill-Related Reasons for Decreased Harvest and Use of Wild Plants, 2003 Study Year Compared to Five Years Ago

Region	Community	Estimated Households	Responses*		Change Compared to Five Years Ago*: Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	29	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Chignik Lagoon	22	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Chignik Lake	31	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Perryville	33	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Kenai Peninsula	Nanwalek	51	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Port Graham	65	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Kodiak Island	Akhiok	15	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Karluk	15	6.4	60.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.4	100.0%
	Larsen Bay	31	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	76	1.5	2.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	100.0%
	Ouzinkie	69	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Port Lions	71	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Prince William Sound	Chenega Bay	20	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Cordova	910	20.5	2.7%	0.0	0.0%	3.1	15.3%	3.1	15.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	17.4	84.7%
	Tatitlek	27	1.1	4.8%	0.0	0.0%	1.1	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

* Percentages are based on total households giving a valid response to change in harvest and use of resources compared to five years ago.
** Percentages may not add to 100% because multiple reasons were permitted.
SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-25. Household Assessment of Change in Overall Harvest and Use, 2003 Study Year Compared to Five Years Ago

Region	Community	Estimated Households	Change Compared to Five Years Ago: No Response No.	No Response Pctg.	Valid Responses No.	Valid Responses Pctg.	More No.	More Pctg.	Same No.	Same Pctg.	Less No.	Less Pctg.
Alaska Peninsula	Chignik Bay	29	6.6	22.7%	22.4	77.3%	1.3	5.9%	9.2	41.2%	11.9	52.9%
	Chignik Lagoon	22	1.4	6.3%	20.6	93.8%	2.8	13.3%	6.9	33.3%	11.0	53.3%
	Chignik Lake	31	4.4	14.3%	26.6	85.7%	8.9	33.3%	5.9	22.2%	11.8	44.4%
	Perryville	33	2.4	7.4%	30.6	92.6%	9.8	32.0%	8.6	28.0%	12.2	40.0%
Kenai Peninsula	Nanwalek	51	2.3	4.5%	48.7	95.5%	11.6	23.8%	13.9	28.6%	23.2	47.6%
	Port Graham	65	5.5	8.5%	59.5	91.5%	11.1	18.6%	13.8	23.3%	34.6	58.1%
Kodiak Island	Akhiok	15	1.4	9.1%	13.6	90.9%	2.7	20.0%	1.4	10.0%	9.5	70.0%
	Karluk	15	4.3	28.6%	10.7	71.4%	0.0	0.0%	0.0	0.0%	10.7	100.0%
	Larsen Bay	31	6.2	20.0%	24.8	80.0%	2.5	10.0%	17.4	70.0%	5.0	20.0%
	Old Harbor	76	7.3	9.6%	68.7	90.4%	10.2	14.9%	32.2	46.8%	26.3	38.3%
	Ouzinkie	69	6.8	9.8%	62.2	90.2%	2.7	4.3%	52.8	84.8%	6.8	10.9%
	Port Lions	71	9.2	13.0%	61.8	87.0%	11.8	19.1%	28.9	46.8%	21.0	34.0%
Prince William Sound	Chenega Bay	20	2.5	12.5%	17.5	87.5%	2.5	14.3%	11.3	64.3%	3.8	21.4%
	Cordova	910	54.2	6.0%	855.8	94.0%	205.6	24.0%	368.5	43.1%	281.7	32.9%
	Tatitlek	27	2.2	8.0%	24.8	92.0%	1.1	4.3%	5.4	21.7%	18.4	73.9%

Note: 'No Response' includes those who responded 'Don't Know.'

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-26. Reasons for Decreased Harvest and Use of Overall Resources, 2003 Study Year Compared to Five Years Ago

Region	Community	Estimated Households	Responses*		Change Compared to Five Years Ago**																	
					Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	29	11.9	52.9%	0.0	0.0%	6.6	55.6%	1.3	11.1%	0.0	0.0%	0.0	0.0%	1.3	11.1%	4.0	33.3%	0.0	0.0%	1.3	11.1%
	Chignik Lagoon	22	11.0	53.3%	1.4	12.5%	1.4	12.5%	2.8	25.0%	1.4	12.5%	0.0	0.0%	1.4	12.5%	0.0	0.0%	0.0	0.0%	2.8	25.0%
	Chignik Lake	31	11.8	44.4%	1.5	12.5%	4.4	37.5%	0.0	0.0%	1.5	12.5%	3.0	25.0%	1.5	12.5%	0.0	0.0%	0.0	0.0%	4.4	37.5%
	Perryville	33	12.2	40.0%	1.2	10.0%	7.3	60.0%	1.2	10.0%	1.2	10.0%	3.7	30.0%	3.7	30.0%	0.0	0.0%	0.0	0.0%	2.4	20.0%
Kenai Peninsula	Nanwalek	51	23.2	47.6%	2.3	10.0%	2.3	10.0%	2.3	10.0%	2.3	10.0%	0.0	0.0%	2.3	10.0%	0.0	0.0%	0.0	0.0%	13.9	60.0%
	Port Graham	65	34.6	58.1%	2.8	8.0%	6.9	20.0%	0.0	0.0%	1.4	4.0%	5.5	16.0%	11.1	32.0%	2.8	8.0%	0.0	0.0%	5.5	16.0%
Kodiak Island	Akhiok	15	9.5	70.0%	1.4	14.3%	0.0	0.0%	2.7	28.6%	1.4	14.3%	0.0	0.0%	1.4	14.3%	0.0	0.0%	0.0	0.0%	2.7	28.6%
	Karluk	15	10.7	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	10.7	100.0%
	Larsen Bay	31	5.0	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.5	50.0%	1.2	25.0%	1.2	25.0%	1.2	25.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	76	26.3	38.3%	7.3	27.8%	2.9	11.1%	0.0	0.0%	1.5	5.6%	1.5	5.6%	4.4	16.7%	0.0	0.0%	0.0	0.0%	11.7	44.4%
	Ouzinkie	69	6.8	10.9%	1.4	20.0%	1.4	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.7	40.0%	0.0	0.0%	0.0	0.0%	2.7	40.0%
	Port Lions	71	21.0	34.0%	1.3	6.3%	1.3	6.3%	0.0	0.0%	5.3	25.0%	1.3	6.3%	7.9	37.5%	0.0	0.0%	0.0	0.0%	7.9	37.5%
Prince William Sound	Chenega Bay	20	3.8	21.4%	1.3	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	33.3%	0.0	0.0%	1.3	33.3%
	Cordova	910	281.7	32.9%	16.0	5.7%	33.3	11.8%	19.1	6.8%	46.2	16.4%	32.0	11.3%	57.3	20.3%	83.0	29.5%	0.0	0.0%	53.8	19.1%
	Tatitlek	27	18.4	73.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	18.4	100.0%

* Percentages are based on total households giving a valid response to change in harvest and use of resources compared to five years ago.
** Percentages may not add to 100% because multiple reasons were permitted.
SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-27. Oil Spill-Related Reasons for Decreased Harvest and Use of Overall Resources, 2003 Study Year Compared to Five Years Ago

Region	Community	Estimated Households	Responses*		Change Compared to Five Years Ago**																	
					Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	29	6.6	29.4%	0.0	0.0%	4.0	60.0%	1.3	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	20.0%
	Chignik Lagoon	22	5.5	26.7%	1.4	25.0%	1.4	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.8	50.0%
	Chignik Lake	31	4.4	16.7%	1.5	33.3%	1.5	33.3%	0.0	0.0%	1.5	33.3%	1.5	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	33.3%
	Perryville	33	3.7	12.0%	1.2	33.3%	3.7	100.0%	0.0	0.0%	0.0	0.0%	2.4	66.7%	1.2	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Kenai Peninsula	Nanwalek	51	13.9	28.6%	2.3	16.7%	2.3	16.7%	2.3	16.7%	2.3	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	7.0	50.0%
	Port Graham	65	9.8	16.5%	1.4	14.3%	2.8	28.6%	0.0	0.0%	1.4	14.3%	2.8	28.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.8	28.6%
Kodiak Island	Akhiok	15	4.1	30.0%	1.4	33.3%	0.0	0.0%	0.0	0.0%	1.4	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	33.3%
	Karluk	15	6.4	60.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.4	100.0%
	Larsen Bay	31	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	76	14.6	21.3%	5.8	40.0%	2.9	20.0%	0.0	0.0%	1.5	10.0%	0.0	0.0%	2.9	20.0%	0.0	0.0%	0.0	0.0%	2.9	20.0%
	Ouzinkie	69	2.7	4.3%	1.4	50.0%	1.4	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Port Lions	71	2.6	4.3%	1.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%
Prince William Sound	Chenega Bay	20	2.5	14.3%	1.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%
	Cordova	910	45.8	5.4%	0.0	0.0%	17.4	37.9%	11.1	24.2%	8.0	17.4%	0.0	0.0%	3.1	6.8%	0.0	0.0%	0.0	0.0%	17.4	37.9%
	Tatitlek	27	16.2	65.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	16.2	100.0%

* Percentages are based on total households giving a valid response to change in harvest and use of resources compared to five years ago.
** Percentages may not add to 100% because multiple reasons were permitted.
SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-28. Household Assessment of Change in Harvest and Use of Salmon, 2003 Study Year Compared to Year Before the *Exxon Valdez* Oil Spill

Region	Community	Estimated Households	Change Compared to Year Before the *Exxon Valdez* Oil Spill (1988)											
			No Response		Not In Community		Valid Responses		More		Same		Less	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	29	4.0	13.6%	7.9	27.3%	17.1	59.1%	0.0	0.0%	6.6	38.5%	10.5	61.5%
	Chignik Lagoon	22	0.0	0.0%	2.8	12.5%	19.3	87.5%	5.5	28.6%	5.5	28.6%	8.3	42.9%
	Chignik Lake	31	4.4	14.3%	3.0	9.5%	23.6	76.2%	5.9	25.0%	7.4	31.3%	10.3	43.8%
	Perryville	33	3.7	11.1%	2.4	7.4%	26.9	81.5%	2.4	9.1%	12.2	45.5%	12.2	45.5%
Kenai Peninsula	Nanwalek	51	2.3	4.5%	0.0	0.0%	48.7	95.5%	13.9	28.6%	20.9	42.9%	13.9	28.6%
	Port Graham	65	5.5	8.5%	12.4	19.1%	47.0	72.3%	12.4	26.5%	9.7	20.6%	24.9	52.9%
Kodiak Island	Akhiok	15	5.5	36.4%	0.0	0.0%	9.5	63.6%	1.4	14.3%	1.4	14.3%	6.8	71.4%
	Karluk	15	2.1	14.3%	0.0	0.0%	12.9	85.7%	0.0	0.0%	2.1	16.7%	10.7	83.3%
	Larsen Bay	31	1.2	4.0%	8.7	28.0%	21.1	68.0%	2.5	11.8%	9.9	47.1%	8.7	41.2%
	Old Harbor	76	4.4	5.8%	5.8	7.7%	65.8	86.5%	2.9	4.4%	24.8	37.8%	38.0	57.8%
	Ouzinkie	69	13.5	19.6%	2.7	3.9%	52.8	76.5%	8.1	15.4%	31.1	59.0%	13.5	25.6%
	Port Lions	71	6.6	9.3%	9.2	13.0%	55.2	77.8%	10.5	19.0%	21.0	38.1%	23.7	42.9%
Prince William Sound	Chenega Bay	20	1.3	6.3%	6.3	31.3%	12.5	62.5%	5.0	40.0%	5.0	40.0%	2.5	20.0%
	Cordova	910	52.4	5.8%	229.9	25.3%	627.6	69.0%	141.7	22.6%	247.6	39.5%	238.3	38.0%
	Tatitlek	27	1.1	4.0%	2.2	8.0%	23.8	88.0%	1.1	4.5%	6.5	27.3%	16.2	68.2%

Note: 'No Response' includes those who responded 'Don't Know.' 'Not in Community' includes those who did not live in the community during the comparison year.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-29. Reasons for Decreased Harvest and Use of Salmon, 2003 Study Year Compared to Year Before the *Exxon Valdez* Oil Spill

Region	Community	Estimated Households	Responses*		Change Compared to Year Before the *Exxon Valdez* Oil Spill (1988)** Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	21.1	10.5	61.5%	0.0	0.0%	6.6	62.5%	1.3	12.5%	0.0	0.0%	0.0	0.0%	5.3	50.0%	0.0	0.0%	0.0	0.0%	1.3	12.5%
	Chignik Lagoon	19.3	8.3	42.9%	1.4	16.7%	0.0	0.0%	1.4	16.7%	1.4	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	16.7%	2.8	33.3%
	Chignik Lake	28.0	10.3	43.7%	0.0	0.0%	1.5	14.3%	0.0	0.0%	0.0	0.0%	1.5	14.3%	1.5	14.3%	0.0	0.0%	0.0	0.0%	5.9	57.1%
	Perryville	30.6	12.2	45.5%	0.0	0.0%	4.9	40.0%	0.0	0.0%	1.2	10.0%	4.9	40.0%	3.7	30.0%	1.2	10.0%	0.0	0.0%	1.2	10.0%
Kenai Peninsula	Nanwalek	51.0	13.9	28.6%	2.3	16.7%	4.6	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	7.0	50.0%
	Port Graham	52.6	24.9	52.9%	1.4	5.6%	2.8	11.1%	0.0	0.0%	0.0	0.0%	2.8	11.1%	11.1	44.4%	5.5	22.2%	0.0	0.0%	4.1	16.7%
Kodiak Island	Akhiok	15.0	6.8	71.4%	1.4	20.0%	4.1	60.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Karluk	15.0	10.7	83.3%	2.1	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.6	80.0%
	Larsen Bay	22.3	8.7	41.2%	2.5	28.6%	1.2	14.3%	1.2	14.3%	1.2	14.3%	1.2	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	14.3%
	Old Harbor	70.2	38.0	57.8%	5.8	15.4%	13.2	34.6%	2.9	7.7%	0.0	0.0%	0.0	0.0%	5.8	15.4%	2.9	7.7%	0.0	0.0%	11.7	30.8%
	Ouzinkie	66.3	13.5	25.6%	1.4	10.0%	2.7	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.7	20.0%	1.4	10.0%	0.0	0.0%	6.8	50.0%
	Port Lions	61.8	23.7	42.9%	2.6	11.1%	0.0	0.0%	2.6	11.1%	2.6	11.1%	2.6	11.1%	9.2	38.9%	0.0	0.0%	0.0	0.0%	6.6	27.8%
Prince William Sound	Chenega Bay	13.8	2.5	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%
	Cordova	680.1	238.3	38.0%	47.9	20.1%	11.1	4.7%	11.1	4.7%	19.1	8.0%	0.0	0.0%	55.9	23.5%	49.3	20.7%	0.0	0.0%	59.7	25.1%
	Tatitlek	24.8	16.2	68.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	16.2	100.0%

* Percentages are based on total households giving a valid response to change in harvest and use of resources compared to before the oil spill.

** Percentages may not add to 100% because multiple reasons were permitted.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-30. Oil Spill-Related Reasons for Decreased Harvest and Use of Salmon, 2003 Study Year Compared to Year Before the *Exxon Valdez* Oil Spill

Region	Community	Estimated Households	Responses*		Change Compared to Year Before the *Exxon Valdez* Oil Spill (1988)** Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	21.1	6.6	38.5%	0.0	0.0%	5.3	80.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.6	40.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Chignik Lagoon	19.3	4.1	21.4%	1.4	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	33.3%	1.4	33.3%
	Chignik Lake	28.0	4.4	18.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.4	100.0%
	Perryville	30.6	4.9	18.2%	0.0	0.0%	3.7	75.0%	0.0	0.0%	0.0	0.0%	2.4	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Kenai Peninsula	Nanwalek	51.0	13.9	28.6%	2.3	16.7%	4.6	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	7.0	50.0%
	Port Graham	52.6	6.9	14.7%	0.0	0.0%	1.4	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.1	60.0%	1.4	20.0%	0.0	0.0%	1.4	20.0%
Kodiak Island	Akhiok	15.0	4.1	42.9%	1.4	33.3%	2.7	66.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Karluk	15.0	8.6	66.7%	2.1	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.4	75.0%
	Larsen Bay	22.3	3.7	17.6%	2.5	66.7%	1.2	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	70.2	23.4	35.6%	5.8	25.0%	11.7	50.0%	2.9	12.5%	0.0	0.0%	0.0	0.0%	1.5	6.3%	0.0	0.0%	0.0	0.0%	5.8	25.0%
	Ouzinkie	66.3	4.1	7.7%	1.4	33.3%	2.7	66.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	33.3%
	Port Lions	61.8	5.3	9.5%	1.3	25.0%	0.0	0.0%	1.3	25.0%	0.0	0.0%	0.0	0.0%	1.3	25.0%	0.0	0.0%	0.0	0.0%	2.6	50.0%
Prince William Sound	Chenega Bay	13.8	1.3	10.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Cordova	680.1	99.7	15.9%	32.0	32.1%	11.1	11.2%	11.1	11.2%	8.0	8.0%	0.0	0.0%	8.0	8.0%	6.3	6.3%	0.0	0.0%	39.2	39.4%
	Tatitlek	24.8	16.2	68.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	16.2	100.0%

* Percentages are based on total households giving a valid response to change in harvest and use of resources compared to before the oil spill.

** Percentages may not add to 100% because multiple reasons were permitted.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-31. Household Assessment of Change in Harvest and Use of Non-Salmon Fish, 2003 Study Year Compared to Year Before the *Exxon Valdez* Oil Spill

Region	Community	Estimated Households	Change Compared to Year Before the *Exxon Valdez* Oil Spill (1988)											
			No Response		Not In Community		Valid Responses		More		Same		Less	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	29	6.6	22.7%	7.9	27.3%	14.5	50.0%	2.6	18.2%	7.9	54.5%	4.0	27.3%
	Chignik Lagoon	22	0.0	0.0%	2.8	12.5%	19.3	87.5%	4.1	21.4%	8.3	42.9%	6.9	35.7%
	Chignik Lake	31	5.9	19.0%	3.0	9.5%	22.1	71.4%	7.4	33.3%	7.4	33.3%	7.4	33.3%
	Perryville	33	4.9	14.8%	2.4	7.4%	25.7	77.8%	3.7	14.3%	12.2	47.6%	9.8	38.1%
Kenai Peninsula	Nanwalek	51	2.3	4.5%	0.0	0.0%	48.7	95.5%	11.6	23.8%	16.2	33.3%	20.9	42.9%
	Port Graham	65	6.9	10.6%	12.4	19.1%	45.6	70.2%	4.1	9.1%	5.5	12.1%	36.0	78.8%
Kodiak Island	Akhiok	15	5.5	36.4%	0.0	0.0%	9.5	63.6%	2.7	28.6%	0.0	0.0%	6.8	71.4%
	Karluk	15	4.3	28.6%	0.0	0.0%	10.7	71.4%	0.0	0.0%	4.3	40.0%	6.4	60.0%
	Larsen Bay	31	6.2	20.0%	8.7	28.0%	16.1	52.0%	2.5	15.4%	11.2	69.2%	2.5	15.4%
	Old Harbor	76	4.4	5.8%	5.8	7.7%	65.8	86.5%	4.4	6.7%	26.3	40.0%	35.1	53.3%
	Ouzinkie	69	9.5	13.7%	2.7	3.9%	56.8	82.4%	10.8	19.0%	29.8	52.4%	16.2	28.6%
	Port Lions	71	15.8	22.2%	9.2	13.0%	46.0	64.8%	3.9	8.6%	21.0	45.7%	21.0	45.7%
Prince William Sound	Chenega Bay	20	1.3	6.3%	6.3	31.3%	12.5	62.5%	1.3	10.0%	8.8	70.0%	2.5	20.0%
	Cordova	910	51.1	5.6%	229.9	25.3%	629.0	69.1%	97.3	15.5%	209.4	33.3%	322.3	51.2%
	Tatitlek	27	1.1	4.0%	2.2	8.0%	23.8	88.0%	1.1	4.5%	3.2	13.6%	19.4	81.8%

Note: 'No Response' includes those who responded 'Don't Know.' 'Not in Community' includes those who did not live in the community during the comparison year.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-32. Reasons for Decreased Harvest and Use of Non-Salmon Fish, 2003 Study Year Compared to Year Before the *Exxon Valdez* Oil Spill

Region	Community	Estimated Households	Responses*		Change Compared to Year Before the *Exxon Valdez* Oil Spill (1988)**																	
					Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	21.1	4.0	27.3%	0.0	0.0%	2.6	66.7%	1.3	33.3%	0.0	0.0%	0.0	0.0%	1.3	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Chignik Lagoon	19.3	6.9	35.7%	0.0	0.0%	4.1	60.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.8	40.0%
	Chignik Lake	28.0	7.4	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	20.0%	0.0	0.0%	0.0	0.0%	5.9	80.0%
	Perryville	30.6	9.8	38.1%	1.2	12.5%	3.7	37.5%	0.0	0.0%	1.2	12.5%	1.2	12.5%	2.4	25.0%	0.0	0.0%	0.0	0.0%	3.7	37.5%
Kenai Peninsula	Nanwalek	51.0	20.9	42.9%	7.0	33.3%	2.3	11.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	11.1%	9.3	44.4%
	Port Graham	52.6	36.0	78.8%	5.5	15.4%	8.3	23.1%	2.8	7.7%	2.8	7.7%	4.1	11.5%	11.1	30.8%	4.1	11.5%	0.0	0.0%	4.1	11.5%
Kodiak Island	Akhiok	15.0	6.8	71.4%	2.7	40.0%	2.7	40.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	20.0%	0.0	0.0%	0.0	0.0%	1.4	20.0%
	Karluk	15.0	6.4	60.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.4	100.0%
	Larsen Bay	22.3	2.5	15.4%	1.2	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	70.2	35.1	53.3%	0.0	0.0%	10.2	29.2%	2.9	8.3%	0.0	0.0%	2.9	8.3%	4.4	12.5%	1.5	4.2%	0.0	0.0%	14.6	41.7%
	Ouzinkie	66.3	16.2	28.6%	0.0	0.0%	1.4	8.3%	0.0	0.0%	0.0	0.0%	2.7	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	12.2	75.0%
	Port Lions	61.8	21.0	45.7%	1.3	6.3%	2.6	12.5%	1.3	6.3%	3.9	18.8%	0.0	0.0%	6.6	31.3%	0.0	0.0%	0.0	0.0%	10.5	50.0%
Prince William Sound	Chenega Bay	13.8	2.5	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.5	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Cordova	680.1	322.3	51.2%	19.1	5.9%	33.3	10.3%	25.4	7.9%	35.1	10.9%	16.0	5.0%	30.2	9.4%	71.5	22.2%	0.0	0.0%	102.8	31.9%
	Tatitlek	24.8	19.4	81.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	19.4	100.0%

* Percentages are based on total households giving a valid response to change in harvest and use of resources compared to before the oil spill.

** Percentages may not add to 100% because multiple reasons were permitted.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-33. Oil Spill-Related Reasons for Decreased Harvest and Use of Non-Salmon Fish, 2003 Study Year Compared to Year Before the *Exxon Valdez* Oil Spill

Region	Community	Estimated Households	Responses*		Change Compared to Year Before the *Exxon Valdez* Oil Spill (1988)**																	
					Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	21.1	2.6	18.2%	0.0	0.0%	2.6	100.0%	1.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Chignik Lagoon	19.3	2.8	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.8	100.0%
	Chignik Lake	28.0	4.4	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.4	100.0%
	Perryville	30.6	2.4	9.5%	1.2	50.0%	2.4	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Kenai Peninsula	Nanwalek	51.0	13.9	28.6%	7.0	50.0%	2.3	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	16.7%	2.3	16.7%
	Port Graham	52.6	11.1	24.2%	2.8	25.0%	4.1	37.5%	1.4	12.5%	0.0	0.0%	1.4	12.5%	1.4	12.5%	0.0	0.0%	0.0	0.0%	1.4	12.5%
Kodiak Island	Akhiok	15.0	2.7	28.6%	2.7	100.0%	1.4	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Karluk	15.0	6.4	60.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.4	100.0%
	Larsen Bay	22.3	1.2	7.7%	1.2	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	70.2	16.1	24.4%	0.0	0.0%	8.8	54.5%	2.9	18.2%	0.0	0.0%	1.5	9.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.4	27.3%
	Ouzinkie	66.3	1.4	2.4%	0.0	0.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Port Lions	61.8	2.6	5.7%	0.0	0.0%	1.3	50.0%	1.3	50.0%	1.3	50.0%	0.0	0.0%	1.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Prince William Sound	Chenega Bay	13.8	1.3	10.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Cordova	680.1	97.9	15.6%	19.1	19.5%	17.4	17.7%	3.1	3.2%	11.1	11.3%	0.0	0.0%	3.1	3.2%	11.1	11.3%	0.0	0.0%	44.1	45.0%
	Tatitlek	24.8	17.3	72.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	17.3	100.0%

* Percentages are based on total households giving a valid response to change in harvestand use of resources compared to before the oil spill.

** Percentages may not add to 100% because multiple reasons were permitted.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-34. Household Assessment of Change in Harvest and Use of Marine Invertebrates, 2003 Study Year Compared to Year Before the *Exxon Valdez* Oil Spill

Region	Community	Estimated Households	Change Compared to Year Before the *Exxon Valdez* Oil Spill (1988)											
			No Response		Not In Community		Valid Responses		More		Same		Less	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	29	6.6	22.7%	7.9	27.3%	14.5	50.0%	0.0	0.0%	4.0	27.3%	10.5	72.7%
	Chignik Lagoon	22	1.4	6.3%	2.8	12.5%	17.9	81.3%	1.4	7.7%	8.3	46.2%	8.3	46.2%
	Chignik Lake	31	7.4	23.8%	3.0	9.5%	20.7	66.7%	3.0	14.3%	7.4	35.7%	10.3	50.0%
	Perryville	33	3.7	11.1%	2.4	7.4%	26.9	81.5%	2.4	9.1%	12.2	45.5%	12.2	45.5%
Kenai Peninsula	Nanwalek	51	2.3	4.5%	0.0	0.0%	48.7	95.5%	13.9	28.6%	4.6	9.5%	30.1	61.9%
	Port Graham	65	4.1	6.4%	12.4	19.1%	48.4	74.5%	4.1	8.6%	5.5	11.4%	38.7	80.0%
Kodiak Island	Akhiok	15	6.8	45.5%	0.0	0.0%	8.2	54.5%	1.4	16.7%	0.0	0.0%	6.8	83.3%
	Karluk	15	6.4	42.9%	0.0	0.0%	8.6	57.1%	0.0	0.0%	2.1	25.0%	6.4	75.0%
	Larsen Bay	31	12.4	40.0%	8.7	28.0%	9.9	32.0%	0.0	0.0%	5.0	50.0%	5.0	50.0%
	Old Harbor	76	7.3	9.6%	5.8	7.7%	62.8	82.7%	5.8	9.3%	20.5	32.6%	36.5	58.1%
	Ouzinkie	69	12.2	17.6%	2.7	3.9%	54.1	78.4%	2.7	5.0%	36.5	67.5%	14.9	27.5%
	Port Lions	71	11.8	16.7%	9.2	13.0%	50.0	70.4%	2.6	5.3%	6.6	13.2%	40.8	81.6%
Prince William Sound	Chenega Bay	20	5.0	25.0%	6.3	31.3%	8.8	43.8%	0.0	0.0%	3.8	42.9%	5.0	57.1%
	Cordova	910	68.4	7.5%	229.9	25.3%	611.6	67.2%	63.9	10.4%	192.1	31.4%	355.7	58.1%
	Tatitlek	27	1.1	4.0%	2.2	8.0%	23.8	88.0%	2.2	9.1%	3.2	13.6%	18.4	77.3%

Note: 'No Response' includes those who responded 'Don't Know.' 'Not in Community' includes those who did not live in the community during the comparison year.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-35. Reasons for Decreased Harvest and Use of Marine Invertebrates, 2003 Study Year Compared to Year Before the *Exxon Valdez* Oil Spill

Region	Community	Estimated Households	Responses*		Change Compared to Year Before the *Exxon Valdez* Oil Spill (1988)*																	
					Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	21.1	10.5	72.7%	0.0	0.0%	5.3	50.0%	0.0	0.0%	0.0	0.0%	1.3	12.5%	1.3	12.5%	0.0	0.0%	1.3	12.5%	2.6	25.0%
	Chignik Lagoon	19.3	8.3	46.2%	1.4	16.7%	1.4	16.7%	0.0	0.0%	1.4	16.7%	0.0	0.0%	1.4	16.7%	0.0	0.0%	0.0	0.0%	2.8	33.3%
	Chignik Lake	28.0	10.3	50.0%	1.5	14.3%	1.5	14.3%	1.5	14.3%	0.0	0.0%	1.5	14.3%	3.0	28.6%	0.0	0.0%	0.0	0.0%	4.4	42.9%
	Perryville	30.6	12.2	45.5%	1.2	10.0%	4.9	40.0%	2.4	20.0%	0.0	0.0%	3.7	30.0%	1.2	10.0%	0.0	0.0%	0.0	0.0%	3.7	30.0%
Kenai Peninsula	Nanwalek	51.0	30.1	61.9%	7.0	23.1%	9.3	30.8%	2.3	7.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	18.5	61.5%
	Port Graham	52.6	38.7	80.0%	2.8	7.1%	13.8	35.7%	2.8	7.1%	2.8	7.1%	1.4	3.6%	9.7	25.0%	4.1	10.7%	0.0	0.0%	5.5	14.3%
Kodiak Island	Akhiok	15.0	6.8	83.3%	2.7	40.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	20.0%	2.7	40.0%
	Karluk	15.0	6.4	75.0%	2.1	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.3	66.7%
	Larsen Bay	22.3	5.0	50.0%	3.7	75.0%	1.2	25.0%	0.0	0.0%	0.0	0.0%	1.2	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	70.2	36.5	58.1%	14.6	40.0%	4.4	12.0%	0.0	0.0%	0.0	0.0%	1.5	4.0%	4.4	12.0%	0.0	0.0%	0.0	0.0%	11.7	32.0%
	Ouzinkie	66.3	14.9	27.5%	9.5	63.6%	4.1	27.3%	1.4	9.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	5.4	36.4%
	Port Lions	61.8	40.8	81.6%	28.9	71.0%	6.6	16.1%	5.3	12.9%	1.3	3.2%	1.3	3.2%	5.3	12.9%	1.3	3.2%	0.0	0.0%	7.9	19.4%
Prince William Sound	Chenega Bay	13.8	5.0	57.1%	2.5	50.0%	1.3	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Cordova	680.1	355.7	58.1%	36.5	10.3%	57.3	16.1%	27.1	7.6%	16.0	4.5%	16.0	4.5%	27.1	7.6%	59.0	16.6%	0.0	0.0%	148.6	41.8%
	Tatitlek	24.8	18.4	77.3%	1.1	5.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	17.3	94.1%

* Percentages are based on total households giving a valid response to change in harvest and use of resources compared to before the oil spill.

** Percentages may not add to 100% because multiple reasons were permitted.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-36. Oil Spill-Related Reasons for Decreased Harvest and Use of Marine Invertebrates, 2003 Study Year Compared to Year Before the *Exxon Valdez* Oil Spill

Region	Community	Estimated Households	Responses*		Change Compared to Year Before the *Exxon Valdez* Oil Spill (1988)*																	
					Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	21.1	6.6	45.5%	0.0	0.0%	4.0	60.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.6	40.0%
	Chignik Lagoon	19.3	4.1	23.1%	1.4	33.3%	1.4	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	33.3%
	Chignik Lake	28.0	3.0	14.3%	0.0	0.0%	1.5	50.0%	0.0	0.0%	0.0	0.0%	1.5	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Perryville	30.6	3.7	13.6%	1.2	33.3%	1.2	33.3%	2.4	66.7%	0.0	0.0%	1.2	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Kenai Peninsula	Nanwalek	51.0	25.5	52.4%	7.0	27.3%	9.3	36.4%	2.3	9.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	13.9	54.5%
	Port Graham	52.6	6.9	14.3%	1.4	20.0%	5.5	80.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	20.0%
Kodiak Island	Akhiok	15.0	5.5	66.7%	2.7	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	25.0%	1.4	25.0%
	Karluk	15.0	6.4	75.0%	2.1	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.3	66.7%
	Larsen Bay	22.3	3.7	37.5%	3.7	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	70.2	16.1	25.6%	10.2	63.6%	2.9	18.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.9	18.2%
	Ouzinkie	66.3	8.1	15.0%	6.8	83.3%	4.1	50.0%	1.4	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	16.7%
	Port Lions	61.8	9.2	18.4%	9.2	100.0%	2.6	28.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Prince William Sound	Chenega Bay	13.8	5.0	57.1%	2.5	50.0%	1.3	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Cordova	680.1	131.3	21.5%	20.5	15.6%	14.2	10.8%	11.1	8.5%	8.0	6.1%	0.0	0.0%	0.0	0.0%	8.0	6.1%	0.0	0.0%	85.4	65.1%
	Tatitlek	24.8	17.3	72.7%	1.1	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	16.2	93.8%

* Percentages are based on total households giving a valid response to change in harvest and use of resources compared to before the oil spill.

** Percentages may not add to 100% because multiple reasons were permitted.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-37. Household Assessment of Change in Harvest and Use of Large Land Mammals, 2003 Study Year Compared to Year Before the *Exxon Valdez* Oil Spill

Region	Community	Estimated Households	Change Compared to Year Before the *Exxon Valdez* Oil Spill (1988)											
			No Response		Not In Community		Valid Responses		More		Same		Less	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	29	5.3	18.2%	7.9	27.3%	15.8	54.5%	0.0	0.0%	2.6	16.7%	13.2	83.3%
	Chignik Lagoon	22	1.4	6.3%	2.8	12.5%	17.9	81.3%	4.1	23.1%	4.1	23.1%	9.6	53.8%
	Chignik Lake	31	5.9	19.0%	3.0	9.5%	22.1	71.4%	3.0	13.3%	7.4	33.3%	11.8	53.3%
	Perryville	33	2.4	7.4%	2.4	7.4%	28.1	85.2%	2.4	8.7%	12.2	43.5%	13.4	47.8%
Kenai Peninsula	Nanwalek	51	16.2	31.8%	0.0	0.0%	34.8	68.2%	9.3	26.7%	13.9	40.0%	11.6	33.3%
	Port Graham	65	9.7	14.9%	12.4	19.1%	42.9	66.0%	6.9	16.1%	26.3	61.3%	9.7	22.6%
Kodiak Island	Akhiok	15	5.5	36.4%	0.0	0.0%	9.5	63.6%	1.4	14.3%	0.0	0.0%	8.2	85.7%
	Karluk	15	4.3	28.6%	0.0	0.0%	10.7	71.4%	0.0	0.0%	0.0	0.0%	10.7	100.0%
	Larsen Bay	31	6.2	20.0%	8.7	28.0%	16.1	52.0%	2.5	15.4%	11.2	69.2%	2.5	15.4%
	Old Harbor	76	11.7	15.4%	5.8	7.7%	58.5	76.9%	5.8	10.0%	26.3	45.0%	26.3	45.0%
	Ouzinkie	69	18.9	27.5%	2.7	3.9%	47.4	68.6%	1.4	2.9%	39.2	82.9%	6.8	14.3%
	Port Lions	71	13.1	18.5%	9.2	13.0%	48.6	68.5%	2.6	5.4%	18.4	37.8%	27.6	56.8%
Prince William Sound	Chenega Bay	20	2.5	12.5%	6.3	31.3%	11.3	56.3%	1.3	11.1%	7.5	66.7%	2.5	22.2%
	Cordova	910	71.5	7.9%	229.9	25.3%	608.5	66.9%	73.3	12.0%	328.9	54.1%	206.3	33.9%
	Tatitlek	27	2.2	8.0%	2.2	8.0%	22.7	84.0%	1.1	4.8%	6.5	28.6%	15.1	66.7%

Note: 'No Response' includes those who responded 'Don't Know.' 'Not in Community' includes those who did not live in the community during the comparison year.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-38. Reasons for Decreased Harvest and Use of Large Land Mammals, 2003 Study Year Compared to Year Before the *Exxon Valdez* Oil Spill

Region	Community	Estimated Households	Responses*		Change Compared to Year Before the *Exxon Valdez* Oil Spill (1988)**: Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	21.1	13.2	83.3%	1.3	10.0%	7.9	60.0%	0.0	0.0%	1.3	10.0%	0.0	0.0%	5.3	40.0%	0.0	0.0%	0.0	0.0%	1.3	10.0%
	Chignik Lagoon	19.3	9.6	53.8%	1.4	14.3%	1.4	14.3%	1.4	14.3%	0.0	0.0%	0.0	0.0%	2.8	28.6%	0.0	0.0%	0.0	0.0%	4.1	42.9%
	Chignik Lake	28.0	11.8	53.3%	0.0	0.0%	4.4	37.5%	1.5	12.5%	1.5	12.5%	1.5	12.5%	3.0	25.0%	0.0	0.0%	0.0	0.0%	3.0	25.0%
	Perryville	30.6	13.4	47.8%	0.0	0.0%	4.9	36.4%	2.4	18.2%	0.0	0.0%	3.7	27.3%	3.7	27.3%	0.0	0.0%	0.0	0.0%	3.7	27.3%
Kenai Peninsula	Nanwalek	51.0	11.6	33.3%	2.3	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	20.0%	0.0	0.0%	0.0	0.0%	7.0	60.0%
	Port Graham	52.6	9.7	22.6%	1.4	14.3%	1.4	14.3%	1.4	14.3%	1.4	14.3%	1.4	14.3%	2.8	28.6%	1.4	14.3%	0.0	0.0%	0.0	0.0%
Kodiak Island	Akhiok	15.0	8.2	85.7%	1.4	16.7%	2.7	33.3%	2.7	33.3%	0.0	0.0%	1.4	16.7%	1.4	16.7%	0.0	0.0%	0.0	0.0%	2.7	33.3%
	Karluk	15.0	10.7	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	10.7	100.0%
	Larsen Bay	22.3	2.5	15.4%	0.0	0.0%	1.2	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	70.2	26.3	45.0%	1.5	5.6%	1.5	5.6%	4.4	16.7%	0.0	0.0%	1.5	5.6%	11.7	44.4%	0.0	0.0%	0.0	0.0%	7.3	27.8%
	Ouzinkie	66.3	6.8	14.3%	0.0	0.0%	1.4	20.0%	0.0	0.0%	1.4	20.0%	1.4	20.0%	1.4	20.0%	0.0	0.0%	0.0	0.0%	1.4	20.0%
	Port Lions	61.8	27.6	56.8%	2.6	9.5%	0.0	0.0%	2.6	9.5%	1.3	4.8%	2.6	9.5%	6.6	23.8%	2.6	9.5%	0.0	0.0%	14.5	52.4%
Prince William Sound	Chenega Bay	13.8	2.5	22.2%	1.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Cordova	680.1	206.3	33.9%	6.3	3.0%	0.0	0.0%	9.4	4.5%	0.0	0.0%	19.1	9.3%	46.2	22.4%	51.1	24.7%	0.0	0.0%	85.4	41.4%
	Tatitlek	24.8	15.1	66.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	15.1	100.0%

* Percentages are based on total households giving a valid response to change in harvest and use of resources compared to before the oil spill.

** Percentages may not add to 100% because multiple reasons were permitted.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-39. Oil Spill-Related Reasons for Decreased Harvest and Use of Large Land Mammals, 2003 Study Year Compared to Year Before the *Exxon Valdez* Oil Spill

Region	Community	Estimated Households	Responses*		Change Compared to Year Before the *Exxon Valdez* Oil Spill (1988)**: Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	21.1	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Chignik Lagoon	19.3	1.4	7.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Chignik Lake	28.0	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Perryville	30.6	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Kenai Peninsula	Nanwalek	51.0	9.3	26.7%	2.3	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	25.0%	0.0	0.0%	0.0	0.0%	4.6	50.0%
	Port Graham	52.6	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Kodiak Island	Akhiok	15.0	2.7	28.6%	1.4	50.0%	1.4	50.0%	1.4	50.0%	0.0	0.0%	1.4	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Karluk	15.0	6.4	60.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.4	100.0%
	Larsen Bay	22.3	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	70.2	2.9	5.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	50.0%	0.0	0.0%	0.0	0.0%	1.5	50.0%
	Ouzinkie	66.3	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Port Lions	61.8	3.9	8.1%	1.3	33.3%	0.0	0.0%	2.6	66.7%	1.3	33.3%	0.0	0.0%	1.3	33.3%	0.0	0.0%	0.0	0.0%	1.3	33.3%
Prince William Sound	Chenega Bay	13.8	2.5	22.2%	1.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Cordova	680.1	52.1	8.6%	6.3	12.0%	0.0	0.0%	6.3	12.0%	0.0	0.0%	3.1	6.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	39.6	76.0%
	Tatitlek	24.8	11.9	52.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	11.9	100.0%

* Percentages are based on total households giving a valid response to change in harvest and use of resources compared to before the oil spill.

** Percentages may not add to 100% because multiple reasons were permitted.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-40. Household Assessment of Change in Harvest and Use of Small Game and Furbearers, 2003 Study Year Compared to Year Before the *Exxon Valdez* Oil Spill

Region	Community	Estimated Households	Change Compared to Year Before the *Exxon Valdez* Oil Spill (1988)											
			No Response		Not In Community		Valid Responses		More		Same		Less	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	29	13.2	45.5%	7.9	27.3%	7.9	27.3%	1.3	16.7%	5.3	66.7%	1.3	16.7%
	Chignik Lagoon	22	6.9	31.3%	2.8	12.5%	12.4	56.3%	0.0	0.0%	6.9	55.6%	5.5	44.4%
	Chignik Lake	31	25.1	81.0%	3.0	9.5%	3.0	9.5%	0.0	0.0%	1.5	50.0%	1.5	50.0%
	Perryville	33	9.8	29.6%	2.4	7.4%	20.8	63.0%	0.0	0.0%	9.8	47.1%	11.0	52.9%
Kenai Peninsula	Nanwalek	51	30.1	59.1%	0.0	0.0%	20.9	40.9%	2.3	11.1%	18.5	88.9%	0.0	0.0%
	Port Graham	65	11.1	17.0%	12.4	19.1%	41.5	63.8%	1.4	3.3%	31.8	76.7%	8.3	20.0%
Kodiak Island	Akhiok	15	15.0	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Karluk	15	15.0	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Larsen Bay	31	19.8	64.0%	8.7	28.0%	2.5	8.0%	0.0	0.0%	2.5	100.0%	0.0	0.0%
	Old Harbor	76	51.2	67.3%	5.8	7.7%	19.0	25.0%	0.0	0.0%	16.1	84.6%	2.9	15.4%
	Ouzinkie	69	55.5	80.4%	2.7	3.9%	10.8	15.7%	1.4	12.5%	8.1	75.0%	1.4	12.5%
	Port Lions	71	48.6	68.5%	9.2	13.0%	13.1	18.5%	1.3	10.0%	7.9	60.0%	3.9	30.0%
Prince William Sound	Chenega Bay	20	12.5	62.5%	6.3	31.3%	1.3	6.3%	0.0	0.0%	1.3	100.0%	0.0	0.0%
	Cordova	910	175.1	19.2%	229.9	25.3%	505.0	55.5%	63.9	12.7%	314.3	62.2%	126.8	25.1%
	Tatitlek	27	23.8	88.0%	2.2	8.0%	1.1	4.0%	0.0	0.0%	1.1	100.0%	0.0	0.0%

Note: 'No Response' includes those who responded 'Don't Know.' 'Not in Community' includes those who did not live in the community during the comparison year.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-41. Reasons for Decreased Harvest and Use of Small Game and Furbearers, 2003 Study Year Compared to Year Before the *Exxon Valdez* Oil Spill

Region	Community	Estimated Households	Responses*		Change Compared to Year Before the *Exxon Valdez* Oil Spill (1988)**																	
					Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	21.1	1.3	16.7%	0.0	0.0%	1.3	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Chignik Lagoon	19.3	5.5	44.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	25.0%	1.4	25.0%	0.0	0.0%	2.8	50.0%
	Chignik Lake	28.0	1.5	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	100.0%
	Perryville	30.6	11.0	52.9%	0.0	0.0%	1.2	11.1%	1.2	11.1%	0.0	0.0%	3.7	33.3%	3.7	33.3%	0.0	0.0%	0.0	0.0%	4.9	44.4%
Kenai Peninsula	Nanwalek	51.0	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Port Graham	52.6	8.3	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.8	33.3%	0.0	0.0%	2.8	33.3%	0.0	0.0%	0.0	0.0%	2.8	33.3%
Kodiak Island	Akhiok	15.0	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Karluk	15.0	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Larsen Bay	22.3	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	70.2	2.9	15.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	50.0%	0.0	0.0%	0.0	0.0%	1.5	50.0%
	Ouzinkie	66.3	1.4	12.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%
	Port Lions	61.8	3.9	30.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	33.3%	0.0	0.0%	0.0	0.0%	2.6	66.7%
Prince William Sound	Chenega Bay	13.8	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Cordova	680.1	126.8	25.1%	0.0	0.0%	11.1	8.8%	8.0	6.3%	8.0	6.3%	6.3	4.9%	11.1	8.8%	38.2	30.1%	0.0	0.0%	55.2	43.6%
	Tatitlek	24.8	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

* Percentages are based on total households giving a valid response to change in harvest and use of resources compared to before the oil spill.

** Percentages may not add to 100% because multiple reasons were permitted.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-42. Oil Spill-Related Reasons for Decreased Harvest and Use of Small Game and Furbearers, 2003 Study Year Compared to Year Before the *Exxon Valdez* Oil Spill

Region	Community	Estimated Households	Responses*		Change Compared to Year Before the *Exxon Valdez* Oil Spill (1988)**																	
					Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	21.1	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Chignik Lagoon	19.3	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Chignik Lake	28.0	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Perryville	30.6	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Kenai Peninsula	Nanwalek	51.0	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Port Graham	52.6	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Kodiak Island	Akhiok	15.0	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Karluk	15.0	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Larsen Bay	22.3	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	70.2	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Ouzinkie	66.3	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Port Lions	61.8	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Prince William Sound	Chenega Bay	13.8	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Cordova	680.1	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Tatitlek	24.8	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

* Percentages are based on total households giving a valid response to change in harvest and use of resources compared to before the oil spill.

** Percentages may not add to 100% because multiple reasons were permitted.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-43. Household Assessment of Change in Harvest and Use of Marine Mammals, 2003 Study Year Compared to Year Before the *Exxon Valdez* Oil Spill

Region	Community	Estimated Households	Change Compared to Year Before the *Exxon Valdez* Oil Spill (1988)											
			No Response		Not In Community		Valid Responses		More		Same		Less	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	29	7.9	27.3%	7.9	27.3%	13.2	45.5%	1.3	10.0%	6.6	50.0%	5.3	40.0%
	Chignik Lagoon	22	9.6	43.8%	2.8	12.5%	9.6	43.8%	0.0	0.0%	2.8	28.6%	6.9	71.4%
	Chignik Lake	31	7.4	23.8%	3.0	9.5%	20.7	66.7%	1.5	7.1%	13.3	64.3%	5.9	28.6%
	Perryville	33	3.7	11.1%	2.4	7.4%	26.9	81.5%	1.2	4.5%	12.2	45.5%	13.4	50.0%
Kenai Peninsula	Nanwalek	51	7.0	13.6%	0.0	0.0%	44.0	86.4%	4.6	10.5%	11.6	26.3%	27.8	63.2%
	Port Graham	65	5.5	8.5%	12.4	19.1%	47.0	72.3%	9.7	20.6%	19.4	41.2%	18.0	38.2%
Kodiak Island	Akhiok	15	6.8	45.5%	0.0	0.0%	8.2	54.5%	0.0	0.0%	4.1	50.0%	4.1	50.0%
	Karluk	15	2.1	14.3%	0.0	0.0%	12.9	85.7%	0.0	0.0%	2.1	16.7%	10.7	83.3%
	Larsen Bay	31	14.9	48.0%	8.7	28.0%	7.4	24.0%	0.0	0.0%	7.4	100.0%	0.0	0.0%
	Old Harbor	76	11.7	15.4%	5.8	7.7%	58.5	76.9%	5.8	10.0%	19.0	32.5%	33.6	57.5%
	Ouzinkie	69	39.2	56.9%	2.7	3.9%	27.1	39.2%	4.1	15.0%	17.6	65.0%	5.4	20.0%
	Port Lions	71	46.0	64.8%	9.2	13.0%	15.8	22.2%	2.6	16.7%	9.2	58.3%	3.9	25.0%
Prince William Sound	Chenega Bay	20	2.5	12.5%	6.3	31.3%	11.3	56.3%	1.3	11.1%	5.0	44.4%	5.0	44.4%
	Cordova	910	309.5	34.0%	229.9	25.3%	370.6	40.7%	6.3	1.7%	292.1	78.8%	72.2	19.5%
	Tatitlek	27	2.2	8.0%	2.2	8.0%	22.7	84.0%	2.2	9.5%	1.1	4.8%	19.4	85.7%

Note: 'No Response' includes those who responded 'Don't Know.' 'Not in Community' includes those who did not live in the community during the comparison year.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-44. Reasons for Decreased Harvest and Use of Marine Mammals, 2003 Study Year Compared to Year Before the *Exxon Valdez* Oil Spill

Region	Community	Estimated Households	Responses*		Change Compared to Year Before the *Exxon Valdez* Oil Spill (1988)**: Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	21.1	5.3	40.0%	0.0	0.0%	1.3	25.0%	1.3	25.0%	0.0	0.0%	0.0	0.0%	1.3	25.0%	0.0	0.0%	0.0	0.0%	1.3	25.0%
	Chignik Lagoon	19.3	6.9	71.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	20.0%	1.4	20.0%	0.0	0.0%	4.1	60.0%
	Chignik Lake	28.0	5.9	28.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	25.0%	1.5	25.0%	0.0	0.0%	3.0	50.0%
	Perryville	30.6	13.4	50.0%	0.0	0.0%	7.3	54.5%	2.4	18.2%	0.0	0.0%	3.7	27.3%	1.2	9.1%	0.0	0.0%	0.0	0.0%	3.7	27.3%
Kenai Peninsula	Nanwalek	51.0	27.8	63.2%	2.3	8.3%	2.3	8.3%	2.3	8.3%	2.3	8.3%	4.6	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	16.2	58.3%
	Port Graham	52.6	18.0	38.2%	2.8	15.4%	5.5	30.8%	0.0	0.0%	1.4	7.7%	0.0	0.0%	4.1	23.1%	2.8	15.4%	0.0	0.0%	2.8	15.4%
Kodiak Island	Akhiok	15.0	4.1	50.0%	0.0	0.0%	1.4	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.7	66.7%	0.0	0.0%	1.4	33.3%
	Karluk	15.0	10.7	83.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	10.7	100.0%
	Larsen Bay	22.3	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	70.2	33.6	57.5%	5.8	17.4%	8.8	26.1%	0.0	0.0%	0.0	0.0%	1.5	4.3%	2.9	8.7%	0.0	0.0%	0.0	0.0%	16.1	47.8%
	Ouzinkie	66.3	5.4	20.0%	0.0	0.0%	2.7	50.0%	0.0	0.0%	0.0	0.0%	1.4	25.0%	1.4	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Port Lions	61.8	3.9	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	33.3%	2.6	66.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	33.3%
Prince William Sound	Chenega Bay	13.8	5.0	44.4%	1.3	25.0%	2.5	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	25.0%
	Cordova	680.1	72.2	19.5%	3.1	4.3%	6.3	8.7%	0.0	0.0%	3.1	4.3%	0.0	0.0%	6.3	8.7%	3.1	4.3%	0.0	0.0%	50.4	69.7%
	Tatitlek	24.8	19.4	85.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	19.4	100.0%

* Percentages are based on total households giving a valid response to change in harvest and use of resources compared to before the oil spill.

** Percentages may not add to 100% because multiple reasons were permitted.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-45. Oil Spill-Related Reasons for Decreased Harvest and Use of Marine Mammals, 2003 Study Year Compared to Year Before the *Exxon Valdez* Oil Spill

Region	Community	Estimated Households	Responses*		Change Compared to Year Before the *Exxon Valdez* Oil Spill (1988)**: Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	21.1	2.6	20.0%	0.0	0.0%	1.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%
	Chignik Lagoon	19.3	2.8	28.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%
	Chignik Lake	28.0	3.0	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.0	100.0%
	Perryville	30.6	6.1	22.7%	0.0	0.0%	4.9	80.0%	1.2	20.0%	0.0	0.0%	3.7	60.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Kenai Peninsula	Nanwalek	51.0	18.5	42.1%	2.3	12.5%	2.3	12.5%	2.3	12.5%	2.3	12.5%	2.3	12.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	9.3	50.0%
	Port Graham	52.6	5.5	11.8%	1.4	25.0%	4.1	75.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	25.0%
Kodiak Island	Akhiok	15.0	1.4	16.7%	0.0	0.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%
	Karluk	15.0	10.7	83.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	10.7	100.0%
	Larsen Bay	22.3	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	70.2	17.5	30.0%	4.4	25.0%	4.4	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	8.3%	0.0	0.0%	0.0	0.0%	8.8	50.0%
	Ouzinkie	66.3	1.4	5.0%	0.0	0.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Port Lions	61.8	1.3	8.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%
Prince William Sound	Chenega Bay	13.8	3.8	33.3%	1.3	33.3%	1.3	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	33.3%
	Cordova	680.1	31.3	8.4%	3.1	10.0%	6.3	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	21.9	70.0%
	Tatitlek	24.8	15.1	66.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	15.1	100.0%

* Percentages are based on total households giving a valid response to change in harvest and use of resources compared to before the oil spill.

** Percentages may not add to 100% because multiple reasons were permitted.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-46. Household Assessment of Change in Harvest and Use of Birds and Eggs, 2003 Study Year Compared to Year Before the *Exxon Valdez* Oil Spill

Region	Community	Estimated Households	Change Compared to Year Before the *Exxon Valdez* Oil Spill (1988)											
			No Response		Not In Community		Valid Responses		More		Same		Less	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	29	6.6	22.7%	7.9	27.3%	14.5	50.0%	1.3	9.1%	7.9	54.5%	5.3	36.4%
	Chignik Lagoon	22	4.1	18.8%	2.8	12.5%	15.1	68.8%	0.0	0.0%	5.5	36.4%	9.6	63.6%
	Chignik Lake	31	7.4	23.8%	3.0	9.5%	20.7	66.7%	1.5	7.1%	13.3	64.3%	5.9	28.6%
	Perryville	33	2.4	7.4%	2.4	7.4%	28.1	85.2%	2.4	8.7%	14.7	52.2%	11.0	39.1%
Kenai Peninsula	Nanwalek	51	7.0	13.6%	0.0	0.0%	44.0	86.4%	7.0	15.8%	13.9	31.6%	23.2	52.6%
	Port Graham	65	9.7	14.9%	12.4	19.1%	42.9	66.0%	2.8	6.5%	16.6	38.7%	23.5	54.8%
Kodiak Island	Akhiok	15	5.5	36.4%	0.0	0.0%	9.5	63.6%	0.0	0.0%	2.7	28.6%	6.8	71.4%
	Karluk	15	6.4	42.9%	0.0	0.0%	8.6	57.1%	0.0	0.0%	2.1	25.0%	6.4	75.0%
	Larsen Bay	31	16.1	52.0%	8.7	28.0%	6.2	20.0%	1.2	20.0%	3.7	60.0%	1.2	20.0%
	Old Harbor	76	21.9	28.8%	5.8	7.7%	48.2	63.5%	2.9	6.1%	20.5	42.4%	24.8	51.5%
	Ouzinkie	69	21.6	31.4%	2.7	3.9%	44.6	64.7%	13.5	30.3%	21.6	48.5%	9.5	21.2%
	Port Lions	71	23.7	33.3%	9.2	13.0%	38.1	53.7%	2.6	6.9%	17.1	44.8%	18.4	48.3%
Prince William Sound	Chenega Bay	20	7.5	37.5%	6.3	31.3%	6.3	31.3%	0.0	0.0%	5.0	80.0%	1.3	20.0%
	Cordova	910	156.0	17.1%	229.9	25.3%	524.1	57.6%	71.9	13.7%	287.2	54.8%	165.0	31.5%
	Tatitlek	27	14.0	52.0%	2.2	8.0%	10.8	40.0%	0.0	0.0%	2.2	20.0%	8.6	80.0%

Note: 'No Response' includes those who responded 'Don't Know.' 'Not in Community' includes those who did not live in the community during the comparison year.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-47. Reasons for Decreased Harvest and Use of Birds and Eggs, 2003 Study Year Compared to Year Before the *Exxon Valdez* Oil Spill

Region	Community	Estimated Households	Responses*		Change Compared to Year Before the *Exxon Valdez* Oil Spill (1988)**																	
					Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	21.1	5.3	36.4%	1.3	25.0%	0.0	0.0%	1.3	25.0%	1.3	25.0%	0.0	0.0%	2.6	50.0%	0.0	0.0%	0.0	0.0%	1.3	25.0%
	Chignik Lagoon	19.3	9.6	63.6%	0.0	0.0%	2.8	28.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.8	28.6%	0.0	0.0%	0.0	0.0%	4.1	42.9%
	Chignik Lake	28.0	5.9	28.6%	0.0	0.0%	1.5	25.0%	0.0	0.0%	1.5	25.0%	0.0	0.0%	1.5	25.0%	0.0	0.0%	0.0	0.0%	1.5	25.0%
	Perryville	30.6	11.0	39.1%	3.7	33.3%	3.7	33.3%	0.0	0.0%	1.2	11.1%	2.4	22.2%	2.4	22.2%	3.7	33.3%	0.0	0.0%	1.2	11.1%
Kenai Peninsula	Nanwalek	51.0	23.2	52.6%	0.0	0.0%	2.3	10.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	20.9	90.0%
	Port Graham	52.6	23.5	54.8%	1.4	5.9%	0.0	0.0%	0.0	0.0%	1.4	5.9%	5.5	23.5%	6.9	29.4%	4.1	17.6%	0.0	0.0%	6.9	29.4%
Kodiak Island	Akhiok	15.0	6.8	71.4%	1.4	20.0%	0.0	0.0%	0.0	0.0%	1.4	20.0%	0.0	0.0%	1.4	20.0%	0.0	0.0%	0.0	0.0%	2.7	40.0%
	Karluk	15.0	6.4	75.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.4	100.0%
	Larsen Bay	22.3	1.2	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	70.2	24.8	51.5%	4.4	17.6%	5.8	23.5%	0.0	0.0%	0.0	0.0%	2.9	11.8%	7.3	29.4%	0.0	0.0%	0.0	0.0%	8.8	35.3%
	Ouzinkie	66.3	9.5	21.2%	1.4	14.3%	1.4	14.3%	1.4	14.3%	2.7	28.6%	0.0	0.0%	1.4	14.3%	0.0	0.0%	0.0	0.0%	2.7	28.6%
	Port Lions	61.8	18.4	48.3%	0.0	0.0%	1.3	7.1%	0.0	0.0%	3.9	21.4%	1.3	7.1%	6.6	35.7%	1.3	7.1%	0.0	0.0%	5.3	28.6%
Prince William Sound	Chenega Bay	13.8	1.3	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%
	Cordova	680.1	165.0	31.5%	3.1	1.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	14.2	8.6%	27.1	16.4%	68.4	41.5%	3.1	1.9%	64.9	39.4%
	Tatitlek	24.8	8.6	80.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.6	100.0%

* Percentages are based on total households giving a valid response to change in harvest and use of resources compared to before the oil spill.

** Percentages may not add to 100% because multiple reasons were permitted.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-48. Oil Spill-Related Reasons for Decreased Harvest and Use of Birds and Eggs, 2003 Study Year Compared to Year Before the *Exxon Valdez* Oil Spill

Region	Community	Estimated Households	Responses*		Change Compared to Year Before the *Exxon Valdez* Oil Spill (1988)**																	
					Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	21.1	2.6	18.2%	1.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%
	Chignik Lagoon	19.3	4.1	27.3%	0.0	0.0%	2.8	66.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	33.3%
	Chignik Lake	28.0	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Perryville	30.6	6.1	21.7%	3.7	60.0%	2.4	40.0%	0.0	0.0%	0.0	0.0%	2.4	40.0%	1.2	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Kenai Peninsula	Nanwalek	51.0	13.9	31.6%	0.0	0.0%	2.3	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	11.6	83.3%
	Port Graham	52.6	5.5	12.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	25.0%	1.4	25.0%	0.0	0.0%	2.8	50.0%
Kodiak Island	Akhiok	15.0	1.4	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%
	Karluk	15.0	6.4	75.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.4	100.0%
	Larsen Bay	22.3	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	70.2	11.7	24.2%	4.4	37.5%	2.9	25.0%	0.0	0.0%	0.0	0.0%	1.5	12.5%	1.5	12.5%	0.0	0.0%	0.0	0.0%	2.9	25.0%
	Ouzinkie	66.3	4.1	9.1%	1.4	33.3%	1.4	33.3%	0.0	0.0%	1.4	33.3%	0.0	0.0%	1.4	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Port Lions	61.8	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Prince William Sound	Chenega Bay	13.8	1.3	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%
	Cordova	680.1	37.9	7.2%	3.1	8.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.3	16.5%	0.0	0.0%	3.1	8.3%	3.1	8.3%	22.2	58.7%
	Tatitlek	24.8	8.6	80.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.6	100.0%

* Percentages are based on total households giving a valid response to change in harvest and use of resources compared to before the oil spill.

** Percentages may not add to 100% because multiple reasons were permitted.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-49. Household Assessment of Change in Harvest and Use of Wild Plants, 2003 Study Year Compared to Year Before the *Exxon Valdez* Oil Spill

Region	Community	Estimated Households	Change Compared to Year Before the *Exxon Valdez* Oil Spill (1988)											
			No Response		Not In Community		Valid Responses		More		Same		Less	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	29	6.6	22.7%	7.9	27.3%	14.5	50.0%	4.0	27.3%	6.6	45.5%	4.0	27.3%
	Chignik Lagoon	22	2.8	12.5%	2.8	12.5%	16.5	75.0%	2.8	16.7%	11.0	66.7%	2.8	16.7%
	Chignik Lake	31	7.4	23.8%	3.0	9.5%	20.7	66.7%	4.4	21.4%	10.3	50.0%	5.9	28.6%
	Perryville	33	2.4	7.4%	2.4	7.4%	28.1	85.2%	3.7	13.0%	13.4	47.8%	11.0	39.1%
Kenai Peninsula	Nanwalek	51	2.3	4.5%	0.0	0.0%	48.7	95.5%	11.6	23.8%	16.2	33.3%	20.9	42.9%
	Port Graham	65	5.5	8.5%	12.4	19.1%	47.0	72.3%	6.9	14.7%	13.8	29.4%	26.3	55.9%
Kodiak Island	Akhiok	15	5.5	36.4%	0.0	0.0%	9.5	63.6%	1.4	14.3%	6.8	71.4%	1.4	14.3%
	Karluk	15	4.3	28.6%	0.0	0.0%	10.7	71.4%	0.0	0.0%	2.1	20.0%	8.6	80.0%
	Larsen Bay	31	6.2	20.0%	8.7	28.0%	16.1	52.0%	0.0	0.0%	12.4	76.9%	3.7	23.1%
	Old Harbor	76	4.4	5.8%	5.8	7.7%	65.8	86.5%	2.9	4.4%	48.2	73.3%	14.6	22.2%
	Ouzinkie	69	6.8	9.8%	2.7	3.9%	59.5	86.3%	6.8	11.4%	48.7	81.8%	4.1	6.8%
	Port Lions	71	13.1	18.5%	9.2	13.0%	48.6	68.5%	6.6	13.5%	26.3	54.1%	15.8	32.4%
Prince William Sound	Chenega Bay	20	1.3	6.3%	6.3	31.3%	12.5	62.5%	2.5	20.0%	8.8	70.0%	1.3	10.0%
	Cordova	910	84.4	9.3%	229.9	25.3%	595.7	65.5%	76.4	12.8%	323.7	54.3%	195.5	32.8%
	Tatitlek	27	4.3	16.0%	2.2	8.0%	20.5	76.0%	2.2	10.5%	9.7	47.4%	8.6	42.1%

Note: 'No Response' includes those who responded 'Don't Know.' 'Not in Community' includes those who did not live in the community during the comparison year.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-50. Reasons for Decreased Harvest and Use of Wild Plants, 2003 Study Year Compared to Year Before the *Exxon Valdez* Oil Spill

Region	Community	Estimated Households	Responses*		Change Compared to Year Before the *Exxon Valdez* Oil Spill (1988)**																	
					Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	21.1	4.0	27.3%	0.0	0.0%	1.3	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.6	66.7%	1.3	33.3%
	Chignik Lagoon	19.3	2.8	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%
	Chignik Lake	28.0	5.9	28.6%	0.0	0.0%	1.5	25.0%	0.0	0.0%	1.5	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.0	50.0%
	Perryville	30.6	11.0	39.1%	0.0	0.0%	1.2	11.1%	1.2	11.1%	0.0	0.0%	3.7	33.3%	2.4	22.2%	0.0	0.0%	0.0	0.0%	4.9	44.4%
Kenai Peninsula	Nanwalek	51.0	20.9	42.9%	2.3	11.1%	4.6	22.2%	2.3	11.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	13.9	66.7%
	Port Graham	52.6	26.3	55.9%	2.8	10.5%	6.9	26.3%	4.1	15.8%	1.4	5.3%	2.8	10.5%	4.1	15.8%	2.8	10.5%	0.0	0.0%	2.8	10.5%
Kodiak Island	Akhiok	15.0	1.4	14.3%	0.0	0.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Karluk	15.0	8.6	80.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.6	100.0%
	Larsen Bay	22.3	3.7	23.1%	0.0	0.0%	1.2	33.3%	0.0	0.0%	0.0	0.0%	2.5	66.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	70.2	14.6	22.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	10.0%	7.3	50.0%	0.0	0.0%	0.0	0.0%	5.8	40.0%
	Ouzinkie	66.3	4.1	6.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	33.3%	2.7	66.7%	1.4	33.3%	0.0	0.0%	0.0	0.0%
	Port Lions	61.8	15.8	32.4%	0.0	0.0%	1.3	8.3%	0.0	0.0%	2.6	16.7%	0.0	0.0%	6.6	41.7%	0.0	0.0%	0.0	0.0%	5.3	33.3%
Prince William Sound	Chenega Bay	13.8	1.3	10.0%	0.0	0.0%	1.3	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Cordova	680.1	195.5	32.8%	8.0	4.1%	6.3	3.2%	6.3	3.2%	24.0	12.3%	19.1	9.8%	19.1	9.8%	67.0	34.3%	0.0	0.0%	60.1	30.7%
	Tatitlek	24.8	8.6	42.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.6	100.0%

* Percentages are based on total households giving a valid response to change in harvest and use of resources compared to before the oil spill.

** Percentages may not add to 100% because multiple reasons were permitted.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-51. Oil Spill-Related Reasons for Decreased Harvest and Use of Wild Plants, 2003 Study Year Compared to Year Before the *Exxon Valdez* Oil Spill

Region	Community	Estimated Households	Responses*		Change Compared to Year Before the *Exxon Valdez* Oil Spill (1988)**																	
					Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	21.1	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Chignik Lagoon	19.3	1.4	8.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%
	Chignik Lake	28.0	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Perryville	30.6	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Kenai Peninsula	Nanwalek	51.0	7.0	14.3%	2.3	33.3%	2.3	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.6	66.7%
	Port Graham	52.6	1.4	2.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Kodiak Island	Akhiok	15.0	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Karluk	15.0	6.4	60.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.4	100.0%
	Larsen Bay	22.3	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	70.2	2.9	4.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.9	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Ouzinkie	66.3	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Port Lions	61.8	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Prince William Sound	Chenega Bay	13.8	1.3	10.0%	0.0	0.0%	1.3	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Cordova	680.1	25.4	4.3%	8.0	31.5%	3.1	12.3%	3.1	12.3%	8.0	31.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	14.2	56.2%
	Tatitlek	24.8	1.1	5.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.1	100.0%

* Percentages are based on total households giving a valid response to change in harvest and use of resources compared to before the oil spill.

** Percentages may not add to 100% because multiple reasons were permitted.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-52. Household Assessment of Change in Overall Harvest and Use, 2003 Study Year Compared to Year Before the *Exxon Valdez* Oil Spill

Region	Community	Estimated Households	Change Compared to Year Before the Exxon Valdez Oil Spill (1988)											
			No Response		Not In Community		Valid Responses		More		Same		Less	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	29	5.3	18.2%	7.9	27.3%	15.8	54.5%	1.3	8.3%	6.6	41.7%	7.9	50.0%
	Chignik Lagoon	22	0.0	0.0%	2.8	12.5%	19.3	87.5%	2.8	14.3%	2.8	14.3%	13.8	71.4%
	Chignik Lake	31	5.9	19.0%	3.0	9.5%	22.1	71.4%	5.9	26.7%	7.4	33.3%	8.9	40.0%
	Perryville	33	3.7	11.1%	2.4	7.4%	26.9	81.5%	6.1	22.7%	6.1	22.7%	14.7	54.5%
Kenai Peninsula	Nanwalek	51	4.6	9.1%	0.0	0.0%	46.4	90.9%	13.9	30.0%	11.6	25.0%	20.9	45.0%
	Port Graham	65	4.1	6.4%	12.4	19.1%	48.4	74.5%	6.9	14.3%	5.5	11.4%	36.0	74.3%
Kodiak Island	Akhiok	15	5.5	36.4%	0.0	0.0%	9.5	63.6%	1.4	14.3%	1.4	14.3%	6.8	71.4%
	Karluk	15	4.3	28.6%	0.0	0.0%	10.7	71.4%	0.0	0.0%	4.3	40.0%	6.4	60.0%
	Larsen Bay	31	2.5	8.0%	8.7	28.0%	19.8	64.0%	1.2	6.3%	16.1	81.3%	2.5	12.5%
	Old Harbor	76	4.4	5.8%	5.8	7.7%	65.8	86.5%	5.8	8.9%	24.8	37.8%	35.1	53.3%
	Ouzinkie	69	5.4	7.8%	2.7	3.9%	60.9	88.2%	5.4	8.9%	47.4	77.8%	8.1	13.3%
	Port Lions	71	9.2	13.0%	9.2	13.0%	52.6	74.1%	7.9	15.0%	19.7	37.5%	25.0	47.5%
Prince William Sound	Chenega Bay	20	0.0	0.0%	6.3	31.3%	13.8	68.8%	1.3	9.1%	8.8	63.6%	3.8	27.3%
	Cordova	910	41.3	4.5%	229.9	25.3%	638.7	70.2%	122.6	19.2%	226.8	35.5%	289.3	45.3%
	Tatitlek	27	0.0	0.0%	2.2	8.0%	24.8	92.0%	0.0	0.0%	3.2	13.0%	21.6	87.0%

Note: 'No Response' includes those who responded 'Don't Know.' 'Not in Community' includes those who did not live in the community during the comparison year.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-53. Reasons for Decreased Harvest and Use of Overall Resources, 2003 Study Year Compared to Year Before the *Exxon Valdez* Oil Spill

Region	Community	Estimated Households	Responses*		Change Compared to Year Before the *Exxon Valdez* Oil Spill (1988)**																	
					Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	21.1	7.9	50.0%	0.0	0.0%	5.3	66.7%	0.0	0.0%	0.0	0.0%	1.3	16.7%	1.3	16.7%	0.0	0.0%	0.0	0.0%	1.3	16.7%
	Chignik Lagoon	19.3	13.8	71.4%	1.4	10.0%	2.8	20.0%	1.4	10.0%	1.4	10.0%	0.0	0.0%	1.4	10.0%	0.0	0.0%	1.4	10.0%	5.5	40.0%
	Chignik Lake	28.0	8.9	40.0%	0.0	0.0%	3.0	33.3%	0.0	0.0%	1.5	16.7%	3.0	33.3%	3.0	33.3%	0.0	0.0%	0.0	0.0%	1.5	16.7%
	Perryville	30.6	14.7	54.5%	0.0	0.0%	3.7	25.0%	1.2	8.3%	0.0	0.0%	6.1	41.7%	3.7	25.0%	0.0	0.0%	0.0	0.0%	4.9	33.3%
Kenai Peninsula	Nanwalek	51.0	20.9	45.0%	2.3	11.1%	4.6	22.2%	2.3	11.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	13.9	66.7%
	Port Graham	52.6	36.0	74.3%	5.5	15.4%	8.3	23.1%	0.0	0.0%	0.0	0.0%	9.7	26.9%	8.3	23.1%	1.4	3.8%	0.0	0.0%	4.1	11.5%
Kodiak Island	Akhiok	15.0	6.8	71.4%	0.0	0.0%	0.0	0.0%	1.4	20.0%	0.0	0.0%	0.0	0.0%	2.7	40.0%	1.4	20.0%	0.0	0.0%	4.1	60.0%
	Karluk	15.0	6.4	60.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.4	100.0%
	Larsen Bay	22.3	2.5	12.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	50.0%	1.2	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	70.2	35.1	53.3%	7.3	20.8%	7.3	20.8%	0.0	0.0%	0.0	0.0%	1.5	4.2%	11.7	33.3%	0.0	0.0%	0.0	0.0%	13.2	37.5%
	Ouzinkie	66.3	8.1	13.3%	2.7	33.3%	1.4	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.7	33.3%	0.0	0.0%	0.0	0.0%	2.7	33.3%
	Port Lions	61.8	25.0	47.5%	0.0	0.0%	2.6	10.5%	1.3	5.3%	3.9	15.8%	1.3	5.3%	11.8	47.4%	0.0	0.0%	0.0	0.0%	7.9	31.6%
Prince William Sound	Chenega Bay	13.8	3.8	27.3%	1.3	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	33.3%	1.3	33.3%	0.0	0.0%	0.0	0.0%
	Cordova	680.1	289.3	45.3%	16.0	5.5%	15.6	5.4%	14.2	4.9%	32.0	11.0%	16.0	5.5%	22.2	7.7%	70.2	24.3%	3.1	1.1%	138.2	47.8%
	Tatitlek	24.8	21.6	87.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	21.6	100.0%

* Percentages are based on total households giving a valid response to change in harvest and use of resources compared to before the oil spill.

** Percentages may not add to 100% because multiple reasons were permitted.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-54. Oil Spill-Related Reasons for Decreased Harvest and Use of Overall Resources, 2003 Study Year Compared to Year Before the *Exxon Valdez* Oil Spill

Region	Community	Estimated Households	Responses*		Change Compared to Year Before the *Exxon Valdez* Oil Spill (1988)**																	
					Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	21.1	4.0	25.0%	0.0	0.0%	2.6	66.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	33.3%
	Chignik Lagoon	19.3	4.1	21.4%	0.0	0.0%	1.4	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.8	66.7%
	Chignik Lake	28.0	3.0	13.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	50.0%	1.5	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	50.0%
	Perryville	30.6	3.7	13.6%	0.0	0.0%	2.4	66.7%	0.0	0.0%	0.0	0.0%	2.4	66.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Kenai Peninsula	Nanwalek	51.0	16.2	35.0%	2.3	14.3%	4.6	28.6%	2.3	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	9.3	57.1%
	Port Graham	52.6	9.8	20.3%	4.2	42.9%	4.2	42.9%	0.0	0.0%	0.0	0.0%	1.4	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Kodiak Island	Akhiok	15.0	2.7	28.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.7	100.0%
	Karluk	15.0	6.4	60.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.4	100.0%
	Larsen Bay	22.3	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	70.2	14.6	22.2%	5.8	40.0%	2.9	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	5.8	40.0%	0.0	0.0%	0.0	0.0%	4.4	30.0%
	Ouzinkie	66.3	4.1	6.7%	2.7	66.7%	1.4	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Port Lions	61.8	2.6	5.0%	0.0	0.0%	1.3	50.0%	1.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%
Prince William Sound	Chenega Bay	13.8	2.5	18.2%	1.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%	0.0	0.0%	0.0	0.0%
	Cordova	680.1	69.5	10.9%	8.0	11.5%	9.4	13.5%	3.1	4.5%	16.0	23.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.1	4.5%	41.0	59.0%
	Tatitlek	24.8	18.4	73.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	18.4	100.0%

* Percentages are based on total households giving a valid response to change in harvest and use of resources compared to before the oil spill.

** Percentages may not add to 100% because multiple reasons were permitted.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-55. Household Assessment of Change in Use of Any Resource, 2003 Study Year Compared to Year Before the *Exxon Valdez* Oil Spill

Region	Community	Estimated Households	Change Compared to Year Before the *Exxon Valdez* Oil Spill (1988)											
			No Response		Not In Community		Valid Responses		More		Same		Less	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	29	4.0	18.2%	7.9	27.3%	17.1	54.5%	6.6	8.3%	15.8	41.7%	14.5	50.0%
	Chignik Lagoon	22	0.0	0.0%	2.8	12.5%	19.3	87.5%	11.0	14.3%	16.5	14.3%	16.5	71.4%
	Chignik Lake	31	2.9	19.0%	3.0	9.5%	25.1	71.4%	8.9	26.7%	22.1	33.3%	22.1	40.0%
	Perryville	33	2.4	11.1%	2.4	7.4%	28.1	81.5%	8.6	22.7%	25.7	22.7%	23.2	54.5%
Kenai Peninsula	Nanwalek	51	2.3	9.1%	0.0	0.0%	48.7	90.9%	20.9	30.0%	37.1	25.0%	37.1	45.0%
	Port Graham	65	2.0	6.4%	12.4	19.1%	50.6	74.5%	21.1	14.3%	39.3	11.4%	46.3	74.3%
Kodiak Island	Akhiok	15	2.7	36.4%	0.0	0.0%	12.3	63.6%	4.1	14.3%	6.8	14.3%	12.3	71.4%
	Karluk	15	2.1	28.6%	0.0	0.0%	12.9	71.4%	0.0	0.0%	4.3	40.0%	12.9	60.0%
	Larsen Bay	31	0.0	8.0%	8.7	28.0%	22.3	64.0%	5.0	6.3%	22.3	81.3%	12.4	12.5%
	Old Harbor	76	2.9	5.8%	5.8	7.7%	67.2	86.5%	17.5	8.9%	57.0	37.8%	55.5	53.3%
	Ouzinkie	69	13.5	7.8%	2.7	3.9%	52.8	88.2%	25.7	8.9%	52.8	77.8%	31.1	13.3%
	Port Lions	71	6.6	13.0%	9.2	13.0%	55.2	74.1%	17.1	15.0%	43.4	37.5%	47.3	47.5%
Prince William Sound	Chenega Bay	20	1.3	0.0%	6.3	31.3%	12.5	68.8%	5.0	9.1%	12.5	63.6%	7.5	27.3%
	Cordova	910	46.2	4.5%	229.9	25.3%	633.9	70.2%	256.3	19.2%	575.2	35.5%	537.3	45.3%
	Tatitlek	27	0.0	0.0%	2.2	8.0%	24.8	92.0%	6.5	0.0%	14.0	13.0%	23.8	87.0%

Note: 'No Response' includes those who responded 'Don't Know.' 'Not in Community' includes those who did not live in the community during the comparison year.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-56. Reasons for Decreased Harvest and Use of Any Resource, 2003 Study Year Compared to Year Before the *Exxon Valdez* Oil Spill

Region	Community	Estimated Households	Responses*		Change Compared to Year Before the *Exxon Valdez* Oil Spill (1988)**																	
					Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	21.1	14.5	84.6%	1.3	9.1%	9.2	63.7%	1.3	9.1%	2.6	18.2%	0.0	0.0%	7.9	54.6%	0.0	0.0%	4.0	27.2%	6.6	45.4%
	Chignik Lagoon	19.3	16.5	85.7%	1.4	8.4%	5.5	33.3%	2.8	16.7%	2.8	16.7%	0.0	0.0%	2.8	16.7%	1.4	8.4%	0.0	0.0%	8.3	50.0%
	Chignik Lake	28.0	22.1	88.2%	0.0	0.0%	7.4	33.3%	1.5	6.7%	1.5	6.7%	1.5	6.7%	7.4	33.3%	3.0	13.3%	0.0	0.0%	16.2	73.4%
	Perryville	30.6	23.2	82.6%	6.1	26.3%	13.4	57.9%	8.6	36.9%	2.4	10.5%	7.3	31.6%	6.1	26.3%	3.7	15.8%	1.2	5.3%	12.2	52.6%
Kenai Peninsula	Nanwalek	51.0	37.1	76.2%	11.6	31.2%	13.9	37.5%	4.6	12.5%	2.3	6.3%	7.0	18.7%	0.0	0.0%	0.0	0.0%	2.3	6.3%	30.1	81.3%
	Port Graham	52.6	46.3	91.7%	8.4	18.2%	19.7	42.4%	8.4	18.2%	9.8	21.2%	9.8	21.2%	22.5	48.5%	9.8	21.2%	0.0	0.0%	26.7	57.6%
Kodiak Island	Akhiok	15.0	12.3	100.0%	4.1	33.3%	5.5	44.4%	1.4	11.1%	1.4	11.1%	0.0	0.0%	2.7	22.2%	2.7	22.2%	1.4	11.1%	6.8	55.6%
	Karluk	15.0	12.9	100.0%	2.1	16.6%	0.0	0.0%	2.1	16.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	12.9	100.0%
	Larsen Bay	22.3	12.4	55.6%	3.7	30.0%	2.5	20.0%	0.0	0.0%	1.2	10.0%	2.5	20.0%	2.5	20.0%	0.0	0.0%	0.0	0.0%	8.7	70.0%
	Old Harbor	70.2	55.5	82.6%	20.5	36.8%	17.5	31.6%	5.9	10.5%	0.0	0.0%	7.3	13.2%	23.4	42.1%	0.0	0.0%	0.0	0.0%	45.3	81.6%
	Ouzinkie	66.3	31.1	59.0%	9.5	30.4%	6.8	21.7%	2.7	8.7%	2.7	8.7%	2.7	8.7%	4.1	13.0%	1.4	4.3%	0.0	0.0%	20.3	65.2%
	Port Lions	61.8	47.3	85.7%	27.6	58.3%	9.2	19.4%	6.6	13.9%	7.9	16.7%	2.6	5.6%	18.4	38.9%	3.9	8.3%	0.0	0.0%	36.8	77.8%
Prince William Sound	Chenega Bay	13.8	7.5	60.0%	2.5	33.3%	2.5	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	16.7%	1.3	16.7%	0.0	0.0%	3.8	50.0%
	Cordova	680.1	537.3	84.8%	49.3	9.2%	77.8	14.5%	33.3	6.2%	38.2	7.1%	49.3	9.2%	96.9	18.0%	184.8	34.4%	3.1	0.6%	387.3	72.1%
	Tatitlek	24.8	23.8	95.7%	1.1	4.5%	1.1	4.5%	0.0	0.0%	1.1	4.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	23.8	100.0%

* Percentages are based on total households giving a valid response to change in harvest and use of resources compared to before the oil spill.

** Percentages may not add to 100% because multiple reasons were permitted.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-57. Oil Spill-Related Reasons for Decreased Harvest and Use of Any Resource, 2003 Study Year Compared to Year Before the *Exxon Valdez* Oil Spill

Region	Community	Estimated Households	Responses*		Change Compared to Year Before the *Exxon Valdez* Oil Spill (1988)**																	
					Resource Conditions/Food Safety		Resource Abundance		Resource Access		Time Constraints		Health/Age		Economic		Interest/Effort/ Knowledge		Luck		No Reason	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	21.1	9.2	100.0%	1.3	14.3%	5.3	57.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	14.3%	0.0	0.0%	0.0	0.0%	6.6	71.4%
	Chignik Lagoon	19.3	8.3	100.0%	1.4	16.7%	2.8	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	16.7%	0.0	0.0%	0.0	0.0%	2.8	33.3%
	Chignik Lake	28.0	7.4	100.0%	0.0	0.0%	1.5	20.0%	0.0	0.0%	1.5	20.0%	1.5	20.0%	1.5	20.0%	0.0	0.0%	0.0	0.0%	5.9	80.0%
	Perryville	30.6	9.8	100.0%	4.9	50.0%	8.6	87.5%	4.9	50.0%	0.0	0.0%	3.7	37.5%	2.4	25.0%	0.0	0.0%	1.2	12.5%	1.2	12.5%
Kenai Peninsula	Nanwalek	51.0	37.1	88.9%	11.6	31.3%	11.6	31.3%	2.3	6.3%	2.3	6.3%	4.6	12.5%	0.0	0.0%	0.0	0.0%	2.3	6.3%	27.8	75.0%
	Port Graham	52.6	16.9	100.0%	4.2	25.0%	8.4	50.0%	1.4	8.3%	0.0	0.0%	0.0	0.0%	5.6	33.3%	1.4	8.3%	0.0	0.0%	11.2	66.7%
Kodiak Island	Akhiok	15.0	8.2	100.0%	4.1	50.0%	1.4	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	16.7%	1.4	16.7%	5.5	66.7%
	Karluk	15.0	10.7	100.0%	2.1	20.0%	0.0	0.0%	2.1	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	10.7	100.0%
	Larsen Bay	22.3	6.2	83.3%	3.7	60.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	20.0%	0.0	0.0%	0.0	0.0%	3.7	60.0%
	Old Harbor	70.2	39.5	100.0%	16.1	40.7%	11.7	29.6%	2.9	7.4%	0.0	0.0%	1.5	3.7%	10.2	25.9%	0.0	0.0%	0.0	0.0%	26.3	66.7%
	Ouzinkie	66.3	12.2	100.0%	8.1	66.7%	5.4	44.4%	0.0	0.0%	1.4	11.1%	0.0	0.0%	1.4	11.1%	0.0	0.0%	0.0	0.0%	5.4	44.4%
	Port Lions	61.8	18.4	87.5%	10.5	57.1%	1.3	7.1%	2.6	14.3%	0.0	0.0%	0.0	0.0%	3.9	21.4%	0.0	0.0%	0.0	0.0%	5.3	28.6%
Prince William Sound	Chenega Bay	13.8	6.3	71.4%	2.5	40.0%	2.5	40.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	20.0%	1.3	20.0%	0.0	0.0%	2.5	40.0%
	Cordova	680.1	212.2	84.7%	25.4	11.9%	29.9	14.1%	14.2	6.7%	16.0	7.5%	6.3	2.9%	17.4	8.2%	25.4	11.9%	3.1	1.5%	170.9	80.5%
	Tatitlek	24.8	20.5	95.0%	1.1	5.3%	1.1	5.3%	0.0	0.0%	1.1	5.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	20.5	100.0%

* Percentages are based on total households giving a valid response to change in harvest and use of resources compared to before the oil spill.

** Percentages may not add to 100% because multiple reasons were permitted.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-58. Salmon: Household Assessment of Change in Effort to Harvest, 2003 Study Year Compared to Five Years Ago

Region	Community	Estimated Households	Change Compared to Five Years Ago									
			No Response		Valid Responses		More		Same		Less	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	29	10.5	36.4%	18.5	63.6%	6.6	35.7%	6.6	35.7%	5.3	28.6%
	Chignik Lagoon	22	2.8	12.5%	19.3	87.5%	12.4	64.3%	2.8	14.3%	4.1	21.4%
	Chignik Lake	31	7.4	23.8%	23.6	76.2%	14.8	62.5%	7.4	31.3%	1.5	6.3%
	Perryville	33	4.9	14.8%	28.1	85.2%	13.4	47.8%	8.6	30.4%	6.1	21.7%
Kenai Peninsula	Nanwalek	51	2.3	4.5%	48.7	95.5%	25.5	52.4%	11.6	23.8%	11.6	23.8%
	Port Graham	65	14.4	22.2%	50.6	77.8%	14.0	27.8%	11.2	22.2%	25.3	50.0%
Kodiak Island	Akhiok	15	1.4	9.1%	13.6	90.9%	8.2	60.0%	5.5	40.0%	0.0	0.0%
	Karluk	15	2.1	14.3%	12.9	85.7%	8.6	66.7%	0.0	0.0%	4.3	33.3%
	Larsen Bay	31	11.2	36.0%	19.8	64.0%	1.2	6.3%	12.4	62.5%	6.2	31.3%
	Old Harbor	76	14.6	19.2%	61.4	80.8%	13.2	21.4%	40.9	66.7%	7.3	11.9%
	Ouzinkie	69	20.3	29.4%	48.7	70.6%	9.5	19.4%	31.1	63.9%	8.1	16.7%
	Port Lions	71	15.8	22.2%	55.2	77.8%	15.8	28.6%	22.4	40.5%	17.1	31.0%
Prince William Sound	Chenega Bay	20	3.8	18.8%	16.3	81.3%	5.0	30.8%	8.8	53.8%	2.5	15.4%
	Cordova	910	184.1	20.2%	725.9	79.8%	173.7	23.9%	295.9	40.8%	256.3	35.3%
	Tatitlek	27	1.1	4.0%	25.9	96.0%	14.0	54.2%	7.6	29.2%	4.3	16.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-59. Salmon: Reasons for Increased Effort to Harvest, 2003 Study Year Compared to Five Years Ago

Region	Community			Increased Effort Compared to Five Years Ago*					
		Responses		Travel Further		Less Abundance		More Competition	
		No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	6.6	35.7%	1.3	20.0%	4.0	60.0%	0.0	0.0%
	Chignik Lagoon	12.4	64.3%	1.4	11.1%	5.5	44.4%	8.3	66.7%
	Chignik Lake	14.8	62.5%	7.4	50.0%	11.8	80.0%	5.9	40.0%
	Perryville	13.4	47.8%	9.8	72.7%	7.3	54.5%	7.3	54.5%
Kenai Peninsula	Nanwalek	25.5	52.4%	16.2	63.6%	2.3	9.1%	20.9	81.8%
	Port Graham	14.0	27.8%	7.0	50.0%	5.6	40.0%	8.4	60.0%
Kodiak Island	Akhiok	8.2	60.0%	4.1	50.0%	8.2	100.0%	2.7	33.3%
	Karluk	8.6	66.7%	0.0	0.0%	6.4	75.0%	0.0	0.0%
	Larsen Bay	1.2	6.3%	0.0	0.0%	0.0	0.0%	1.2	100.0%
	Old Harbor	13.2	21.4%	10.2	77.8%	8.8	66.7%	1.5	11.1%
	Ouzinkie	9.5	19.4%	2.7	28.6%	4.1	42.9%	5.4	57.1%
	Port Lions	15.8	28.6%	3.9	25.0%	7.9	50.0%	10.5	66.7%
Prince William Sound	Chenega Bay	5.0	30.8%	5.0	100.0%	2.5	50.0%	5.0	100.0%
	Cordova	173.7	23.9%	22.2	12.8%	14.2	8.2%	111.5	64.2%
	Tatitlek	14.0	54.2%	8.6	61.5%	7.6	53.8%	11.9	84.6%

*Percentages may not add to 100% because mulitple responses were permitted and some households did not provide a reason.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-60. Salmon: Reasons for Decreased Effort to Harvest, 2003 Study Year Compared to Five Years Ago

Region	Community			Decreased Effort Compared to Five Years Ago*					
		Responses		Travel Further		Less Abundance		More Competition	
		No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	5.3	28.6%	0.0	0.0%	1.3	25.0%	0.0	0.0%
	Chignik Lagoon	4.1	21.4%	1.4	33.3%	2.8	66.7%	1.4	33.3%
	Chignik Lake	1.5	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Perryville	6.1	21.7%	2.4	40.0%	3.7	60.0%	0.0	0.0%
Kenai Peninsula	Nanwalek	11.6	23.8%	4.6	40.0%	4.6	40.0%	11.6	100.0%
	Port Graham	25.3	50.0%	2.8	11.1%	5.6	22.2%	15.4	61.1%
Kodiak Island	Akhiok	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Karluk	4.3	33.3%	0.0	0.0%	2.1	50.0%	2.1	50.0%
	Larsen Bay	6.2	31.3%	2.5	40.0%	1.2	20.0%	3.7	60.0%
	Old Harbor	7.3	11.9%	0.0	0.0%	2.9	40.0%	2.9	40.0%
	Ouzinkie	8.1	16.7%	0.0	0.0%	2.7	33.3%	4.1	50.0%
	Port Lions	17.1	31.0%	3.9	23.1%	3.9	23.1%	7.9	46.2%
Prince William Sound	Chenega Bay	2.5	15.4%	2.5	100.0%	0.0	0.0%	2.5	100.0%
	Cordova	256.3	35.3%	22.2	8.7%	84.4	32.9%	197.3	77.0%
	Tatitlek	4.3	16.7%	2.2	50.0%	1.1	25.0%	2.2	50.0%

*Percentages may not add to 100% because mulitple responses were permitted and some households did not provide a reason.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-61. Non-Salmon Fish: Household Assessment of Change in Effort to Harvest, 2003 Study Year Compared to Five Years Ago

Region	Community	Estimated Households	Change Compared to Five Years Ago									
			No Response		Valid Responses		More		Same		Less	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	29	14.5	50.0%	14.5	50.0%	6.6	45.5%	7.9	54.5%	0.0	0.0%
	Chignik Lagoon	22	1.4	6.3%	20.6	93.8%	11.0	53.3%	8.3	40.0%	1.4	6.7%
	Chignik Lake	31	13.3	42.9%	17.7	57.1%	4.4	25.0%	13.3	75.0%	0.0	0.0%
	Perryville	33	8.6	25.9%	24.4	74.1%	6.1	25.0%	14.7	60.0%	3.7	15.0%
Kenai Peninsula	Nanwalek	51	7.0	13.6%	44.0	86.4%	23.2	52.6%	13.9	31.6%	7.0	15.8%
	Port Graham	65	15.9	24.4%	49.1	75.6%	8.4	17.1%	15.4	31.4%	25.3	51.4%
Kodiak Island	Akhiok	15	4.1	27.3%	10.9	72.7%	5.5	50.0%	5.5	50.0%	0.0	0.0%
	Karluk	15	6.4	42.9%	8.6	57.1%	0.0	0.0%	4.3	50.0%	4.3	50.0%
	Larsen Bay	31	12.4	40.0%	18.6	60.0%	1.2	6.7%	14.9	80.0%	2.5	13.3%
	Old Harbor	76	24.8	32.7%	51.2	67.3%	19.0	37.1%	26.3	51.4%	5.8	11.4%
	Ouzinkie	69	27.1	39.2%	41.9	60.8%	12.2	29.0%	25.7	61.3%	4.1	9.7%
	Port Lions	71	26.3	37.0%	44.7	63.0%	14.5	32.4%	17.1	38.2%	13.1	29.4%
Prince William Sound	Chenega Bay	20	6.3	31.3%	13.8	68.8%	1.3	9.1%	12.5	90.9%	0.0	0.0%
	Cordova	910	303.6	33.4%	606.4	66.6%	125.7	20.7%	291.4	48.1%	189.3	31.2%
	Tatitlek	27	2.2	8.0%	24.8	92.0%	18.4	73.9%	3.2	13.0%	3.2	13.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-62. Non-Salmon: Reasons for Increased Effort to Harvest, 2003 Study Year Compared to Five Years Ago

Region	Community	Increased Effort Compared to Five Years Ago*							
		Responses		Travel Further		Less Abundance		More Competition	
		No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	6.6	45.5%	2.6	40.0%	2.6	40.0%	5.3	80.0%
	Chignik Lagoon	11.0	53.3%	6.9	62.5%	8.3	75.0%	6.9	62.5%
	Chignik Lake	4.4	25.0%	4.4	100.0%	3.0	66.7%	4.4	100.0%
	Perryville	6.1	25.0%	3.7	60.0%	2.4	40.0%	4.9	80.0%
Kenai Peninsula	Nanwalek	23.2	52.6%	16.2	70.0%	11.6	50.0%	20.9	90.0%
	Port Graham	8.4	17.1%	4.2	50.0%	5.6	66.7%	7.0	83.3%
Kodiak Island	Akhiok	5.5	50.0%	2.7	50.0%	5.5	100.0%	2.7	50.0%
	Karluk	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Larsen Bay	1.2	6.7%	0.0	0.0%	0.0	0.0%	1.2	100.0%
	Old Harbor	19.0	37.1%	11.7	61.5%	11.7	61.5%	14.6	76.9%
	Ouzinkie	12.2	29.0%	8.1	66.7%	9.5	77.8%	9.5	77.8%
	Port Lions	14.5	32.4%	9.2	63.6%	13.1	90.9%	13.1	90.9%
Prince William Sound	Chenega Bay	1.3	9.1%	0.0	0.0%	0.0	0.0%	1.3	100.0%
	Cordova	125.7	20.7%	42.7	34.0%	39.6	31.5%	58.7	46.7%
	Tatitlek	18.4	73.9%	10.8	58.8%	11.9	64.7%	16.2	88.2%

*Percentages may not add to 100% because multiple responses were permitted and some households did not provide a reason.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-63. Non-Salmon: Reasons for Decreased Effort to Harvest, 2003 Study Year Compared to Five Years Ago

Region	Community	Decreased Effort Compared to Five Years Ago*							
		Responses		Travel Further		Less Abundance		More Competition	
		No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Akhiok	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Chignik Lagoon	1.4	6.7%	0.0	0.0%	1.4	100.0%	1.4	100.0%
	Chignik Lake	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Perryville	3.7	15.0%	2.4	66.7%	2.4	66.7%	0.0	0.0%
Kenai Peninsula	Nanwalek	7.0	15.8%	0.0	0.0%	0.0	0.0%	4.6	66.7%
	Port Graham	25.3	51.4%	4.2	16.7%	12.6	50.0%	8.4	33.3%
Kodiak Island	Akhiok	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Karluk	4.3	50.0%	2.1	50.0%	2.1	50.0%	0.0	0.0%
	Larsen Bay	2.5	13.3%	0.0	0.0%	1.2	50.0%	1.2	50.0%
	Old Harbor	5.8	11.4%	1.5	25.0%	0.0	0.0%	1.5	25.0%
	Ouzinkie	4.1	9.7%	1.4	33.3%	4.1	100.0%	2.7	66.7%
	Port Lions	13.1	29.4%	2.6	20.0%	5.3	40.0%	7.9	60.0%
Prince William Sound	Chenega Bay	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Cordova	189.3	31.2%	49.0	25.9%	63.2	33.4%	98.3	51.9%
	Tatitlek	3.2	13.0%	0.0	0.0%	0.0	0.0%	2.2	66.7%

*Percentages may not add to 100% because multiple responses were permitted and some households did not provide a reason.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-64. Marine Invertebrates: Household Assessment of Change in Effort to Harvest, 2003 Study Year Compared to Five Years Ago

Region	Community	Estimated Households	Change Compared to Five Years Ago									
			No Response		Valid Responses		More		Same		Less	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	29	10.5	36.4%	18.5	63.6%	7.9	42.9%	7.9	42.9%	2.6	14.3%
	Chignik Lagoon	22	1.4	6.3%	20.6	93.8%	5.5	26.7%	13.8	66.7%	1.4	6.7%
	Chignik Lake	31	13.3	42.9%	17.7	57.1%	4.4	25.0%	11.8	66.7%	1.5	8.3%
	Perryville	33	4.9	14.8%	28.1	85.2%	11.0	39.1%	4.9	17.4%	12.2	43.5%
Kenai Peninsula	Nanwalek	51	2.3	4.5%	48.7	95.5%	30.1	61.9%	11.6	23.8%	7.0	14.3%
	Port Graham	65	15.9	24.4%	49.1	75.6%	11.2	22.9%	9.8	20.0%	28.1	57.1%
Kodiak Island	Akhiok	15	2.7	18.2%	12.3	81.8%	10.9	88.9%	1.4	11.1%	0.0	0.0%
	Karluk	15	6.4	42.9%	8.6	57.1%	4.3	50.0%	0.0	0.0%	4.3	50.0%
	Larsen Bay	31	19.8	64.0%	11.2	36.0%	0.0	0.0%	8.7	77.8%	2.5	22.2%
	Old Harbor	76	23.4	30.8%	52.6	69.2%	13.2	25.0%	33.6	63.9%	5.8	11.1%
	Ouzinkie	69	18.9	27.5%	50.1	72.5%	4.1	8.1%	35.2	70.3%	10.8	21.6%
	Port Lions	71	26.3	37.0%	44.7	63.0%	7.9	17.6%	7.9	17.6%	28.9	64.7%
Prince William Sound	Chenega Bay	20	7.5	37.5%	12.5	62.5%	5.0	40.0%	6.3	50.0%	1.3	10.0%
	Cordova	910	544.6	59.8%	365.4	40.2%	50.7	13.9%	173.3	47.4%	141.4	38.7%
	Tatitlek	27	3.2	12.0%	23.8	88.0%	15.1	63.6%	7.6	31.8%	1.1	4.5%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-65. Marine Invertebrates: Reasons for Increased Effort to Harvest, 2003 Study Year Compared to Five Years Ago

Region	Community			Increased Effort Compared to Five Years Ago*					
		Responses		Travel Further		Less Abundance		More Competition	
		No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	7.9	42.9%	4.0	50.0%	5.3	66.7%	2.6	33.3%
	Chignik Lagoon	5.5	26.7%	4.1	75.0%	2.8	50.0%	1.4	25.0%
	Chignik Lake	4.4	25.0%	3.0	66.7%	3.0	66.7%	3.0	66.7%
	Perryville	11.0	39.1%	9.8	88.9%	7.3	66.7%	2.4	22.2%
Kenai Peninsula	Nanwalek	30.1	61.9%	23.2	76.9%	25.5	84.6%	27.8	92.3%
	Port Graham	11.2	22.9%	11.2	100.0%	11.2	100.0%	9.8	87.5%
Kodiak Island	Akhiok	10.9	88.9%	6.8	62.5%	9.5	87.5%	4.1	37.5%
	Karluk	4.3	50.0%	4.3	100.0%	4.3	100.0%	0.0	0.0%
	Larsen Bay	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	13.2	25.0%	8.8	66.7%	7.3	55.6%	4.4	33.3%
	Ouzinkie	4.1	8.1%	1.4	33.3%	2.7	66.7%	1.4	33.3%
	Port Lions	7.9	17.6%	3.9	50.0%	5.3	66.7%	1.3	16.7%
Prince William Sound	Chenega Bay	5.0	40.0%	3.8	75.0%	3.8	75.0%	2.5	50.0%
	Cordova	50.7	13.9%	15.6	30.8%	23.6	46.6%	26.7	52.7%
	Tatitlek	15.1	63.6%	8.6	57.1%	14.0	92.9%	8.6	57.1%

*Percentages may not add to 100% because multiple responses were permitted and some households did not provide a reason.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-66. Marine Invertebrates: Reasons for Decreased Effort to Harvest, 2003 Study Year Compared to Five Years Ago

Region	Community			Decreased Effort Compared to Five Years Ago*					
		Responses		Travel Further		Less Abundance		More Competition	
		No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	2.6	14.3%	2.6	100.0%	1.3	50.0%	1.3	50.0%
	Chignik Lagoon	1.4	6.7%	1.4	100.0%	1.4	100.0%	1.4	100.0%
	Chignik Lake	1.5	8.3%	1.5	100.0%	1.5	100.0%	1.5	100.0%
	Perryville	12.2	43.5%	7.3	60.0%	8.6	70.0%	3.7	30.0%
Kenai Peninsula	Nanwalek	7.0	14.3%	4.6	66.7%	4.6	66.7%	2.3	33.3%
	Port Graham	28.1	57.1%	16.9	60.0%	18.3	65.0%	12.6	45.0%
Kodiak Island	Akhiok	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Karluk	4.3	50.0%	0.0	0.0%	2.1	50.0%	0.0	0.0%
	Larsen Bay	2.5	22.2%	1.2	50.0%	1.2	50.0%	0.0	0.0%
	Old Harbor	5.8	11.1%	1.5	25.0%	1.5	25.0%	1.5	25.0%
	Ouzinkie	10.8	21.6%	4.1	37.5%	6.8	62.5%	2.7	25.0%
	Port Lions	28.9	64.7%	6.6	22.7%	13.1	45.5%	7.9	27.3%
Prince William Sound	Chenega Bay	1.3	10.0%	1.3	100.0%	1.3	100.0%	1.3	100.0%
	Cordova	141.4	38.7%	76.1	53.8%	60.1	42.5%	68.1	48.2%
	Tatitlek	1.1	4.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%

*Percentages may not add to 100% because multiple responses were permitted and some households did not provide a reason.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-67. Large Land Mammals: Household Assessment of Change in Effort to Harvest Compared to Five Years Ago

Region	Community	Estimated Households	Change Compared to Five Years Ago									
			No Response		Valid Responses		More		Same		Less	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	29	13.2	45.5%	15.8	54.5%	7.9	50.0%	5.3	33.3%	2.6	16.7%
	Chignik Lagoon	22	8.3	37.5%	13.8	62.5%	6.9	50.0%	5.5	40.0%	1.4	10.0%
	Chignik Lake	31	10.3	33.3%	20.7	66.7%	14.8	71.4%	3.0	14.3%	3.0	14.3%
	Perryville	33	12.2	37.0%	20.8	63.0%	3.7	17.6%	11.0	52.9%	6.1	29.4%
Kenai Peninsula	Nanwalek	51	25.5	50.0%	25.5	50.0%	4.6	18.2%	16.2	63.6%	4.6	18.2%
	Port Graham	65	39.7	61.1%	25.3	38.9%	7.0	27.8%	7.0	27.8%	11.2	44.4%
Kodiak Island	Akhiok	15	2.7	18.2%	12.3	81.8%	9.5	77.8%	2.7	22.2%	0.0	0.0%
	Karluk	15	6.4	42.9%	8.6	57.1%	0.0	0.0%	2.1	25.0%	6.4	75.0%
	Larsen Bay	31	21.1	68.0%	9.9	32.0%	1.2	12.5%	8.7	87.5%	0.0	0.0%
	Old Harbor	76	21.9	28.8%	54.1	71.2%	16.1	29.7%	30.7	56.8%	7.3	13.5%
	Ouzinkie	69	37.9	54.9%	31.1	45.1%	2.7	8.7%	24.4	78.3%	4.1	13.0%
	Port Lions	71	23.7	33.3%	47.3	66.7%	17.1	36.1%	22.4	47.2%	7.9	16.7%
Prince William Sound	Chenega Bay	20	6.3	31.3%	13.8	68.8%	1.3	9.1%	11.3	81.8%	1.3	9.1%
	Cordova	910	335.5	36.9%	574.5	63.1%	92.4	16.1%	334.1	58.2%	148.0	25.8%
	Tatitlek	27	6.5	24.0%	20.5	76.0%	11.9	57.9%	6.5	31.6%	2.2	10.5%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-68. Large Land Mammals: Reasons for Increased Effort to Harvest, 2003 Study Year Compared to Five Years Ago

Region	Community			Increased Effort Compared to Five Years Ago*					
		Responses		Travel Further		Less Abundance		More Competition	
		No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	7.9	50.0%	6.6	83.3%	6.6	83.3%	5.3	66.7%
	Chignik Lagoon	6.9	50.0%	6.9	100.0%	6.9	100.0%	5.5	80.0%
	Chignik Lake	14.8	71.4%	14.8	100.0%	14.8	100.0%	10.3	70.0%
	Perryville	3.7	17.6%	3.7	100.0%	3.7	100.0%	3.7	100.0%
Kenai Peninsula	Nanwalek	4.6	18.2%	2.3	50.0%	2.3	50.0%	0.0	0.0%
	Port Graham	7.0	27.8%	7.0	100.0%	2.8	40.0%	4.2	60.0%
Kodiak Island	Akhiok	9.5	77.8%	9.5	100.0%	9.5	100.0%	8.2	85.7%
	Karluk	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Larsen Bay	1.2	12.5%	1.2	100.0%	1.2	100.0%	1.2	100.0%
	Old Harbor	16.1	29.7%	13.2	81.8%	10.2	63.6%	7.3	45.5%
	Ouzinkie	2.7	8.7%	0.0	0.0%	0.0	0.0%	1.4	50.0%
	Port Lions	17.1	36.1%	15.8	92.3%	11.8	69.2%	14.5	84.6%
Prince William Sound	Chenega Bay	1.3	9.1%	0.0	0.0%	0.0	0.0%	1.3	100.0%
	Cordova	92.4	16.1%	22.2	24.1%	8.0	8.6%	60.4	65.4%
	Tatitlek	11.9	57.9%	8.6	72.7%	9.7	81.8%	9.7	81.8%

*Percentages may not add to 100% because multiple responses were permitted and some households did not provide a reason.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-69. Large Land Mammals: Reasons for Decreased Effort to Harvest, 2003 Study Year Compared to Five Years Ago

Region	Community			Decreased Effort Compared to Five Years Ago*					
		Responses		Travel Further		Less Abundance		More Competition	
		No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	2.6	16.7%	1.3	50.0%	1.3	50.0%	0.0	0.0%
	Chignik Lagoon	1.4	10.0%	1.4	100.0%	1.4	100.0%	1.4	100.0%
	Chignik Lake	3.0	14.3%	1.5	50.0%	3.0	100.0%	3.0	100.0%
	Perryville	6.1	29.4%	4.9	80.0%	6.1	100.0%	2.4	40.0%
Kenai Peninsula	Nanwalek	4.6	18.2%	4.6	100.0%	4.6	100.0%	2.3	50.0%
	Port Graham	11.2	44.4%	7.0	62.5%	1.4	12.5%	5.6	50.0%
Kodiak Island	Akhiok	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Karluk	6.4	75.0%	4.3	66.7%	6.4	100.0%	0.0	0.0%
	Larsen Bay	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	7.3	13.5%	1.5	20.0%	4.4	60.0%	2.9	40.0%
	Ouzinkie	4.1	13.0%	2.7	66.7%	1.4	33.3%	2.7	66.7%
	Port Lions	7.9	16.7%	1.3	16.7%	1.3	16.7%	5.3	66.7%
Prince William Sound	Chenega Bay	1.3	9.1%	1.3	100.0%	1.3	100.0%	1.3	100.0%
	Cordova	148.0	25.8%	43.1	29.1%	22.2	15.0%	96.9	65.5%
	Tatitlek	2.2	10.5%	0.0	0.0%	1.1	50.0%	0.0	0.0%

*Percentages may not add to 100% because multiple responses were permitted and some households did not provide a reason.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-70. Marine Mammals: Household Assessment of Change in Effort to Harvest, 2003 Study Year Compared to Five Years Ago

Region	Community	Estimated Households	Change Compared to Five Years Ago									
			No Response		Valid Responses		More		Same		Less	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	29	22.4	77.3%	6.6	22.7%	2.6	40.0%	2.6	40.0%	1.3	20.0%
	Chignik Lagoon	22	22.0	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Chignik Lake	31	20.7	66.7%	10.3	33.3%	3.0	28.6%	7.4	71.4%	0.0	0.0%
	Perryville	33	11.0	33.3%	22.0	66.7%	4.9	22.2%	11.0	50.0%	6.1	27.8%
Kenai Peninsula	Nanwalek	51	18.5	36.4%	32.5	63.6%	11.6	35.7%	13.9	42.9%	7.0	21.4%
	Port Graham	65	42.5	65.4%	22.5	34.6%	7.0	31.3%	7.0	31.3%	8.4	37.5%
Kodiak Island	Akhiok	15	8.2	54.5%	6.8	45.5%	5.5	80.0%	1.4	20.0%	0.0	0.0%
	Karluk	15	10.7	71.4%	4.3	28.6%	2.1	50.0%	2.1	50.0%	0.0	0.0%
	Larsen Bay	31	24.8	80.0%	6.2	20.0%	1.2	20.0%	5.0	80.0%	0.0	0.0%
	Old Harbor	76	32.2	42.3%	43.8	57.7%	8.8	20.0%	26.3	60.0%	8.8	20.0%
	Ouzinkie	69	54.1	78.4%	14.9	21.6%	1.4	9.1%	10.8	72.7%	2.7	18.2%
	Port Lions	71	63.1	88.9%	7.9	11.1%	2.6	33.3%	5.3	66.7%	0.0	0.0%
Prince William Sound	Chenega Bay	20	6.3	31.3%	13.8	68.8%	5.0	36.4%	6.3	45.5%	2.5	18.2%
	Cordova	910	850.3	93.4%	59.7	6.6%	20.5	34.3%	28.1	47.1%	11.1	18.6%
	Tatitlek	27	2.2	8.0%	24.8	92.0%	15.1	60.9%	7.6	30.4%	2.2	8.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-71. Marine Mammals: Reasons for Increased Effort to Harvest, 2003 Study Year Compared to Five Years Ago

Region	Community			Increased Effort Compared to Five Years Ago*					
		Responses		Travel Further		Less Abundance		More Competition	
		No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	2.6	40.0%	1.3	50.0%	0.0	0.0%	1.3	50.0%
	Chignik Lagoon	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Chignik Lake	3.0	28.6%	1.5	50.0%	1.5	50.0%	0.0	0.0%
	Perryville	4.9	22.2%	4.9	100.0%	4.9	100.0%	3.7	75.0%
Kenai Peninsula	Nanwalek	11.6	35.7%	9.3	80.0%	11.6	100.0%	7.0	60.0%
	Port Graham	7.0	31.3%	4.2	60.0%	4.2	60.0%	2.8	40.0%
Kodiak Island	Akhiok	5.5	80.0%	2.7	50.0%	5.5	100.0%	0.0	0.0%
	Karluk	2.1	50.0%	2.1	100.0%	2.1	100.0%	2.1	100.0%
	Larsen Bay	1.2	20.0%	0.0	0.0%	1.2	100.0%	0.0	0.0%
	Old Harbor	8.8	20.0%	7.3	83.3%	2.9	33.3%	1.5	16.7%
	Ouzinkie	1.4	9.1%	1.4	100.0%	1.4	100.0%	0.0	0.0%
	Port Lions	2.6	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Prince William Sound	Chenega Bay	5.0	36.4%	5.0	100.0%	2.5	50.0%	3.8	75.0%
	Cordova	20.5	34.3%	6.3	30.5%	3.1	15.3%	9.4	45.8%
	Tatitlek	15.1	60.9%	13.0	85.7%	14.0	92.9%	14.0	92.9%

*Percentages may not add to 100% because multiple responses were permitted and some households did not provide a reason.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-72. Marine Mammals: Reasons for Decreased Effort to Harvest, 2003 Study Year Compared to Five Years Ago

Region	Community			Decreased Effort Compared to Five Years Ago*					
		Responses		Travel Further		Less Abundance		More Competition	
		No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	1.3	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Chignik Lagoon	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Chignik Lake	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Perryville	6.1	27.8%	3.7	60.0%	4.9	80.0%	1.2	20.0%
Kenai Peninsula	Nanwalek	7.0	21.4%	4.6	66.7%	4.6	66.7%	4.6	66.7%
	Port Graham	8.4	37.5%	5.6	66.7%	4.2	50.0%	5.6	66.7%
Kodiak Island	Akhiok	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Karluk	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Larsen Bay	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	8.8	20.0%	5.8	66.7%	4.4	50.0%	1.5	16.7%
	Ouzinkie	2.7	18.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Port Lions	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Prince William Sound	Chenega Bay	2.5	18.2%	2.5	100.0%	1.3	50.0%	2.5	100.0%
	Cordova	11.1	18.6%	8.0	71.9%	0.0	0.0%	0.0	0.0%
	Tatitlek	2.2	8.7%	1.1	50.0%	1.1	50.0%	0.0	0.0%

*Percentages may not add to 100% because multiple responses were permitted and some households did not provide a reason.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-73. Small Game and Furbearers: Household Assessment of Change in Effort to Harvest, 2003 Study Year Compared to Five Years Ago

Region	Community	Estimated Households	Change Compared to Five Years Ago									
			No Response		Valid Responses		More		Same		Less	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	29	29.0	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Chignik Lagoon	22	22.0	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Chignik Lake	31	31.0	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Perryville	33	33.0	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Kenai Peninsula	Nanwalek	51	51.0	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Port Graham	65	65.0	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Kodiak Island	Akhiok	15	15.0	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Karluk	15	15.0	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Larsen Bay	31	31.0	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	76	76.0	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Ouzinkie	69	69.0	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Port Lions	71	71.0	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Prince William Sound	Chenega Bay	20	20.0	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Cordova	910	910.0	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Tatitlek	27	27.0	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-74. Small Game and Furbearers: Reasons for Increased Effort to Harvest, 2003 Study Year Compared to Five Years Ago

Region	Community			Increased Effort Compared to Five Years Ago*					
		Responses		Travel Further		Less Abundance		More Competition	
		No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Chignik Lagoon	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Chignik Lake	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Perryville	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Kenai Peninsula	Nanwalek	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Port Graham	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Kodiak Island	Akhiok	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Karluk	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Larsen Bay	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Ouzinkie	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Port Lions	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Prince William Sound	Chenega Bay	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Cordova	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Tatitlek	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

*Percentages may not add to 100% because multiple responses were permitted and some households did not provide a reason.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-75. Small Game and Furbearers: Reasons for Decreased Effort to Harvest, 2003 Study Year Compared to Five Years Ago

Region	Community			Decreased Effort Compared to Five Years Ago*					
		Responses		Travel Further		Less Abundance		More Competition	
		No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Chignik Lagoon	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Chignik Lake	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Perryville	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Kenai Peninsula	Nanwalek	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Port Graham	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Kodiak Island	Akhiok	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Karluk	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Larsen Bay	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Ouzinkie	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Port Lions	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Prince William Sound	Chenega Bay	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Cordova	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Tatitlek	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

*Percentages may not add to 100% because multiple responses were permitted and some households did not provide a reason.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-76. Birds and Eggs: Household Assessment of Change in Effort to Harvest, 2003 Study Year Compared to Five Years Ago

Region	Community	Estimated Households	Change Compared to Five Years Ago									
			No Response		Valid Responses		More		Same		Less	
			No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	29	18.5	63.6%	10.5	36.4%	6.6	62.5%	4.0	37.5%	0.0	0.0%
	Chignik Lagoon	22	15.1	68.8%	6.9	31.3%	2.8	40.0%	2.8	40.0%	1.4	20.0%
	Chignik Lake	31	16.2	52.4%	14.8	47.6%	8.9	60.0%	5.9	40.0%	0.0	0.0%
	Perryville	33	12.2	37.0%	20.8	63.0%	2.4	11.8%	12.2	58.8%	6.1	29.4%
Kenai Peninsula	Nanwalek	51	16.2	31.8%	34.8	68.2%	13.9	40.0%	13.9	40.0%	7.0	20.0%
	Port Graham	65	51.0	78.4%	14.0	21.6%	2.8	20.0%	2.8	20.0%	8.4	60.0%
Kodiak Island	Akhiok	15	6.8	45.5%	8.2	54.5%	4.1	50.0%	4.1	50.0%	0.0	0.0%
	Karluk	15	8.6	57.1%	6.4	42.9%	0.0	0.0%	2.1	33.3%	4.3	66.7%
	Larsen Bay	31	26.0	84.0%	5.0	16.0%	0.0	0.0%	5.0	100.0%	0.0	0.0%
	Old Harbor	76	38.0	50.0%	38.0	50.0%	10.2	26.9%	21.9	57.7%	5.8	15.4%
	Ouzinkie	69	32.5	47.1%	36.5	52.9%	12.2	33.3%	20.3	55.6%	4.1	11.1%
	Port Lions	71	46.0	64.8%	25.0	35.2%	2.6	10.5%	11.8	47.4%	10.5	42.1%
Prince William Sound	Chenega Bay	20	15.0	75.0%	5.0	25.0%	2.5	50.0%	1.3	25.0%	1.3	25.0%
	Cordova	910	632.1	69.5%	277.9	30.5%	38.2	13.8%	150.4	54.1%	89.3	32.1%
	Tatitlek	27	15.1	56.0%	11.9	44.0%	7.6	63.6%	4.3	36.4%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-77. Birds and Eggs: Reasons for Increased Effort to Harvest, 2003 Study Year Compared to Five Years Ago

Region	Community			Increased Effort Compared to Five Years Ago*					
		Responses		Travel Further		Less Abundance		More Competition	
		No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	6.6	62.5%	5.3	80.0%	5.3	80.0%	2.6	40.0%
	Chignik Lagoon	2.8	40.0%	2.8	100.0%	2.8	100.0%	1.4	50.0%
	Chignik Lake	8.9	60.0%	3.0	33.3%	4.4	50.0%	3.0	33.3%
	Perryville	2.4	11.8%	1.2	50.0%	1.2	50.0%	0.0	0.0%
Kenai Peninsula	Nanwalek	13.9	40.0%	11.6	83.3%	9.3	66.7%	11.6	83.3%
	Port Graham	2.8	20.0%	1.4	50.0%	1.4	50.0%	1.4	50.0%
Kodiak Island	Akhiok	4.1	50.0%	2.7	66.7%	2.7	66.7%	0.0	0.0%
	Karluk	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Larsen Bay	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	10.2	26.9%	10.2	100.0%	8.8	85.7%	8.8	85.7%
	Ouzinkie	12.2	33.3%	10.8	88.9%	9.5	77.8%	6.8	55.6%
	Port Lions	2.6	10.5%	1.3	50.0%	1.3	50.0%	1.3	50.0%
Prince William Sound	Chenega Bay	2.5	50.0%	2.5	100.0%	1.3	50.0%	2.5	100.0%
	Cordova	38.2	13.8%	3.1	8.2%	0.0	0.0%	6.3	16.4%
	Tatitlek	7.6	63.6%	5.4	71.4%	5.4	71.4%	5.4	71.4%

*Percentages may not add to 100% because multiple responses were permitted and some households did not provide a reason.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-78. Birds and Eggs: Reasons for Decreased Effort to Harvest, 2003 Study Year Compared to Five Years Ago

Region	Community			Decreased Effort Compared to Five Years Ago*					
		Responses		Travel Further		Less Abundance		More Competition	
		No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula	Chignik Bay	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Chignik Lagoon	1.4	20.0%	1.4	100.0%	1.4	100.0%	1.4	100.0%
	Chignik Lake	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Perryville	6.1	29.4%	2.4	40.0%	3.7	60.0%	0.0	0.0%
Kenai Peninsula	Nanwalek	7.0	20.0%	4.6	66.7%	4.6	66.7%	7.0	100.0%
	Port Graham	8.4	60.0%	2.8	33.3%	4.2	50.0%	2.8	33.3%
Kodiak Island	Akhiok	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Karluk	4.3	66.7%	4.3	100.0%	4.3	100.0%	0.0	0.0%
	Larsen Bay	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	5.8	15.4%	1.5	25.0%	1.5	25.0%	2.9	50.0%
	Ouzinkie	4.1	11.1%	2.7	66.7%	1.4	33.3%	1.4	33.3%
	Port Lions	10.5	42.1%	2.6	25.0%	3.9	37.5%	2.6	25.0%
Prince William Sound	Chenega Bay	1.3	25.0%	1.3	100.0%	1.3	100.0%	1.3	100.0%
	Cordova	89.3	32.1%	24.0	26.8%	22.2	24.9%	49.3	55.3%
	Tatitlek	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

*Percentages may not add to 100% because multiple responses were permitted and some households did not provide a reason.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-79. Wild Plants: Household Assessment of Change in Effort to Harvest, 2003 Study Year Compared to Five Years Ago

Region	Community	Estimated Households	Change Compared to Five Years Ago: No Response No.	No Response Pctg.	Valid Responses No.	Valid Responses Pctg.	More No.	More Pctg.	Same No.	Same Pctg.	Less No.	Less Pctg.
Alaska Peninsula	Chignik Bay	29	10.5	36.4%	18.5	63.6%	4.0	21.4%	7.9	42.9%	6.6	35.7%
	Chignik Lagoon	22	8.3	37.5%	13.8	62.5%	4.1	30.0%	8.3	60.0%	1.4	10.0%
	Chignik Lake	31	7.4	23.8%	23.6	76.2%	7.4	31.3%	14.8	62.5%	1.5	6.3%
	Perryville	33	7.3	22.2%	25.7	77.8%	9.8	38.1%	9.8	38.1%	6.1	23.8%
Kenai Peninsula	Nanwalek	51	4.6	9.1%	46.4	90.9%	25.5	55.0%	13.9	30.0%	7.0	15.0%
	Port Graham	65	17.3	26.5%	47.7	73.5%	11.2	23.5%	14.0	29.4%	22.5	47.1%
Kodiak Island	Akhiok	15	2.7	18.2%	12.3	81.8%	4.1	33.3%	8.2	66.7%	0.0	0.0%
	Karluk	15	6.4	42.9%	8.6	57.1%	0.0	0.0%	2.1	25.0%	6.4	75.0%
	Larsen Bay	31	12.4	40.0%	18.6	60.0%	3.7	20.0%	12.4	66.7%	2.5	13.3%
	Old Harbor	76	20.5	26.9%	55.5	73.1%	10.2	18.4%	40.9	73.7%	4.4	7.9%
	Ouzinkie	69	12.2	17.6%	56.8	82.4%	5.4	9.5%	44.6	78.6%	6.8	11.9%
	Port Lions	71	19.7	27.8%	51.3	72.2%	14.5	28.2%	28.9	56.4%	7.9	15.4%
Prince William Sound	Chenega Bay	20	8.8	43.8%	11.3	56.3%	1.3	11.1%	8.8	77.8%	1.3	11.1%
	Cordova	910	299.0	32.9%	611.0	67.1%	144.8	23.7%	336.9	55.1%	129.2	21.1%
	Tatitlek	27	8.6	32.0%	18.4	68.0%	9.7	52.9%	7.6	41.2%	1.1	5.9%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-80. Wild Plants: Reasons for Increased Effort to Harvest, 2003 Study Year Compared to Five Years Ago

Region	Community	Responses No.	Responses Pctg.	Increased Effort Compared to Five Years Ago*: Travel Further No.	Travel Further Pctg.	Less Abundance No.	Less Abundance Pctg.	More Competition No.	More Competition Pctg.
Alaska Peninsula	Chignik Bay	4.0	21.4%	4.0	100.0%	4.0	100.0%	1.3	33.3%
	Chignik Lagoon	4.1	30.0%	1.4	33.3%	0.0	0.0%	4.1	100.0%
	Chignik Lake	7.4	31.3%	4.4	60.0%	4.4	60.0%	1.5	20.0%
	Perryville	9.8	38.1%	7.3	75.0%	2.4	25.0%	3.7	37.5%
Kenai Peninsula	Nanwalek	25.5	55.0%	20.9	81.8%	20.9	81.8%	16.2	63.6%
	Port Graham	11.2	23.5%	7.0	62.5%	4.2	37.5%	5.6	50.0%
Kodiak Island	Akhiok	4.1	33.3%	2.7	66.7%	4.1	100.0%	1.4	33.3%
	Karluk	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Larsen Bay	3.7	20.0%	0.0	0.0%	1.2	33.3%	0.0	0.0%
	Old Harbor	10.2	18.4%	5.8	57.1%	2.9	28.6%	2.9	28.6%
	Ouzinkie	5.4	9.5%	1.4	25.0%	0.0	0.0%	0.0	0.0%
	Port Lions	14.5	28.2%	6.6	45.5%	3.9	27.3%	10.5	72.7%
Prince William Sound	Chenega Bay	1.3	11.1%	0.0	0.0%	0.0	0.0%	1.3	100.0%
	Cordova	144.8	23.7%	58.7	40.5%	31.6	21.8%	72.9	50.4%
	Tatitlek	9.7	52.9%	8.6	88.9%	9.7	100.0%	9.7	100.0%

*Percentages may not add to 100% because multiple responses were permitted and some households did not provide a reason.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-81. Wild Plants: Reasons for Decreased Effort to Harvest, 2003 Study Year Compared to Five Years Ago

Region	Community	Responses No.	Responses Pctg.	Decreased Effort Compared to Five Years Ago*: Travel Further No.	Travel Further Pctg.	Less Abundance No.	Less Abundance Pctg.	More Competition No.	More Competition Pctg.
Alaska Peninsula	Chignik Bay	6.6	35.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Chignik Lagoon	1.4	10.0%	1.4	100.0%	1.4	100.0%	1.4	100.0%
	Chignik Lake	1.5	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Perryville	6.1	23.8%	2.4	40.0%	3.7	60.0%	0.0	0.0%
Kenai Peninsula	Nanwalek	7.0	15.0%	4.6	66.7%	4.6	66.7%	7.0	100.0%
	Port Graham	22.5	47.1%	2.8	12.5%	4.2	18.8%	2.8	12.5%
Kodiak Island	Akhiok	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Karluk	6.4	75.0%	4.3	66.7%	4.3	66.7%	0.0	0.0%
	Larsen Bay	2.5	13.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Old Harbor	4.4	7.9%	1.5	33.3%	1.5	33.3%	2.9	66.7%
	Ouzinkie	6.8	11.9%	2.7	40.0%	1.4	20.0%	1.4	20.0%
	Port Lions	7.9	15.4%	2.6	33.3%	3.9	50.0%	2.6	33.3%
Prince William Sound	Chenega Bay	1.3	11.1%	1.3	100.0%	1.3	100.0%	1.3	100.0%
	Cordova	129.2	21.1%	24.0	18.5%	22.2	17.2%	49.3	38.2%
	Tatitlek	1.1	5.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%

*Percentages may not add to 100% because multiple responses were permitted and some households did not provide a reason.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-82. Household Assessment of the Recovery of Subsistence Resources Since the Oil Spill, 2003 Study Year

Region	Estimated	Have Subsistence Resources Recovered Since the *Exxon Valdez* Oil Spill?											
		No Response		Do Not Know		Valid Responses		Yes		No		Never Changed	
Community	Households	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Penninsula													
Chignik Bay	29	2.6	9.1%	0.0	0.0%	18.5	63.6%	7.9	42.9%	4.0	21.4%	6.6	35.7%
Chignik Lagoon	22	0.0	0.0%	0.0	0.0%	19.3	87.5%	1.4	7.1%	12.4	64.3%	5.5	28.6%
Chignik Lake	31	1.5	4.8%	0.0	0.0%	26.6	85.7%	5.9	22.2%	14.8	55.6%	5.9	22.2%
Perryville	33	1.2	3.7%	0.0	0.0%	29.3	88.9%	3.7	12.5%	11.0	37.5%	14.7	50.0%
Cook Inlet													
Nanwalek	51	0.0	0.0%	0.0	0.0%	51.0	100.0%	2.3	4.5%	32.5	63.6%	16.2	31.8%
Port Graham	65	1.4	2.1%	0.0	0.0%	51.2	78.7%	11.1	21.6%	30.4	59.5%	9.7	18.9%
Kodiak													
Akhiok	15	2.7	18.2%	0.0	0.0%	12.3	81.8%	2.7	22.2%	6.8	55.6%	2.7	22.2%
Karluk	15	2.1	14.3%	0.0	0.0%	12.9	85.7%	0.0	0.0%	8.6	66.7%	4.3	33.3%
Larsen Bay	31	0.0	0.0%	1.2	4.0%	21.1	68.0%	2.5	11.8%	2.5	11.8%	16.1	76.5%
Old Harbor	76	1.5	1.9%	0.0	0.0%	68.7	90.4%	24.8	36.2%	27.8	40.4%	16.1	23.4%
Ouzinkie	69	4.1	5.9%	1.4	2.0%	60.9	88.2%	4.1	6.7%	51.4	84.4%	5.4	8.9%
Port Lions	71	0.0	0.0%	0.0	0.0%	61.8	87.0%	6.6	10.6%	36.8	59.6%	18.4	29.8%
Prince William Sound													
Chenega Bay	20	0.0	0.0%	0.0	0.0%	13.8	68.8%	6.3	45.5%	5.0	36.4%	2.5	18.2%
Cordova	910	19.1	2.1%	0.0	0.0%	661.0	72.6%	90.7	13.7%	355.3	53.8%	215.0	32.5%
Tatitlek	27	1.1	4.0%	0.0	0.0%	23.8	88.0%	2.2	9.1%	17.3	72.7%	4.3	18.2%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-83. Household Assessment of What Should Be Done to Help in the Recovery of Subsistence Resources, 2003 Study Yea

Region / Community	Households Responding	Subsistence Resources Have not Recovered Responses** No.	Pctg.	What Should Be Done to Help in the Recovery of Subsistence Resources?*: More Clean Up No.	Pctg.	More Studies and Monitoring of Populations No.	Pctg.	Harvest Regulation and Management No.	Pctg.	Time No.	Pctg.	Education about Spill Effects No.	Pctg.	Administrative, Legal, and Political Action No.	Pctg.	Restoration and Enhancement Projects No.	Pctg.	Predator Control No.	Pctg.	Reduce/ Eliminate Oil Pollution Sources No.	Pctg.	No Recovery Suggestion Provided No.	Pctg.
Alaska Penninsula																							
Chignik Bay	18.5	4.0	21.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.0	100.0%
Chignik Lagoon	19.3	12.4	64.3%	0.0	0.0%	0.0	0.0%	1.4	11.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	11.0	88.9%
Chignik Lake	26.6	14.8	55.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	14.8	100.0%
Perryville	29.3	11.0	37.5%	0.0	0.0%	0.0	0.0%	1.2	11.1%	0.0	0.0%	0.0	0.0%	1.2	11.1%	3.7	33.3%	0.0	0.0%	0.0	0.0%	4.9	44.4%
Cook Inlet																							
Nanwalek	51.0	32.5	63.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	7.1%	30.1	92.9%
Port Graham	51.2	30.4	59.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	4.5%	0.0	0.0%	1.4	4.5%	27.7	90.9%
Kodiak																							
Akhiok	12.3	6.8	55.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.8	100.0%
Karluk	12.9	8.6	66.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.6	100.0%
Larsen Bay	21.1	2.5	11.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.5	100.0%
Old Harbor	68.7	27.8	40.4%	1.5	5.3%	2.9	10.5%	0.0	0.0%	2.9	10.5%	1.5	5.3%	1.5	5.3%	1.5	5.3%	0.0	0.0%	0.0	0.0%	16.1	57.9%
Ouzinkie	60.9	51.4	84.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	2.6%	0.0	0.0%	0.0	0.0%	50.1	97.4%
Port Lions	61.8	36.8	59.6%	0.0	0.0%	2.6	7.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	3.6%	1.3	3.6%	0.0	0.0%	0.0	0.0%	31.6	85.7%
Prince William Sound																							
Chenega Bay	13.8	5.0	36.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	5.0	100.0%
Cordova	661.0	355.3	53.8%	0.0	0.0%	19.1	5.4%	6.3	1.8%	16.0	4.5%	8.0	2.2%	3.1	0.9%	11.1	3.1%	0.0	0.0%	11.1	3.1%	280.6	79.0%
Tatitlek	23.8	17.3	72.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	17.3	100.0%

* Based upon only "subsistence resources have not recovered" assessments. Percentages may not add to 100% as multiple responses were permittec

** Percentages based upon valid responses only.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004

Table A-84. Household Assessment of Change in Salmon Available to Harvest, Akhiok, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	2.7	18.2%	12.3	81.8%	0.0	0.0%	4.1	33.3%	8.2	66.7%
Coho Salmon	4.1	27.3%	10.9	72.7%	0.0	0.0%	2.7	25.0%	8.2	75.0%
Chinook Salmon	10.9	72.7%	4.1	27.3%	0.0	0.0%	1.4	33.3%	2.7	66.7%
Pink Salmon	1.4	9.1%	13.6	90.9%	0.0	0.0%	4.1	30.0%	9.5	70.0%
Sockeye Salmon	1.4	9.1%	13.6	90.9%	0.0	0.0%	2.7	20.0%	10.9	80.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-85. Reasons for Decreased Availability of Salmon, Akhiok, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	8.2	54.5%	1.4	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.8	83.3%
Coho Salmon	8.2	54.5%	1.4	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	16.7%	1.4	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	5.5	66.7%
Chinook Salmon	2.7	18.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.7	100.0%
Pink Salmon	9.5	63.6%	1.4	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.8	71.4%
Sockeye Salmon	10.9	72.7%	1.4	12.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	12.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.2	75.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-86. Oil Spill-Related Reasons for Decreased Availability of Salmon, Akhiok, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	2.7	18.2%	1.4	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%
Coho Salmon	4.1	27.3%	1.4	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.7	66.7%
Pink Salmon	5.5	36.4%	1.4	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.1	75.0%
Sockeye Salmon	6.8	45.5%	1.4	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.1	60.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-87. Household Assessment of Change in Salmon Available to Harvest Available to Harvest, Chenega Bay, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	3.8	18.8%	16.3	81.3%	2.5	15.4%	11.3	69.2%	2.5	15.4%
Coho Salmon	2.5	12.5%	17.5	87.5%	13.8	78.6%	1.3	7.1%	2.5	14.3%
Chinook Salmon	3.8	18.8%	16.3	81.3%	3.8	23.1%	3.8	23.1%	8.8	53.8%
Pink Salmon	2.5	12.5%	17.5	87.5%	11.3	64.3%	6.3	35.7%	0.0	0.0%
Sockeye Salmon	2.5	12.5%	17.5	87.5%	7.5	42.9%	5.0	28.6%	5.0	28.6%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-88. Reasons for Increased Availability of Salmon, Chenega Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	2.5	12.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.5	100.0%
Coho Salmon	13.8	68.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	9.1%	0.0	0.0%	12.5	90.9%
Chinook Salmon	3.8	18.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.5	66.7%	0.0	0.0%	1.3	33.3%
Pink Salmon	11.3	56.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	11.3	100.0%
Sockeye Salmon	7.5	37.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	7.5	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-89. Reasons for Decreased Availability of Salmon, Chenega Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	2.5	12.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.5	100.0%
Coho Salmon	2.5	12.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.5	100.0%
Chinook Salmon	8.8	43.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.8	100.0%
Sockeye Salmon	5.0	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	5.0	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-90. Oil Spill-Related Reasons for Decreased Availability of Salmon, Chenega Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	2.5	12.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.5	100.0%
Coho Salmon	2.5	12.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.5	100.0%
Chinook Salmon	8.8	43.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.8	100.0%
Sockeye Salmon	3.8	18.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.8	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-91. Household Assessment of Change in Salmon Available to Harvest, Chignik Bay, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	14.5	50.0%	14.5	50.0%	2.6	18.2%	6.6	45.5%	5.3	36.4%
Coho Salmon	11.9	40.9%	17.1	59.1%	2.6	15.4%	7.9	46.2%	6.6	38.5%
Chinook Salmon	11.9	40.9%	17.1	59.1%	5.3	30.8%	6.6	38.5%	5.3	30.8%
Pink Salmon	17.1	59.1%	11.9	40.9%	2.6	22.2%	6.6	55.6%	2.6	22.2%
Sockeye Salmon	14.5	50.0%	14.5	50.0%	2.6	18.2%	4.0	27.3%	7.9	54.5%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-92. Reasons for Increased Availability of Salmon, Chignik Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	2.6	9.1%	1.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%	0.0	0.0%	0.0	0.0%
Coho Salmon	2.6	9.1%	1.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%	0.0	0.0%	0.0	0.0%
Chinook Salmon	5.3	18.2%	1.3	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.6	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.6	50.0%	0.0	0.0%	0.0	0.0%
Pink Salmon	2.6	9.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.6	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Sockeye Salmon	2.6	9.1%	1.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-93. Reasons for Decreased Availability of Salmon, Chignik Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	5.3	18.2%	0.0	0.0%	0.0	0.0%	1.3	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	25.0%	0.0	0.0%	0.0	0.0%	2.6	50.0%
Coho Salmon	6.6	22.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	20.0%	1.3	20.0%	0.0	0.0%	4.0	60.0%
Chinook Salmon	5.3	18.2%	0.0	0.0%	0.0	0.0%	2.6	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.6	50.0%	0.0	0.0%	0.0	0.0%	1.3	25.0%
Pink Salmon	2.6	9.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%
Sockeye Salmon	7.9	27.3%	0.0	0.0%	0.0	0.0%	1.3	16.7%	0.0	0.0%	0.0	0.0%	1.3	16.7%	0.0	0.0%	1.3	16.7%	2.6	33.3%	0.0	0.0%	1.3	16.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-94. Oil Spill-Related Reasons for Decreased Availability of Salmon, Chignik Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Coho Salmon	2.6	9.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%	1.3	50.0%	0.0	0.0%	0.0	0.0%
Pink Salmon	1.3	4.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Sockeye Salmon	2.6	9.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%	1.3	50.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-95. Household Assessment of Change in Salmon Available to Harvest, Chignik Lagoon, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	5.5	25.0%	16.5	75.0%	1.4	8.3%	1.4	8.3%	13.8	83.3%
Coho Salmon	4.1	18.8%	17.9	81.3%	5.5	30.8%	4.1	23.1%	8.3	46.2%
Chinook Salmon	2.8	12.5%	19.3	87.5%	6.9	35.7%	5.5	28.6%	6.9	35.7%
Pink Salmon	5.5	25.0%	16.5	75.0%	4.1	25.0%	1.4	8.3%	11.0	66.7%
Sockeye Salmon	1.4	6.3%	20.6	93.8%	2.8	13.3%	5.5	26.7%	12.4	60.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-96. Reasons for Increased Availability of Salmon, Chignik Lagoon, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	1.4	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Coho Salmon	5.5	25.0%	1.4	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.8	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	25.0%	0.0	0.0%	0.0	0.0%
Chinook Salmon	6.9	31.3%	0.0	0.0%	0.0	0.0%	1.4	20.0%	0.0	0.0%	1.4	20.0%	2.8	40.0%	0.0	0.0%	0.0	0.0%	1.4	20.0%	0.0	0.0%	0.0	0.0%
Pink Salmon	4.1	18.8%	0.0	0.0%	0.0	0.0%	1.4	33.3%	0.0	0.0%	1.4	33.3%	0.0	0.0%	1.4	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Sockeye Salmon	2.8	12.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-97. Reasons for Decreased Availability of Salmon, Chignik Lagoon, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	13.8	62.5%	1.4	10.0%	0.0	0.0%	2.8	20.0%	0.0	0.0%	0.0	0.0%	5.5	40.0%	0.0	0.0%	0.0	0.0%	1.4	10.0%	0.0	0.0%	4.1	30.0%
Coho Salmon	8.3	37.5%	2.8	33.3%	0.0	0.0%	1.4	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	16.7%	0.0	0.0%	4.1	50.0%
Chinook Salmon	6.9	31.3%	2.8	40.0%	0.0	0.0%	1.4	20.0%	0.0	0.0%	1.4	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.8	40.0%
Pink Salmon	11.0	50.0%	1.4	12.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.8	25.0%	0.0	0.0%	0.0	0.0%	1.4	12.5%	0.0	0.0%	6.9	62.5%
Sockeye Salmon	12.4	56.3%	1.4	11.1%	0.0	0.0%	2.8	22.2%	0.0	0.0%	0.0	0.0%	2.8	22.2%	0.0	0.0%	0.0	0.0%	2.8	22.2%	0.0	0.0%	4.1	33.3%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-98. Oil Spill-Related Reasons for Decreased Availability of Salmon, Chignik Lagoon, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	4.1	18.8%	1.4	33.3%	0.0	0.0%	2.8	66.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	33.3%
Coho Salmon	6.9	31.3%	2.8	40.0%	0.0	0.0%	1.4	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	20.0%	0.0	0.0%	2.8	40.0%
Chinook Salmon	2.8	12.5%	2.8	100.0%	0.0	0.0%	1.4	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Pink Salmon	5.5	25.0%	1.4	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	25.0%	0.0	0.0%	0.0	0.0%	1.4	25.0%	0.0	0.0%	2.8	50.0%
Sockeye Salmon	5.5	25.0%	1.4	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	25.0%	0.0	0.0%	0.0	0.0%	1.4	25.0%	0.0	0.0%	2.8	50.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-99. Household Assessment of Change in Salmon Available to Harvest, Chignik Lake, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	13.3	42.9%	17.7	57.1%	1.5	8.3%	14.8	83.3%	1.5	8.3%
Coho Salmon	14.8	47.6%	16.2	52.4%	3.0	18.2%	10.3	63.6%	3.0	18.2%
Chinook Salmon	10.3	33.3%	20.7	66.7%	5.9	28.6%	10.3	50.0%	4.4	21.4%
Pink Salmon	11.8	38.1%	19.2	61.9%	1.5	7.7%	11.8	61.5%	5.9	30.8%
Sockeye Salmon	5.9	19.0%	25.1	81.0%	1.5	5.9%	13.3	52.9%	10.3	41.2%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-100. Reasons for Increased Availability of Salmon, Chignik Lake, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	1.5	4.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	100.0%
Coho Salmon	3.0	9.5%	0.0	0.0%	0.0	0.0%	1.5	50.0%	0.0	0.0%	1.5	50.0%	1.5	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Chinook Salmon	5.9	19.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.0	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.0	50.0%
Pink Salmon	1.5	4.8%	0.0	0.0%	0.0	0.0%	1.5	100.0%	0.0	0.0%	0.0	0.0%	1.5	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Sockeye Salmon	1.5	4.8%	0.0	0.0%	0.0	0.0%	1.5	100.0%	0.0	0.0%	0.0	0.0%	1.5	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A101. Reasons for Decreased Availability of Salmon, Chignik Lake, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	1.5	4.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	100.0%
Coho Salmon	3.0	9.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.0	100.0%
Chinook Salmon	4.4	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.0	66.7%
Pink Salmon	5.9	19.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.4	75.0%
Sockeye Salmon	10.3	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.0	28.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	7.4	71.4%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table-102. Oil Spill-Related Reasons for Decreased Availability of Salmon, Chignik Lake, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chinook Salmon	3.0	9.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	50.0%
Sockeye Salmon	1.5	4.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-103. Household Assessment of Change in Salmon Available to Harvest, Cordova, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	484.2	53.2%	425.8	46.8%	128.9	30.3%	200.1	47.0%	96.9	22.8%
Coho Salmon	254.6	28.0%	655.4	72.0%	211.9	32.3%	273.7	41.8%	169.8	25.9%
Chinook Salmon	297.7	32.7%	612.3	67.3%	89.3	14.6%	363.0	59.3%	160.1	26.1%
Pink Salmon	402.9	44.3%	507.1	55.7%	216.4	42.7%	169.8	33.5%	120.9	23.8%
Sockeye Salmon	313.6	34.5%	596.4	65.5%	68.4	11.5%	384.8	64.5%	143.1	24.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-104. Reasons for Increased Availability of Salmon, Cordova, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	128.9	14.2%	0.0	0.0%	0.0	0.0%	8.0	6.2%	0.0	0.0%	0.0	0.0%	30.2	23.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	90.7	70.4%
Coho Salmon	211.9	23.3%	0.0	0.0%	0.0	0.0%	11.1	5.2%	0.0	0.0%	0.0	0.0%	39.6	18.7%	0.0	0.0%	8.0	3.8%	8.0	3.8%	0.0	0.0%	145.2	68.5%
Chinook Salmon	89.3	9.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	11.1	12.5%	0.0	0.0%	8.0	8.9%	0.0	0.0%	0.0	0.0%	70.2	78.6%
Pink Salmon	216.4	23.8%	0.0	0.0%	0.0	0.0%	24.0	11.1%	0.0	0.0%	0.0	0.0%	47.6	22.0%	3.1	1.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	141.7	65.5%
Sockeye Salmon	68.4	7.5%	0.0	0.0%	0.0	0.0%	8.0	11.7%	0.0	0.0%	0.0	0.0%	14.2	20.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	46.2	67.5%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-105. Reasons for Decreased Availability of Salmon, Cordova, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	96.9	10.6%	0.0	0.0%	0.0	0.0%	16.0	16.5%	0.0	0.0%	0.0	0.0%	8.0	8.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	72.9	75.3%
Coho Salmon	169.8	18.7%	0.0	0.0%	0.0	0.0%	16.0	9.4%	0.0	0.0%	0.0	0.0%	8.0	4.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	145.9	85.9%
Chinook Salmon	160.1	17.6%	0.0	0.0%	0.0	0.0%	27.1	16.9%	0.0	0.0%	8.0	5.0%	19.1	11.9%	0.0	0.0%	11.1	6.9%	0.0	0.0%	0.0	0.0%	94.8	59.2%
Pink Salmon	120.9	13.3%	0.0	0.0%	0.0	0.0%	8.0	6.6%	0.0	0.0%	0.0	0.0%	16.0	13.2%	8.0	6.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	88.9	73.6%
Sockeye Salmon	143.1	15.7%	0.0	0.0%	0.0	0.0%	24.0	16.7%	0.0	0.0%	0.0	0.0%	16.0	11.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	111.1	77.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-106. Oil Spill-Related Reasons for Decreased Availability of Salmon, Cordova, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	68.4	7.5%	0.0	0.0%	0.0	0.0%	8.0	11.7%	0.0	0.0%	0.0	0.0%	8.0	11.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	52.4	76.6%
Coho Salmon	101.8	11.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.0	7.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	93.8	92.1%
Chinook Salmon	55.6	6.1%	0.0	0.0%	0.0	0.0%	8.0	14.4%	0.0	0.0%	0.0	0.0%	3.1	5.6%	0.0	0.0%	3.1	5.6%	0.0	0.0%	0.0	0.0%	41.3	74.4%
Pink Salmon	88.9	9.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	16.0	18.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	72.9	82.0%
Sockeye Salmon	74.7	8.2%	0.0	0.0%	0.0	0.0%	8.0	10.7%	0.0	0.0%	0.0	0.0%	8.0	10.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	58.7	78.6%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-107. Household Assessment of Change in Salmon Available to Harvest, Karluk, 2003 Study Year Compared to Five years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	4.3	28.6%	10.7	71.4%	0.0	0.0%	6.4	60.0%	4.3	40.0%
Coho Salmon	4.3	28.6%	10.7	71.4%	0.0	0.0%	2.1	20.0%	8.6	80.0%
Chinook Salmon	4.3	28.6%	10.7	71.4%	2.1	20.0%	0.0	0.0%	8.6	80.0%
Pink Salmon	4.3	28.6%	10.7	71.4%	0.0	0.0%	8.6	80.0%	2.1	20.0%
Sockeye Salmon	2.1	14.3%	12.9	85.7%	2.1	16.7%	2.1	16.7%	8.6	66.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-108. Reasons for Increased Availability of Salmon, Karluk, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chinook Salmon	2.1	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.1	100.0%
Sockeye Salmon	2.1	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.1	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-109. Reasons for Decreased Availability of Salmon, Karluk, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	4.3	28.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.3	100.0%
Coho Salmon	8.6	57.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.6	100.0%
Chinook Salmon	8.6	57.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.6	100.0%
Pink Salmon	2.1	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.1	100.0%
Sockeye Salmon	8.6	57.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.6	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-110. Oil Spill-Related Reasons for Decreased Availability of Salmon, Karluk, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	4.3	28.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.3	100.0%
Coho Salmon	8.6	57.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.6	100.0%
Chinook Salmon	8.6	57.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.6	100.0%
Pink Salmon	2.1	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.1	100.0%
Sockeye Salmon	8.6	57.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.6	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-111. Household Assessment of Change in Salmon Available to Harvest, Larsen Bay, 2003 Study Year Compared to Five Years Agc

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	22.3	72.0%	8.7	28.0%	0.0	0.0%	8.7	100.0%	0.0	0.0%
Coho Salmon	18.6	60.0%	12.4	40.0%	0.0	0.0%	9.9	80.0%	2.5	20.0%
Chinook Salmon	14.9	48.0%	16.1	52.0%	2.5	15.4%	8.7	53.8%	5.0	30.8%
Pink Salmon	18.6	60.0%	12.4	40.0%	2.5	20.0%	7.4	60.0%	2.5	20.0%
Sockeye Salmon	17.4	56.0%	13.6	44.0%	2.5	18.2%	8.7	63.6%	2.5	18.2%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-112. Reasons for Increased Availability of Salmon, Larsen Bay, 2003 Study Year Compared to Five Years Agc

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chinook Salmon	2.5	8.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.5	100.0%
Pink Salmon	2.5	8.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	50.0%
Sockeye Salmon	2.5	8.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	50.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-113. Reasons for Decreased Availability of Salmon, Larsen Bay, 2003 Study Year Compared to Five Years Agc

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Coho Salmon	2.5	8.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	50.0%
Chinook Salmon	5.0	16.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.5	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.5	50.0%
Pink Salmon	2.5	8.0%	1.2	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	50.0%
Sockeye Salmon	2.5	8.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	50.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-114. Oil Spill-Related Reasons for Decreased Availability of Salmon, Larsen Bay, 2003 Study Year Compared to Five Years Agc

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Coho Salmon	1.2	4.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	100.0%
Pink Salmon	2.5	8.0%	1.2	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	50.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-115. Household Assessment of Change in Salmon Available to Harvest, Nanwalek, 2003 Study Year Compared to Five years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	4.6	9.1%	46.4	90.9%	9.3	20.0%	18.5	40.0%	18.5	40.0%
Coho Salmon	0.0	0.0%	51.0	100.0%	13.9	27.3%	23.2	45.5%	13.9	27.3%
Chinook Salmon	2.3	4.5%	48.7	95.5%	11.6	23.8%	16.2	33.3%	20.9	42.9%
Pink Salmon	0.0	0.0%	51.0	100.0%	11.6	22.7%	25.5	50.0%	13.9	27.3%
Sockeye Salmon	0.0	0.0%	51.0	100.0%	32.5	63.6%	11.6	22.7%	7.0	13.6%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-116. Reasons for Increased Availability of Salmon, Nanwalek, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	9.3	18.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.6	50.0%	0.0	0.0%	0.0	0.0%	4.6	50.0%
Coho Salmon	13.9	27.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	11.6	83.3%
Chinook Salmon	11.6	22.7%	0.0	0.0%	0.0	0.0%	2.3	20.0%	0.0	0.0%	2.3	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	7.0	60.0%
Pink Salmon	11.6	22.7%	0.0	0.0%	0.0	0.0%	2.3	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	9.3	80.0%
Sockeye Salmon	32.5	63.6%	0.0	0.0%	0.0	0.0%	9.3	28.6%	0.0	0.0%	0.0	0.0%	4.6	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	18.5	57.1%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-117. Reasons for Decreased Availability of Salmon, Nanwalek, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	18.5	36.4%	2.3	12.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	12.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	13.9	75.0%
Coho Salmon	13.9	27.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	11.6	83.3%
Chinook Salmon	20.9	40.9%	2.3	11.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	11.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	16.2	77.8%
Pink Salmon	13.9	27.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.6	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	9.3	66.7%
Sockeye Salmon	7.0	13.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.6	66.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-118. Oil Spill-Related Reasons for Decreased Availability of Salmon, Nanwalek, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	9.3	18.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	7.0	75.0%
Coho Salmon	9.3	18.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	7.0	75.0%
Chinook Salmon	13.9	27.3%	2.3	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	9.3	66.7%
Pink Salmon	9.3	18.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.6	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.6	50.0%
Sockeye Salmon	4.6	9.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	50.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-119. Household Assessment of Change in Salmon Available to Harvest, Old Harbor, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	17.5	23.1%	58.5	76.9%	5.8	10.0%	36.5	62.5%	16.1	27.5%
Coho Salmon	11.7	15.4%	64.3	84.6%	2.9	4.5%	46.8	72.7%	14.6	22.7%
Chinook Salmon	21.9	28.8%	54.1	71.2%	19.0	35.1%	24.8	45.9%	10.2	18.9%
Pink Salmon	16.1	21.2%	59.9	78.8%	8.8	14.6%	42.4	70.7%	8.8	14.6%
Sockeye Salmon	14.6	19.2%	61.4	80.8%	5.8	9.5%	42.4	69.0%	13.2	21.4%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-120. Reasons for Increased Availability of Salmon, Old Harbor, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	5.8	7.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.4	75.0%
Coho Salmon	2.9	3.8%	1.5	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	50.0%
Chinook Salmon	19.0	25.0%	0.0	0.0%	0.0	0.0%	4.4	23.1%	0.0	0.0%	0.0	0.0%	4.4	23.1%	0.0	0.0%	2.9	15.4%	4.4	23.1%	0.0	0.0%	7.3	38.5%
Pink Salmon	8.8	11.5%	1.5	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.9	33.3%	2.9	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.9	33.3%
Sockeye Salmon	5.8	7.7%	1.5	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.4	75.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-121. Reasons for Decreased Availability of Salmon, Old Harbor, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	16.1	21.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	9.1%	0.0	0.0%	0.0	0.0%	2.9	18.2%	0.0	0.0%	11.7	72.7%
Coho Salmon	14.6	19.2%	1.5	10.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	10.0%	0.0	0.0%	0.0	0.0%	2.9	20.0%	0.0	0.0%	8.8	60.0%
Chinook Salmon	10.2	13.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.4	42.9%	0.0	0.0%	0.0	0.0%	2.9	28.6%	0.0	0.0%	2.9	28.6%
Pink Salmon	8.8	11.5%	1.5	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.9	33.3%	0.0	0.0%	4.4	50.0%
Sockeye Salmon	13.2	17.3%	2.9	22.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	11.1%	0.0	0.0%	1.5	11.1%	1.5	11.1%	0.0	0.0%	5.8	44.4%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-122. Oil Spill-Related Reasons for Decreased Availability of Salmon, Old Harbor, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	8.8	11.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	16.7%	0.0	0.0%	7.3	83.3%
Coho Salmon	5.8	7.7%	1.5	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	25.0%	0.0	0.0%	2.9	50.0%
Chinook Salmon	5.8	7.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	25.0%	0.0	0.0%	0.0	0.0%	2.9	50.0%	0.0	0.0%	1.5	25.0%
Pink Salmon	5.8	7.7%	1.5	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.9	50.0%	0.0	0.0%	1.5	25.0%
Sockeye Salmon	8.8	11.5%	2.9	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	16.7%	1.5	16.7%	0.0	0.0%	2.9	33.3%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-123. Household Assessment of Change in Salmon Available to Harvest, Ouzinkie, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	37.9	54.9%	31.1	45.1%	5.4	17.4%	20.3	65.2%	5.4	17.4%
Coho Salmon	21.6	31.4%	47.4	68.6%	5.4	11.4%	33.8	71.4%	8.1	17.1%
Chinook Salmon	35.2	51.0%	33.8	49.0%	10.8	32.0%	20.3	60.0%	2.7	8.0%
Pink Salmon	27.1	39.2%	41.9	60.8%	9.5	22.6%	28.4	67.7%	4.1	9.7%
Sockeye Salmon	25.7	37.3%	43.3	62.7%	2.7	6.3%	25.7	59.4%	14.9	34.4%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-124. Reasons for Increased Availability of Salmon, Ouzinkie, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	5.4	7.8%	0.0	0.0%	0.0	0.0%	1.4	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.1	75.0%
Coho Salmon	5.4	7.8%	0.0	0.0%	0.0	0.0%	1.4	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.1	75.0%
Chinook Salmon	10.8	15.7%	0.0	0.0%	0.0	0.0%	1.4	12.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	12.5%	0.0	0.0%	0.0	0.0%	9.5	87.5%
Pink Salmon	9.5	13.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	9.5	100.0%
Sockeye Salmon	2.7	3.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.7	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-125. Reasons for Decreased Availability of Salmon, Ouzinkie, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	5.4	7.8%	1.4	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.1	75.0%
Coho Salmon	8.1	11.8%	2.7	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	5.4	66.7%
Chinook Salmon	2.7	3.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.7	100.0%
Pink Salmon	4.1	5.9%	1.4	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.7	66.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	33.3%
Sockeye Salmon	14.9	21.6%	1.4	9.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.7	18.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	12.2	81.8%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-126. Oil Spill-Related Reasons for Decreased Availability of Salmon, Ouzinkie, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	1.4	2.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Coho Salmon	2.7	3.9%	2.7	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Pink Salmon	2.7	3.9%	1.4	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.7	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Sockeye Salmon	2.7	3.9%	1.4	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-127. Household Assessment of Change in Salmon Available to Harvest, Perryville, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	6.1	18.5%	26.9	81.5%	2.4	9.1%	7.3	27.3%	17.1	63.6%
Coho Salmon	3.7	11.1%	29.3	88.9%	11.0	37.5%	8.6	29.2%	9.8	33.3%
Chinook Salmon	6.1	18.5%	26.9	81.5%	8.6	31.8%	9.8	36.4%	8.6	31.8%
Pink Salmon	3.7	11.1%	29.3	88.9%	13.4	45.8%	11.0	37.5%	4.9	16.7%
Sockeye Salmon	2.4	7.4%	30.6	92.6%	8.6	28.0%	8.6	28.0%	13.4	44.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-128. Reasons for Increased Availability of Salmon, Perryville, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	2.4	7.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	50.0%
Coho Salmon	11.0	33.3%	0.0	0.0%	0.0	0.0%	2.4	22.2%	0.0	0.0%	1.2	11.1%	2.4	22.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	7.3	66.7%
Chinook Salmon	8.6	25.9%	0.0	0.0%	0.0	0.0%	2.4	28.6%	0.0	0.0%	0.0	0.0%	4.9	57.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	14.3%
Pink Salmon	13.4	40.7%	0.0	0.0%	0.0	0.0%	3.7	27.3%	0.0	0.0%	1.2	9.1%	1.2	9.1%	0.0	0.0%	1.2	9.1%	3.7	27.3%	0.0	0.0%	4.9	36.4%
Sockeye Salmon	8.6	25.9%	0.0	0.0%	0.0	0.0%	4.9	57.1%	0.0	0.0%	1.2	14.3%	4.9	57.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	14.3%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-129. Reasons for Decreased Availability of Salmon, Perryville, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	17.1	51.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.6	50.0%	0.0	0.0%	0.0	0.0%	3.7	21.4%	0.0	0.0%	4.9	28.6%
Coho Salmon	9.8	29.6%	1.2	12.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.4	25.0%	0.0	0.0%	1.2	12.5%	1.2	12.5%	0.0	0.0%	4.9	50.0%
Chinook Salmon	8.6	25.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.4	28.6%	0.0	0.0%	0.0	0.0%	1.2	14.3%	0.0	0.0%	4.9	57.1%
Pink Salmon	4.9	14.8%	0.0	0.0%	0.0	0.0%	1.2	25.0%	0.0	0.0%	0.0	0.0%	2.4	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.4	50.0%
Sockeye Salmon	13.4	40.7%	1.2	9.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.4	18.2%	0.0	0.0%	0.0	0.0%	1.2	9.1%	0.0	0.0%	8.6	63.6%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-130. Oil Spill-Related Reasons for Decreased Availability of Salmon, Perryville, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	4.9	14.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	25.0%	0.0	0.0%	0.0	0.0%	3.7	75.0%	0.0	0.0%	0.0	0.0%
Coho Salmon	4.9	14.8%	1.2	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	25.0%	0.0	0.0%	2.4	50.0%
Chinook Salmon	1.2	3.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Pink Salmon	2.4	7.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.4	100.0%
Sockeye Salmon	6.1	18.5%	1.2	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	20.0%	0.0	0.0%	0.0	0.0%	1.2	20.0%	0.0	0.0%	2.4	40.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-131. Household Assessment of Change in Salmon Available to Harvest, Port Graham, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	11.1	17.0%	53.9	83.0%	9.7	17.9%	30.4	56.4%	13.8	25.6%
Coho Salmon	9.7	14.9%	55.3	85.1%	16.6	30.0%	11.1	20.0%	27.7	50.0%
Chinook Salmon	15.2	23.4%	49.8	76.6%	12.4	25.0%	13.8	27.8%	23.5	47.2%
Pink Salmon	9.7	14.9%	55.3	85.1%	27.7	50.0%	13.8	25.0%	13.8	25.0%
Sockeye Salmon	15.2	23.4%	49.8	76.6%	31.8	63.9%	8.3	16.7%	9.7	19.4%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-132. Reasons for Increased Availability of Salmon, Port Graham, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	9.7	14.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.3	85.7%
Coho Salmon	16.6	25.5%	0.0	0.0%	0.0	0.0%	1.4	8.3%	2.8	16.7%	0.0	0.0%	1.4	8.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	11.1	66.7%
Chinook Salmon	12.4	19.1%	0.0	0.0%	0.0	0.0%	2.8	22.2%	0.0	0.0%	0.0	0.0%	2.8	22.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.9	55.6%
Pink Salmon	27.7	42.6%	0.0	0.0%	0.0	0.0%	15.2	55.0%	1.4	5.0%	0.0	0.0%	1.4	5.0%	0.0	0.0%	0.0	0.0%	1.4	5.0%	0.0	0.0%	8.3	30.0%
Sockeye Salmon	31.8	48.9%	1.4	4.3%	0.0	0.0%	18.0	56.5%	0.0	0.0%	0.0	0.0%	1.4	4.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	12.4	39.1%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-133. Reasons for Decreased Availability of Salmon, Port Graham, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	13.8	21.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	10.0%	0.0	0.0%	12.4	90.0%
Coho Salmon	27.7	42.6%	1.4	5.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.8	10.0%	6.9	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	19.4	70.0%
Chinook Salmon	23.5	36.2%	2.8	11.8%	0.0	0.0%	1.4	5.9%	0.0	0.0%	0.0	0.0%	2.8	11.8%	1.4	5.9%	1.4	5.9%	0.0	0.0%	0.0	0.0%	16.6	70.6%
Pink Salmon	13.8	21.3%	1.4	10.0%	0.0	0.0%	2.8	20.0%	0.0	0.0%	0.0	0.0%	5.5	40.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	5.5	40.0%
Sockeye Salmon	9.7	14.9%	0.0	0.0%	0.0	0.0%	1.4	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.3	85.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-134. Oil Spill-Related Reasons for Decreased Availability of Salmon, Port Graham, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	5.5	8.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	25.0%	0.0	0.0%	4.1	75.0%
Coho Salmon	9.7	14.9%	1.4	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	14.3%	2.8	28.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.9	71.4%
Chinook Salmon	9.7	14.9%	2.8	28.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.8	28.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.9	71.4%
Pink Salmon	8.3	12.8%	1.4	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	5.5	66.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.8	33.3%
Sockeye Salmon	8.3	12.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.3	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-135. Household Assessment of Change in Salmon Available to Harvest, Port Lions, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	48.6	68.5%	22.4	31.5%	0.0	0.0%	7.9	35.3%	14.5	64.7%
Coho Salmon	32.9	46.3%	38.1	53.7%	2.6	6.9%	21.0	55.2%	14.5	37.9%
Chinook Salmon	34.2	48.1%	36.8	51.9%	17.1	46.4%	15.8	42.9%	3.9	10.7%
Pink Salmon	46.0	64.8%	25.0	35.2%	3.9	15.8%	13.1	52.6%	7.9	31.6%
Sockeye Salmon	27.6	38.9%	43.4	61.1%	6.6	15.2%	17.1	39.4%	19.7	45.5%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-136. Reasons for Increased Availability of Salmon, Port Lions, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Coho Salmon	2.6	3.7%	0.0	0.0%	0.0	0.0%	1.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%
Chinook Salmon	17.1	24.1%	0.0	0.0%	0.0	0.0%	6.6	38.5%	0.0	0.0%	0.0	0.0%	1.3	7.7%	1.3	7.7%	3.9	23.1%	2.6	15.4%	0.0	0.0%	5.3	30.8%
Pink Salmon	3.9	5.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.9	100.0%
Sockeye Salmon	6.6	9.3%	0.0	0.0%	0.0	0.0%	5.3	80.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	20.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-137. Reasons for Decreased Availability of Salmon, Port Lions, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	14.5	20.4%	2.6	18.2%	0.0	0.0%	1.3	9.1%	0.0	0.0%	0.0	0.0%	9.2	63.6%	0.0	0.0%	0.0	0.0%	2.6	18.2%	0.0	0.0%	2.6	18.2%
Coho Salmon	14.5	20.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.6	18.2%	1.3	9.1%	7.9	54.5%	0.0	0.0%	0.0	0.0%	2.6	18.2%	0.0	0.0%	3.9	27.3%
Chinook Salmon	3.9	5.6%	0.0	0.0%	0.0	0.0%	1.3	33.3%	0.0	0.0%	1.3	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.6	66.7%
Pink Salmon	7.9	11.1%	1.3	16.7%	0.0	0.0%	0.0	0.0%	1.3	16.7%	0.0	0.0%	6.6	83.3%	0.0	0.0%	0.0	0.0%	1.3	16.7%	0.0	0.0%	1.3	16.7%
Sockeye Salmon	19.7	27.8%	0.0	0.0%	0.0	0.0%	6.6	33.3%	0.0	0.0%	1.3	6.7%	5.3	26.7%	0.0	0.0%	0.0	0.0%	1.3	6.7%	0.0	0.0%	7.9	40.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-138. Oil Spill-Related Reasons for Decreased Availability of Salmon, Port Lions, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	5.3	7.4%	2.6	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	5.3	100.0%	0.0	0.0%	0.0	0.0%	1.3	25.0%	0.0	0.0%	0.0	0.0%
Coho Salmon	5.3	7.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	25.0%	3.9	75.0%	0.0	0.0%	0.0	0.0%	1.3	25.0%	0.0	0.0%	1.3	25.0%
Chinook Salmon	2.6	3.7%	0.0	0.0%	0.0	0.0%	1.3	50.0%	0.0	0.0%	1.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%
Pink Salmon	3.9	5.6%	1.3	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.6	66.7%	0.0	0.0%	0.0	0.0%	1.3	33.3%	0.0	0.0%	1.3	33.3%
Sockeye Salmon	2.6	3.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.6	100.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-139. Household Assessment of Change in Salmon Available to Harvest, Tatitlek, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	7.6	28.0%	19.4	72.0%	2.2	11.1%	7.6	38.9%	9.7	50.0%
Coho Salmon	5.4	20.0%	21.6	80.0%	3.2	15.0%	13.0	60.0%	5.4	25.0%
Chinook Salmon	3.2	12.0%	23.8	88.0%	2.2	9.1%	4.3	18.2%	17.3	72.7%
Pink Salmon	6.5	24.0%	20.5	76.0%	6.5	31.6%	8.6	42.1%	5.4	26.3%
Sockeye Salmon	3.2	12.0%	23.8	88.0%	0.0	0.0%	6.5	27.3%	17.3	72.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-140. Reasons for Increased Availability of Salmon, Tatitlek, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	2.2	8.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.2	100.0%
Coho Salmon	3.2	12.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.2	100.0%
Chinook Salmon	2.2	8.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.2	100.0%
Pink Salmon	6.5	24.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.5	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-141. Reasons for Decreased Availability of Salmon, Tatitlek, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	9.7	36.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	9.7	100.0%
Coho Salmon	5.4	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	5.4	100.0%
Chinook Salmon	17.3	64.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	17.3	100.0%
Pink Salmon	5.4	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	5.4	100.0%
Sockeye Salmon	17.3	64.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.1	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	16.2	93.8%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-142. Oil Spill-Related Reasons for Decreased Availability of Salmon, Tatitlek, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chum Salmon	5.4	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	5.4	100.0%
Coho Salmon	4.3	16.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.3	100.0%
Chinook Salmon	8.6	32.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.6	100.0%
Pink Salmon	3.2	12.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.2	100.0%
Sockeye Salmon	8.6	32.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.6	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-143. Household Assessment of Change in Non-Salmon Fish Available to Harvest, Akhiok, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Halibut	1.4	9.1%	13.6	90.9%	2.7	20.0%	4.1	30.0%	6.8	50.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-144. Reasons for Increased Availability of Non-Salmon Fish, Akhiok, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Halibut	2.7	18.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-145. Reasons for Decreased Availability of Non-Salmon Fish, Akhiok, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Halibut	6.8	45.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	20.0%	1.4	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	5.5	80.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-146. Oil Spill-Related Reasons for Decreased Availability of Non-Salmon Fish, Akhiok, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Halibut	2.7	18.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%	1.4	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-147. Household Assessment of Change in Non-Salmon Fish Available to Harvest, Chenega Bay, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	3.8	18.8%	16.3	81.3%	13.8	84.6%	0.0	0.0%	2.5	15.4%
Halibut	3.8	18.8%	16.3	81.3%	1.3	7.7%	10.0	61.5%	5.0	30.8%
Black Rockfish	7.5	37.5%	12.5	62.5%	3.8	30.0%	8.8	70.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-148. Reasons for Increased Availability of Non-Salmon Fish, Chenega Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	13.8	68.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	13.8	100.0%
Halibut	1.3	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%
Black Rockfish	3.8	18.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.8	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-149. Reasons for Decreased Availability of Non-Salmon Fish, Chenega Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	2.5	12.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%	0.0	0.0%	1.3	50.0%
Halibut	5.0	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	25.0%	0.0	0.0%	2.5	50.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-150. Oil Spill-Related Reasons for Decreased Availability of Non-Salmon Fish, Chenega Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	2.5	12.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%	0.0	0.0%	1.3	50.0%
Halibut	1.3	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%	0.0	0.0%	0.0	0.0%

Table A-151. Household Assessment of Change in Non-Salmon Fish Available to Harvest, Chignik Bay, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	21.1	72.7%	7.9	27.3%	0.0	0.0%	0.0	0.0%	7.9	100.0%
Smelt	27.7	95.5%	1.3	4.5%	1.3	100.0%	0.0	0.0%	0.0	0.0%
Halibut	9.2	31.8%	19.8	68.2%	0.0	0.0%	10.5	53.3%	9.2	46.7%
Black Rockfish	21.1	72.7%	7.9	27.3%	0.0	0.0%	5.3	66.7%	2.6	33.3%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-152. Reasons for Increased Availability of Non-Salmon Fish, Chignik Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Smelt	1.3	4.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-153. Reasons for Decreased Availability of Non-Salmon Fish, Chignik Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	7.9	27.3%	2.6	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	16.7%	0.0	0.0%	0.0	0.0%	4.0	50.0%	0.0	0.0%	1.3	16.7%
Halibut	9.2	31.8%	1.3	14.3%	0.0	0.0%	1.3	14.3%	0.0	0.0%	2.6	28.6%	2.6	28.6%	0.0	0.0%	0.0	0.0%	2.6	28.6%	0.0	0.0%	1.3	14.3%
Black Rockfish	2.6	9.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.6	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-154. Oil Spill-Related Reasons for Decreased Availability of Non-Salmon Fish, Chignik Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	6.6	22.7%	2.6	40.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	20.0%	0.0	0.0%	0.0	0.0%	2.6	40.0%	0.0	0.0%	1.3	20.0%
Halibut	4.0	13.6%	1.3	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.6	66.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	33.3%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-155. Reasons for Increased Availability of Non-Salmon Fish, Chignik Lagoon, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	6.9	31.3%	15.1	68.8%	0.0	0.0%	0.0	0.0%	15.1	100.0%
Pacific Cod (gray)	20.6	93.8%	1.4	6.3%	1.4	100.0%	0.0	0.0%	0.0	0.0%
Halibut	2.8	12.5%	19.3	87.5%	1.4	7.1%	4.1	21.4%	13.8	71.4%
Black Rockfish	9.6	43.8%	12.4	56.3%	1.4	11.1%	8.3	66.7%	2.8	22.2%
Sablefish (black cod)	20.6	93.8%	1.4	6.3%	0.0	0.0%	0.0	0.0%	1.4	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-156. Reasons for Increased Availability of Non-Salmon Fish, Chignik Lagoon, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Pacific Cod (gray)	1.4	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Halibut	1.4	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%
Black Rockfish	1.4	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-157. Reasons for Decreased Availability of Non-Salmon Fish, Chignik Lagoon, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	15.1	68.8%	4.1	27.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.8	18.2%	0.0	0.0%	0.0	0.0%	2.8	18.2%	0.0	0.0%	5.5	36.4%
Halibut	13.8	62.5%	1.4	10.0%	0.0	0.0%	2.8	20.0%	0.0	0.0%	0.0	0.0%	4.1	30.0%	0.0	0.0%	0.0	0.0%	1.4	10.0%	0.0	0.0%	4.1	30.0%
Black Rockfish	2.8	12.5%	1.4	50.0%	0.0	0.0%	1.4	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%
Sablefish (black cod)	1.4	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-158. Oil Spill-Related Reasons for Decreased Availability of Non-Salmon Fish, Chignik Lagoon, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	9.6	43.8%	4.1	42.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	14.3%	0.0	0.0%	4.1	42.9%
Halibut	2.8	12.5%	1.4	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%
Black Rockfish	2.8	12.5%	1.4	50.0%	0.0	0.0%	1.4	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%
Sablefish (black cod)	1.4	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-159. Household Assessment of Change in Non-Salmon Fish Available to Harvest, Chignik Lake, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	22.1	71.4%	8.9	28.6%	0.0	0.0%	5.9	66.7%	3.0	33.3%
Halibut	10.3	33.3%	20.7	66.7%	0.0	0.0%	16.2	78.6%	4.4	21.4%
Black Rockfish	23.6	76.2%	7.4	23.8%	1.5	20.0%	5.9	80.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-160. Reasons for Increased Availability of Non-Salmon Fish, Chignik Lake, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Black Rockfish	1.5	4.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-161. Reasons for Decreased Availability of Non-Salmon Fish, Chignik Lake, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Halibut	1.3	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%
Black Rockfish	3.8	18.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.8	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-162. Oil Spill-Related Reasons for Decreased Availability of Non-Salmon Fish, Chignik Lake, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	3.0	9.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.0	100.0%
Halibut	1.5	4.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-163. Household Assessment of Change in Non-Salmon Fish Available to Harvest, Cordova, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	320.2	35.2%	589.8	64.8%	111.5	18.9%	89.3	15.1%	389.0	66.0%
Halibut	268.8	29.5%	641.2	70.5%	104.9	16.4%	237.2	37.0%	299.0	46.6%
Black Rockfish	556.8	61.2%	353.2	38.8%	47.9	13.6%	170.2	48.2%	135.1	38.2%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-164. Reasons for Increased Availability of Non-Salmon Fish, Cordova, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	111.5	12.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	35.1	31.5%	0.0	0.0%	8.0	7.2%	8.0	7.2%	0.0	0.0%	60.4	54.2%
Halibut	104.9	11.5%	0.0	0.0%	0.0	0.0%	8.0	7.6%	0.0	0.0%	0.0	0.0%	19.1	18.2%	0.0	0.0%	0.0	0.0%	8.0	7.6%	0.0	0.0%	69.8	66.6%
Black Rockfish	47.9	5.3%	0.0	0.0%	0.0	0.0%	8.0	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	39.9	83.3%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-165. Reasons for Decreased Availability of Non-Salmon Fish, Cordova, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	389.0	42.7%	24.0	6.2%	0.0	0.0%	8.0	2.1%	0.0	0.0%	0.0	0.0%	25.4	6.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	331.7	85.3%
Halibut	299.0	32.9%	0.0	0.0%	0.0	0.0%	16.0	5.3%	0.0	0.0%	35.1	11.7%	8.0	2.7%	8.0	2.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	232.0	77.6%
Black Rockfish	135.1	14.8%	8.0	5.9%	0.0	0.0%	11.1	8.2%	0.0	0.0%	6.3	4.6%	8.0	5.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	101.8	75.3%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-166. Oil Spill-Related Reasons for Decreased Availability of Non-Salmon Fish, Cordova, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	333.4	36.6%	24.0	7.2%	0.0	0.0%	8.0	2.4%	0.0	0.0%	0.0	0.0%	11.1	3.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	290.4	87.1%
Halibut	65.3	7.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	65.3	100.0%
Black Rockfish	68.4	7.5%	8.0	11.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.0	11.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	52.4	76.6%

Table A-167. Household Assessment of Change in Non-Salmon Fish Available to Harvest, Karluk, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Halibut	6.4	42.9%	8.6	57.1%	0.0	0.0%	2.1	25.0%	6.4	75.0%
Black Rockfish	10.7	71.4%	4.3	28.6%	0.0	0.0%	2.1	50.0%	2.1	50.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-168. Reasons for Increased Availability of Non-Salmon Fish, Karluk, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/ Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Halibut	6.4	42.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.4	100.0%
Black Rockfish	2.1	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.1	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-169. Oil Spill-Related Reasons for Decreased Availability of Non-Salmon Fish, Karluk, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/ Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Halibut	6.4	42.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.4	100.0%
Black Rockfish	2.1	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.1	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-170. Household Assessment of Change in Non-Salmon Fish Available to Harvest, Larsen Bay, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	26.0	84.0%	5.0	16.0%	1.2	25.0%	3.7	75.0%	0.0	0.0%
Halibut	13.6	44.0%	17.4	56.0%	0.0	0.0%	17.4	100.0%	0.0	0.0%
Black Rockfish	24.8	80.0%	6.2	20.0%	0.0	0.0%	6.2	100.0%	0.0	0.0%
Unknown Shark	31.0	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-171. Reasons for Increased Availability of Non-Salmon Fish, Larsen Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	1.2	4.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-172. Household Assessment of Change in Non-Salmon Fish Available to Harvest, Nanwalek, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	23.2	45.5%	27.8	54.5%	0.0	0.0%	23.2	83.3%	4.6	16.7%
Halibut	4.6	9.1%	46.4	90.9%	9.3	20.0%	23.2	50.0%	13.9	30.0%
Black Rockfish	11.6	22.7%	39.4	77.3%	0.0	0.0%	37.1	94.1%	2.3	5.9%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-173. Reasons for Increased Availability of Non-Salmon Fish, Nanwalek, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Halibut	9.3	18.2%	0.0	0.0%	0.0	0.0%	4.6	50.0%	0.0	0.0%	2.3	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.6	50.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-174. Reasons for Decreased Availability of Non-Salmon Fish, Nanwalek, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	4.6	9.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.6	100.0%
Halibut	13.9	27.3%	2.3	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	9.3	66.7%
Black Rockfish	2.3	4.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-175. Oil Spill-Related Reasons for Decreased Availability of Non-Salmon Fish, Nanwalek, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Halibut	9.3	18.2%	2.3	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	7.0	75.0%
Black Rockfish	2.3	4.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	100.0%
Halibut	6.4	42.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.4	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-176. Household Assessment of Change in Non-Salmon Fish Available to Harvest, Old Harbor, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	43.8	57.7%	32.2	42.3%	1.5	4.5%	20.5	63.6%	10.2	31.8%
Cod	74.5	98.1%	1.5	1.9%	0.0	0.0%	1.5	100.0%	0.0	0.0%
Halibut	13.2	17.3%	62.8	82.7%	4.4	7.0%	45.3	72.1%	13.2	20.9%
Black Rockfish	45.3	59.6%	30.7	40.4%	0.0	0.0%	21.9	71.4%	8.8	28.6%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-177. Reasons for Increased Availability of Non-Salmon Fish, Old Harbor, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	1.5	1.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	100.0%
Halibut	4.4	5.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.4	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-178. Reasons for Decreased Availability of Non-Salmon Fish, Old Harbor, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	10.2	13.5%	1.5	14.3%	0.0	0.0%	0.0	0.0%	2.9	28.6%	1.5	14.3%	1.5	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	5.8	57.1%
Halibut	13.2	17.3%	0.0	0.0%	0.0	0.0%	1.5	11.1%	1.5	11.1%	1.5	11.1%	2.9	22.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	7.3	55.6%
Black Rockfish	8.8	11.5%	1.5	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	7.3	83.3%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-179. Oil Spill-Related Reasons for Decreased Availability of Non-Salmon Fish, Old Harbor, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	7.3	9.6%	1.5	20.0%	0.0	0.0%	0.0	0.0%	2.9	40.0%	1.5	20.0%	1.5	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.9	40.0%
Halibut	7.3	9.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	20.0%	0.0	0.0%	1.5	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.4	60.0%
Black Rockfish	2.9	3.8%	1.5	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	50.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-180. Household Assessment of Change in Non-Salmon Fish Available to Harvest, Ouzinkie, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	48.7	70.6%	20.3	29.4%	2.7	13.3%	8.1	40.0%	9.5	46.7%
Eulachon (hooligan,	67.6	98.0%	1.4	2.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%
Halibut	27.1	39.2%	41.9	60.8%	4.1	9.7%	20.3	48.4%	17.6	41.9%
Black Rockfish	41.9	60.8%	27.1	39.2%	0.0	0.0%	14.9	55.0%	12.2	45.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-181. Reasons for Increased Availability of Non-Salmon Fish, Ouzinkie, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	2.7	3.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.7	100.0%
Halibut	4.1	5.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.1	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-182. Reasons for Decreased Availability of Non-Salmon Fish, Ouzinkie, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	9.5	13.7%	1.4	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.1	85.7%
Eulachon (hooligan,	1.4	2.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Halibut	17.6	25.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	7.7%	1.4	7.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	14.9	84.6%
Black Rockfish	12.2	17.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.1	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.1	66.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-183. Oil Spill-Related Reasons for Decreased Availability of Non-Salmon Fish, Ouzinkie, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	2.7	3.9%	1.4	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%
Eulachon (hooligan,	1.4	2.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Halibut	2.7	3.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%
Black Rockfish	1.4	2.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-184. Household Assessment of Change in Non-Salmon Fish Available to Harvest, Perryville, 2003 Study Year Compared to Five Years Agc

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	18.3	55.6%	14.7	44.4%	0.0	0.0%	13.4	91.7%	1.2	8.3%
Halibut	4.9	14.8%	28.1	85.2%	0.0	0.0%	9.8	34.8%	18.3	65.2%
Black Rockfish	15.9	48.1%	17.1	51.9%	3.7	21.4%	12.2	71.4%	1.2	7.1%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-185. Reasons for Increased Availability of Non-Salmon Fish, Perryville, 2003 Study Year Compared to Five Years Agc

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Black Rockfish	3.7	11.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.4	66.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-186. Reasons for Decreased Availability of Non-Salmon Fish, Perryville, 2003 Study Year Compared to Five Years Agc

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	1.2	3.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	100.0%
Halibut	18.3	55.6%	2.4	13.3%	0.0	0.0%	6.1	33.3%	0.0	0.0%	3.7	20.0%	8.6	46.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.1	33.3%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-187. Oil Spill-Related Reasons for Decreased Availability of Non-Salmon Fish, Perryville, 2003 Study Year Compared to Five Years Agc

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Halibut	4.9	14.8%	1.2	25.0%	0.0	0.0%	1.2	25.0%	0.0	0.0%	1.2	25.0%	3.7	75.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	25.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-188. Household Assessment of Change in Non-Salmon Fish Available to Harvest, Port Graham, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	24.9	38.3%	40.1	61.7%	5.5	13.8%	13.8	34.5%	20.7	51.7%
Pacific Tom Cod	63.6	97.9%	1.4	2.1%	0.0	0.0%	0.0	0.0%	1.4	100.0%
Halibut	13.8	21.3%	51.2	78.7%	6.9	13.5%	20.7	40.5%	23.5	45.9%
Black Rockfish	34.6	53.2%	30.4	46.8%	1.4	4.5%	15.2	50.0%	13.8	45.5%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-189. Reasons for Increased Availability of Non-Salmon Fish, Port Graham, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	5.5	8.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.1	75.0%
Halibut	6.9	10.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	20.0%	4.1	60.0%
Black Rockfish	1.4	2.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-190. Reasons for Decreased Availability of Non-Salmon Fish, Port Graham, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	20.7	31.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	6.7%	1.4	6.7%	0.0	0.0%	2.8	13.3%	0.0	0.0%	15.2	73.3%
Pacific Tom Cod	1.4	2.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%
Halibut	23.5	36.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	5.9%	11.1	47.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	5.9%	0.0	0.0%	9.7	41.2%
Black Rockfish	13.8	21.3%	1.4	10.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	10.0%	2.8	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.3	60.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-191. Oil Spill-Related Reasons for Decreased Availability of Non-Salmon Fish, Port Graham, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	13.8	21.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	10.0%	1.4	10.0%	0.0	0.0%	1.4	10.0%	0.0	0.0%	9.7	70.0%
Halibut	8.3	12.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	16.7%	2.8	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.1	50.0%
Black Rockfish	6.9	10.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	5.5	80.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-192. Household Assessment of Change in Non-Salmon Fish Available to Harvest, Port Lions, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	56.5	79.6%	14.5	20.4%	2.6	18.2%	6.6	45.5%	5.3	36.4%
Pacific Cod (gray)	69.7	98.1%	1.3	1.9%	0.0	0.0%	0.0	0.0%	1.3	100.0%
Halibut	27.6	38.9%	43.4	61.1%	5.3	12.1%	13.1	30.3%	25.0	57.6%
Black Rockfish	47.3	66.7%	23.7	33.3%	1.3	5.6%	17.1	72.2%	5.3	22.2%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-193. Reasons for Increased Availability of Non-Salmon Fish, Port Lions, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	2.6	3.7%	0.0	0.0%	0.0	0.0%	1.3	50.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%
Halibut	5.3	7.4%	0.0	0.0%	0.0	0.0%	1.3	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	25.0%	0.0	0.0%	2.6	50.0%
Black Rockfish	1.3	1.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-194. Reasons for Decreased Availability of Non-Salmon Fish, Port Lions, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	5.3	7.4%	1.3	25.0%	0.0	0.0%	1.3	25.0%	0.0	0.0%	0.0	0.0%	1.3	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.6	50.0%
Pacific Cod (gray)	1.3	1.9%	0.0	0.0%	0.0	0.0%	1.3	100.0%	0.0	0.0%	1.3	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Halibut	25.0	35.2%	1.3	5.3%	0.0	0.0%	9.2	36.8%	1.3	5.3%	11.8	47.4%	3.9	15.8%	0.0	0.0%	1.3	5.3%	1.3	5.3%	0.0	0.0%	3.9	15.8%
Black Rockfish	5.3	7.4%	1.3	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	25.0%	0.0	0.0%	1.3	25.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-195. Oil Spill-Related Reasons for Decreased Availability of Non-Salmon Fish, Port Lions, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Pacific Cod (gray)	1.3	1.9%	0.0	0.0%	0.0	0.0%	1.3	100.0%	0.0	0.0%	1.3	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Halibut	5.3	7.4%	1.3	25.0%	0.0	0.0%	1.3	25.0%	0.0	0.0%	1.3	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.6	50.0%
Black Rockfish	2.6	3.7%	1.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-196. Household Assessment of Change in Non-Salmon Fish Available to Harvest, Tatitlek, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Black Rockfish	7.5	37.5%	12.5	62.5%	3.8	30.0%	8.8	70.0%	0.0	0.0%
Herring	6.5	24.0%	20.5	76.0%	4.3	21.1%	2.2	10.5%	14.0	68.4%
Halibut	3.2	12.0%	23.8	88.0%	2.2	9.1%	4.3	18.2%	17.3	72.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-197. Reasons for Increased Availability of Non-Salmon Fish, Tatitlek, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	4.3	16.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.3	100.0%
Halibut	2.2	8.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.2	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-198. Reasons for Decreased Availability of Non-Salmon Fish, Tatitlek, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	14.0	52.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	14.0	100.0%
Halibut	17.3	64.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.1	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	16.2	93.8%
Black Rockfish	2.2	8.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.2	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-199. Oil Spill-Related Reasons for Decreased Availability of Non-Salmon Fish, Tatitlek, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Herring	14.0	52.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	14.0	100.0%
Halibut	11.9	44.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.1	9.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	10.8	90.9%
Black Rockfish	2.2	8.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.2	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-200. Household Assessment of Change in Marine Invertebrates Available to Harvest, Akhiok, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	2.7	18.2%	12.3	81.8%	1.4	11.1%	8.2	66.7%	2.7	22.2%
Clams	2.7	18.2%	12.3	81.8%	1.4	11.1%	5.5	44.4%	5.5	44.4%
Razor Clams	13.6	90.9%	1.4	9.1%	0.0	0.0%	0.0	0.0%	1.4	100.0%
Dungeness Crab	12.3	81.8%	2.7	18.2%	0.0	0.0%	0.0	0.0%	2.7	100.0%
Octopus	4.1	27.3%	10.9	72.7%	0.0	0.0%	2.7	25.0%	8.2	75.0%
Sea Urchin	2.7	18.2%	12.3	81.8%	0.0	0.0%	6.8	55.6%	5.5	44.4%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-201. Reasons for Increased Availability of Marine Invertebrates, Akhiok, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	1.4	9.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%
Clams	1.4	9.1%	1.4	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-202. Reasons for Decreased Availability of Marine Invertebrates, Akhiok, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	2.7	18.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.7	100.0%
Clams	5.5	36.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.1	75.0%
Razor Clams	1.4	9.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%
Dungeness Crab	2.7	18.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.7	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Octopus	8.2	54.5%	1.4	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	5.5	66.7%
Sea Urchin	5.5	36.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.1	75.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-203. Oil Spill-Related Reasons for Decreased Availability of Marine Invertebrates, Akhiok, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	2.7	18.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.7	100.0%
Clams	4.1	27.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.7	66.7%
Octopus	2.7	18.2%	1.4	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%
Sea Urchin	2.7	18.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.7	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-204. Household Assessment of Change in Marine Invertebrates Available to Harvest, Chenega Bay, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	10.0	50.0%	10.0	50.0%	0.0	0.0%	5.0	50.0%	5.0	50.0%
Clams	5.0	25.0%	15.0	75.0%	0.0	0.0%	10.0	66.7%	5.0	33.3%
Cockles	18.8	93.8%	1.3	6.3%	0.0	0.0%	0.0	0.0%	1.3	100.0%
Dungeness Crab	12.5	62.5%	7.5	37.5%	0.0	0.0%	1.3	16.7%	6.3	83.3%
Octopus	12.5	62.5%	7.5	37.5%	0.0	0.0%	2.5	33.3%	5.0	66.7%
Sea Urchin	16.3	81.3%	3.8	18.8%	0.0	0.0%	1.3	33.3%	2.5	66.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-205. Reasons for Decreased Availability of Marine Invertebrates, Chenega Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	5.0	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	5.0	100.0%
Clams	5.0	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	25.0%	0.0	0.0%	3.8	75.0%
Cockles	1.3	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%
Dungeness Crab	6.3	31.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.3	100.0%
Octopus	5.0	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	5.0	100.0%
Sea Urchin	2.5	12.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.5	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-206. Oil Spill-Related Reasons for Decreased Availability of Marine Invertebrates, Chenega Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	3.8	18.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.8	100.0%
Clams	5.0	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	25.0%	0.0	0.0%	3.8	75.0%
Cockles	1.3	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%
Dungeness Crab	5.0	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	5.0	100.0%
Octopus	2.5	12.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.5	100.0%
Sea Urchin	1.3	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-207. Household Assessment of Change in Marine Invertebrates Available to Harvest, Chignik Bay, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	15.8	54.5%	13.2	45.5%	0.0	0.0%	9.2	70.0%	4.0	30.0%
Clams	10.5	36.4%	18.5	63.6%	0.0	0.0%	0.0	0.0%	18.5	100.0%
Dungeness Crab	11.9	40.9%	17.1	59.1%	0.0	0.0%	2.6	15.4%	14.5	84.6%
Octopus	15.8	54.5%	13.2	45.5%	0.0	0.0%	5.3	40.0%	7.9	60.0%
Sea Urchin	11.9	40.9%	17.1	59.1%	2.6	15.4%	6.6	38.5%	7.9	46.2%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-208. Reasons for Increased Availability of Marine Invertebrates, Chignik Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Urchin	2.6	9.1%	1.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-209. Reasons for Decreased Availability of Marine Invertebrates, Chignik Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	4.0	13.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	33.3%	0.0	0.0%	0.0	0.0%	1.3	33.3%	0.0	0.0%	1.3	33.3%
Clams	18.5	63.6%	5.3	28.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	14.5	78.6%	0.0	0.0%	0.0	0.0%	1.3	7.1%	0.0	0.0%	1.3	7.1%
Dungeness Crab	14.5	50.0%	2.6	18.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.0	27.3%	4.0	27.3%	0.0	0.0%	1.3	9.1%	2.6	18.2%	0.0	0.0%	4.0	27.3%
Octopus	7.9	27.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.0	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	16.7%	0.0	0.0%	2.6	33.3%
Sea Urchin	7.9	27.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.6	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	5.3	66.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-210. Oil Spill-Related Reasons for Decreased Availability of Marine Invertebrates, Chignik Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	2.6	9.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%
Clams	4.0	13.6%	4.0	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.0	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Dungeness Crab	6.6	22.7%	2.6	40.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.6	40.0%	2.6	40.0%	0.0	0.0%	0.0	0.0%	1.3	20.0%	0.0	0.0%	1.3	20.0%
Octopus	4.0	13.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	33.3%	0.0	0.0%	1.3	33.3%
Sea Urchin	4.0	13.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.6	66.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-211. Household Assessment of Change in Marine Invertebrates Available to Harvest, Chignik Lagoon, 2003 Study Year Compared to Five Years Ag

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	9.6	43.8%	12.4	56.3%	0.0	0.0%	6.9	55.6%	5.5	44.4%
Clams	2.8	12.5%	19.3	87.5%	0.0	0.0%	12.4	64.3%	6.9	35.7%
Dungeness Crab	2.8	12.5%	19.3	87.5%	1.4	7.1%	2.8	14.3%	15.1	78.6%
Octopus	12.4	56.3%	9.6	43.8%	1.4	14.3%	6.9	71.4%	1.4	14.3%
Sea Urchin	15.1	68.8%	6.9	31.3%	0.0	0.0%	4.1	60.0%	2.8	40.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004

Table A-212. Reasons for Increased Availability of Marine Invertebrates, Chignik Lagoon, 2003 Study Year Compared to Five Years Ag

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Dungeness Crab	1.4	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%
Octopus	1.4	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004

Table A-213. Reasons for Decreased Availability of Marine Invertebrates, Chignik Lagoon, 2003 Study Year Compared to Five Years Ag

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	5.5	25.0%	1.4	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	25.0%	0.0	0.0%	1.4	25.0%	1.4	25.0%	0.0	0.0%	1.4	25.0%
Clams	6.9	31.3%	2.8	40.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.1	60.0%
Dungeness Crab	15.1	68.8%	2.8	18.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.8	18.2%	0.0	0.0%	0.0	0.0%	2.8	18.2%	0.0	0.0%	8.3	54.5%
Octopus	1.4	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%
Sea Urchin	2.8	12.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%	0.0	0.0%	1.4	50.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004

Table A-214. Oil Spill-Related Reasons for Decreased Availability of Marine Invertebrates, Chignik Lagoon, 2003 Study Year Compared to Five Years Ag

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	2.8	12.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%
Clams	6.9	31.3%	2.8	40.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.1	60.0%
Dungeness Crab	5.5	25.0%	2.8	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.8	50.0%
Octopus	1.4	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%
Sea Urchin	1.4	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004

Table A-215. Household Assessment of Change in Marine Invertebrates Available to Harvest, Chignik Lake, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	10.3	33.3%	20.7	66.7%	1.5	7.1%	14.8	71.4%	4.4	21.4%
Clams	10.3	33.3%	20.7	66.7%	1.5	7.1%	14.8	71.4%	4.4	21.4%
Dungeness Crab	11.8	38.1%	19.2	61.9%	3.0	15.4%	5.9	30.8%	10.3	53.8%
Octopus	14.8	47.6%	16.2	52.4%	1.5	9.1%	13.3	81.8%	1.5	9.1%
Sea Urchin	17.7	57.1%	13.3	42.9%	1.5	11.1%	8.9	66.7%	3.0	22.2%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-216. Reasons for Increased Availability of Marine Invertebrates, Chignik Lake, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	1.5	4.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	100.0%
Clams	1.5	4.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	100.0%
Dungeness Crab	3.0	9.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	50.0%
Octopus	1.5	4.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	100.0%
Sea Urchin	1.5	4.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-217. Reasons for Decreased Availability of Marine Invertebrates, Chignik Lake, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	4.4	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.0	66.7%
Clams	4.4	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.0	66.7%
Dungeness Crab	10.3	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.9	85.7%
Octopus	1.5	4.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	100.0%
Sea Urchin	3.0	9.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.0	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-218. Oil Spill-Related Reasons for Decreased Availability of Marine Invertebrates, Chignik Lake, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	1.5	4.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	100.0%
Clams	3.0	9.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	50.0%
Dungeness Crab	1.5	4.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-219. Household Assessment of Change in Marine Invertebrates Available to Harvest, Cordova, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Marine Invertebrates	902.0	99.1%	8.0	0.9%	0.0	0.0%	0.0	0.0%	8.0	100.0%
Chitons (bidarkis, gumboots)	745.7	81.9%	164.3	18.1%	6.3	3.8%	89.9	54.8%	68.1	41.4%
Clams	333.1	36.6%	576.9	63.4%	62.2	10.8%	171.9	29.8%	342.8	59.4%
Butter Clams	902.0	99.1%	8.0	0.9%	0.0	0.0%	0.0	0.0%	8.0	100.0%
Razor Clams	902.0	99.1%	8.0	0.9%	0.0	0.0%	0.0	0.0%	8.0	100.0%
Dungeness Crab	428.6	47.1%	481.4	52.9%	63.6	13.2%	179.9	37.4%	237.9	49.4%
Octopus	752.7	82.7%	157.3	17.3%	3.1	2.0%	77.8	49.4%	76.4	48.6%
Oyster	902.0	99.1%	8.0	0.9%	8.0	100.0%	0.0	0.0%	0.0	0.0%
Sea Urchin	797.5	87.6%	112.5	12.4%	3.1	2.8%	58.7	52.2%	50.7	45.1%
Shrimp	902.0	99.1%	8.0	0.9%	0.0	0.0%	0.0	0.0%	8.0	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004

Table A-220. Reasons for Increased Availability of Marine Invertebrates, Cordova, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	6.3	0.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.3	100.0%
Clams	62.2	6.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.0	12.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	54.2	87.2%
Dungeness Crab	63.6	7.0%	0.0	0.0%	0.0	0.0%	3.1	4.9%	0.0	0.0%	0.0	0.0%	8.0	12.6%	0.0	0.0%	0.0	0.0%	8.0	12.6%	0.0	0.0%	44.5	69.9%
Octopus	3.1	0.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.1	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Oyster	8.0	0.9%	0.0	0.0%	0.0	0.0%	8.0	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Sea Urchin	3.1	0.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.1	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004

Table A-221. Reasons for Decreased Availability of Marine Invertebrates, Cordova, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Marine Invertebrates	8.0	0.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.0	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Chitons (bidarkis, gumboots)	68.1	7.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.0	11.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	60.1	88.3%
Clams	342.8	37.7%	3.1	0.9%	0.0	0.0%	0.0	0.0%	3.1	0.9%	8.0	2.3%	86.1	25.1%	0.0	0.0%	8.0	2.3%	0.0	0.0%	0.0	0.0%	237.6	69.3%
Butter Clams	8.0	0.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.0	100.0%
Razor Clams	8.0	0.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.0	100.0%
Dungeness Crab	237.9	26.1%	0.0	0.0%	0.0	0.0%	19.1	8.0%	0.0	0.0%	0.0	0.0%	52.4	22.0%	0.0	0.0%	0.0	0.0%	8.0	3.4%	0.0	0.0%	158.4	66.6%
Octopus	76.4	0.08	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	76.4	100.0%
Sea Urchin	50.7	0.06	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	16.0	31.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	34.7	68.5%
Shrimp	8.0	0.01	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.0	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004

Table A-222. Oil Spill-Related Reasons for Decreased Availability of Marine Invertebrates, Cordova, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	49.0	5.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.0	16.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	41.0	83.7%
Clams	113.9	12.5%	3.1	2.7%	0.0	0.0%	0.0	0.0%	3.1	2.7%	0.0	0.0%	11.1	9.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	99.7	87.5%
Butter Clams	8.0	0.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.0	100.0%
Razor Clams	8.0	0.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.0	100.0%
Dungeness Crab	88.6	9.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	11.1	12.5%	0.0	0.0%	0.0	0.0%	8.0	9.0%	0.0	0.0%	69.5	78.4%
Octopus	60.4	6.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	60.4	100.0%
Sea Urchin	39.6	0.04	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.0	20.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	31.6	79.8%
Shrimp	8.0	0.01	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.0	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004

Table A-223. Household Assessment of Change in Marine Invertebrates Available to Harvest, Karluk, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	4.3	28.6%	10.7	71.4%	0.0	0.0%	2.1	20.0%	8.6	80.0%
Clams	6.4	42.9%	8.6	57.1%	0.0	0.0%	0.0	0.0%	8.6	100.0%
Dungeness Crab	12.9	85.7%	2.1	14.3%	0.0	0.0%	0.0	0.0%	2.1	100.0%
Octopus	10.7	71.4%	4.3	28.6%	0.0	0.0%	0.0	0.0%	4.3	100.0%
Sea Urchin	6.4	42.9%	8.6	57.1%	0.0	0.0%	0.0	0.0%	8.6	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-224. Reasons for Decreased Availability of Marine Invertebrates, Karluk, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	8.6	57.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.6	100.0%
Clams	8.6	57.1%	0.0	0.0%	6.4	75.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.1	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Dungeness Crab	2.1	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.1	100.0%
Octopus	4.3	28.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.3	100.0%
Sea Urchin	8.6	57.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.6	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-225. Oil Spill-Related Reasons for Decreased Availability of Marine Invertebrates, Karluk, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	8.6	57.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.6	100.0%
Clams	2.1	14.3%	0.0	0.0%	2.1	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Dungeness Crab	2.1	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.1	100.0%
Octopus	2.1	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.1	100.0%
Sea Urchin	8.6	57.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.6	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-226. Household Assessment of Change in Marine Invertebrates Available to Harvest, Larsen Bay, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	23.6	76.0%	7.4	24.0%	0.0	0.0%	7.4	100.0%	0.0	0.0%
Clams	16.1	52.0%	14.9	48.0%	0.0	0.0%	9.9	66.7%	5.0	33.3%
Dungeness Crab	28.5	92.0%	2.5	8.0%	0.0	0.0%	1.2	50.0%	1.2	50.0%
Octopus	21.1	68.0%	9.9	32.0%	0.0	0.0%	9.9	100.0%	0.0	0.0%
Sea Urchin	24.8	80.0%	6.2	20.0%	1.2	20.0%	3.7	60.0%	1.2	20.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-227. Reasons for Increased Availability of Marine Invertebrates, Larsen Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Urchin	1.2	4.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-228. Reasons for Decreased Availability of Marine Invertebrates, Larsen Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Clams	5.0	16.0%	1.2	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.5	50.0%
Dungeness Crab	1.2	4.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	100.0%
Sea Urchin	1.2	4.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	100.0%	1.2	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-229. Oil Spill-Related Reasons for Decreased Availability of Marine Invertebrates, Larsen Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Clams	1.2	4.0%	1.2	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-230. Household Assessment of Change in Marine Invertebrates Available to Harvest, Nanwalek, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	0.0	0.0%	51.0	100.0%	2.3	4.5%	20.9	40.9%	27.8	54.5%
Clams	0.0	0.0%	51.0	100.0%	4.6	9.1%	13.9	27.3%	32.5	63.6%
Dungeness Crab	7.0	13.6%	44.0	86.4%	2.3	5.3%	13.9	31.6%	27.8	63.2%
Octopus	2.3	4.5%	48.7	95.5%	7.0	14.3%	27.8	57.1%	13.9	28.6%
Sea Urchin	9.3	18.2%	41.7	81.8%	0.0	0.0%	13.9	33.3%	27.8	66.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-231. Reasons for Increased Availability of Marine Invertebrates, Nanwalek, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																			
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	2.3	4.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	100.0%
Clams	4.6	9.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	50.0%
Dungeness Crab	2.3	4.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	100.0%
Octopus	7.0	13.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	7.0	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-232. Reasons for Decreased Availability of Marine Invertebrates, Nanwalek, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																			
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	27.8	54.5%	2.3	8.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.6	16.7%	7.0	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	8.3%	11.6	41.7%
Clams	32.5	63.6%	4.6	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	7.1%	4.6	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	23.2	71.4%
Dungeness Crab	27.8	54.5%	0.0	0.0%	0.0	0.0%	2.3	8.3%	0.0	0.0%	2.3	8.3%	7.0	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	16.2	58.3%
Octopus	13.9	27.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.6	33.3%	2.3	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	7.0	50.0%
Sea Urchin	27.8	54.5%	4.6	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	7.0	25.0%	9.3	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	11.6	41.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-233. Oil Spill-Related Reasons for Decreased Availability of Marine Invertebrates, Nanwalek, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																			
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	25.5	50.0%	2.3	9.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	9.1%	7.0	27.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	9.1%	11.6	45.5%
Clams	25.5	50.0%	4.6	18.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	9.1%	2.3	9.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	18.5	72.7%
Dungeness Crab	18.5	36.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	12.5%	7.0	37.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	9.3	50.0%
Octopus	7.0	13.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.6	66.7%
Sea Urchin	20.9	40.9%	4.6	22.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.6	22.2%	7.0	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	9.3	44.4%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-234. Household Assessment of Change in Marine Invertebrates Available to Harvest, Old Harbor, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	27.8	36.5%	48.2	63.5%	2.9	6.1%	26.3	54.5%	19.0	39.4%
Clams	14.6	19.2%	61.4	80.8%	2.9	4.8%	46.8	76.2%	11.7	19.0%
Dungeness Crab	43.8	57.7%	32.2	42.3%	0.0	0.0%	17.5	54.5%	14.6	45.5%
Octopus	36.5	48.1%	39.5	51.9%	1.5	3.7%	30.7	77.8%	7.3	18.5%
Sea Urchin	24.8	32.7%	51.2	67.3%	1.5	2.9%	35.1	68.6%	14.6	28.6%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-235. Reasons for Increased Availability of Marine Invertebrates, Old Harbor, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	2.9	3.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.9	100.0%
Clams	2.9	3.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.9	100.0%
Octopus	1.5	1.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	100.0%
Sea Urchin	1.5	1.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-236. Reasons for Decreased Availability of Marine Invertebrates, Old Harbor, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	19.0	25.0%	2.9	15.4%	0.0	0.0%	0.0	0.0%	7.3	38.5%	1.5	7.7%	2.9	15.4%	0.0	0.0%	0.0	0.0%	1.5	7.7%	0.0	0.0%	4.4	23.1%
Clams	11.7	15.4%	1.5	12.5%	4.4	37.5%	0.0	0.0%	0.0	0.0%	1.5	12.5%	2.9	25.0%	0.0	0.0%	0.0	0.0%	1.5	12.5%	1.5	12.5%	2.9	25.0%
Dungeness Crab	14.6	19.2%	2.9	20.0%	0.0	0.0%	1.5	10.0%	0.0	0.0%	5.8	40.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	10.0%	0.0	0.0%	5.8	40.0%
Octopus	7.3	9.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	20.0%	0.0	0.0%	4.4	60.0%
Sea Urchin	14.6	19.2%	4.4	30.0%	0.0	0.0%	1.5	10.0%	0.0	0.0%	5.8	40.0%	1.5	#VALUE!	0.0	0.0%	0.0	0.0%	1.5	10.0%	0.0	0.0%	4.4	30.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-237. Oil Spill-Related Reasons for Decreased Availability of Marine Invertebrates, Old Harbor, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	10.2	13.5%	2.9	28.6%	0.0	0.0%	0.0	0.0%	2.9	28.6%	0.0	0.0%	1.5	14.3%	0.0	0.0%	0.0	0.0%	1.5	14.3%	0.0	0.0%	2.9	28.6%
Clams	5.8	7.7%	1.5	25.0%	2.9	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.9	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.9	50.0%
Dungeness Crab	7.3	9.6%	2.9	40.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	20.0%	0.0	0.0%	2.9	40.0%
Octopus	2.9	3.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	50.0%	0.0	0.0%	1.5	50.0%
Sea Urchin	11.7	15.4%	4.4	37.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.9	25.0%	1.5	12.5%	0.0	0.0%	0.0	0.0%	1.5	12.5%	0.0	0.0%	4.4	37.5%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-238. Household Assessment of Change in Marine Invertebrates Available to Harvest, Ouzinkie, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	10.8	15.7%	58.2	84.3%	1.4	2.3%	47.4	81.4%	9.5	16.3%
Clams	18.9	27.5%	50.1	72.5%	1.4	2.7%	5.4	10.8%	43.3	86.5%
Dungeness Crab	54.1	78.4%	14.9	21.6%	0.0	0.0%	1.4	9.1%	13.5	90.9%
Mussels	67.6	98.0%	1.4	2.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%
Octopus	47.4	68.6%	21.6	31.4%	0.0	0.0%	13.5	62.5%	8.1	37.5%
Sea Urchin	51.4	74.5%	17.6	25.5%	0.0	0.0%	4.1	23.1%	13.5	76.9%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-239. Reasons for Increased Availability of Marine Invertebrates, Ouzinkie, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	1.4	2.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%
Clams	1.4	2.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-240. Reasons for Decreased Availability of Marine Invertebrates, Ouzinkie, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	9.5	13.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.1	85.7%
Clams	43.3	62.7%	23.0	53.1%	27.1	62.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	18.9	43.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	12.2	28.1%
Dungeness Crab	13.5	19.6%	2.7	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	10.0%	5.4	40.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.1	60.0%
Mussels	1.4	2.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Octopus	8.1	11.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.1	100.0%
Sea Urchin	13.5	19.6%	2.7	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.7	20.0%	8.1	60.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	5.4	40.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-241. Oil Spill-Related Reasons for Decreased Availability of Marine Invertebrates, Ouzinkie, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	1.4	2.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%
Clams	29.8	43.1%	20.3	68.2%	20.3	68.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	16.2	54.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.1	27.3%
Dungeness Crab	6.8	9.8%	2.7	40.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	20.0%	4.1	60.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.7	40.0%
Mussels	1.4	2.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Sea Urchin	4.1	5.9%	2.7	66.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	33.3%	2.7	66.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	33.3%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-242. Household Assessment of Change in Marine Invertebrates Available to Harvest, Perryville, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	7.3	22.2%	25.7	77.8%	0.0	0.0%	11.0	42.9%	14.7	57.1%
Clams	6.1	18.5%	26.9	81.5%	0.0	0.0%	15.9	59.1%	11.0	40.9%
Dungeness Crab	11.0	33.3%	22.0	66.7%	1.2	5.6%	13.4	61.1%	7.3	33.3%
Octopus	8.6	25.9%	24.4	74.1%	2.4	10.0%	13.4	55.0%	8.6	35.0%
Sea Urchin	3.7	11.1%	29.3	88.9%	0.0	0.0%	7.3	25.0%	22.0	75.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-243. Reasons for Increased Availability of Marine Invertebrates, Perryville, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Dungeness Crab	1.2	3.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	100.0%
Octopus	2.4	7.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	50.0%	2.4	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-244. Reasons for Decreased Availability of Marine Invertebrates, Perryville, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	14.7	44.4%	2.4	16.7%	1.2	8.3%	0.0	0.0%	1.2	8.3%	1.2	8.3%	4.9	33.3%	0.0	0.0%	0.0	0.0%	1.2	8.3%	0.0	0.0%	6.1	41.7%
Clams	11.0	33.3%	1.2	11.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.7	33.3%	0.0	0.0%	1.2	11.1%	0.0	0.0%	0.0	0.0%	4.9	44.4%
Dungeness Crab	7.3	22.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	16.7%	1.2	16.7%	4.9	66.7%
Octopus	8.6	25.9%	1.2	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.4	28.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.9	57.1%
Sea Urchin	22.0	66.7%	1.2	5.6%	0.0	0.0%	0.0	0.0%	2.4	11.1%	1.2	5.6%	11.0	50.0%	0.0	0.0%	0.0	0.0%	1.2	5.6%	1.2	5.6%	8.6	38.9%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-245. Oil Spill-Related Reasons for Decreased Availability of Marine Invertebrates, Perryville, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Clams	4.9	14.8%	1.2	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.4	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	25.0%
Dungeness Crab	2.4	7.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	50.0%	1.2	50.0%	0.0	0.0%
Octopus	1.2	3.7%	1.2	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Sea Urchin	3.7	11.1%	1.2	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.4	66.7%	0.0	0.0%	0.0	0.0%	1.2	33.3%	0.0	0.0%	0.0	0.0%
Chitons (bidarkis, gumboots)	18.0	27.7%	2.8	15.4%	0.0	0.0%	0.0	0.0%	1.4	7.7%	2.8	15.4%	4.1	23.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.3	46.2%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-246. Household Assessment of Change in Marine Invertebrates Available to Harvest, Port Graham, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	11.1	17.0%	53.9	83.0%	2.8	5.1%	8.3	15.4%	42.9	79.5%
Clams	12.4	19.1%	52.6	80.9%	2.8	5.3%	18.0	34.2%	31.8	60.5%
Dungeness Crab	13.8	21.3%	51.2	78.7%	2.8	5.4%	26.3	51.4%	22.1	43.2%
Octopus	15.2	23.4%	49.8	76.6%	1.4	2.8%	20.7	41.7%	27.7	55.6%
Sea Urchin	29.0	44.7%	36.0	55.3%	5.5	15.4%	18.0	50.0%	12.4	34.6%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-247. Reasons for Increased Availability of Marine Invertebrates, Port Graham, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	2.8	4.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%
Clams	2.8	4.3%	1.4	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Dungeness Crab	2.8	4.3%	0.0	0.0%	0.0	0.0%	1.4	50.0%	0.0	0.0%	1.4	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%	0.0	0.0%	0.0	0.0%
Octopus	1.4	2.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%
Sea Urchin	5.5	8.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	25.0%	4.1	75.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	25.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-248. Reasons for Decreased Availability of Marine Invertebrates, Port Graham, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	42.9	66.0%	2.8	6.5%	0.0	0.0%	1.4	3.2%	1.4	3.2%	12.4	29.0%	20.7	48.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	11.1	25.8%
Clams	31.8	48.9%	2.8	8.7%	0.0	0.0%	1.4	4.3%	0.0	0.0%	1.4	4.3%	11.1	34.8%	0.0	0.0%	0.0	0.0%	2.8	8.7%	1.4	4.3%	12.4	39.1%
Dungeness Crab	22.1	34.0%	0.0	0.0%	0.0	0.0%	1.4	6.3%	0.0	0.0%	2.8	12.5%	11.1	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.9	31.3%
Octopus	27.7	42.6%	4.1	15.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.9	25.0%	11.1	40.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	13.8	50.0%
Sea Urchin	12.4	19.1%	1.4	11.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.8	22.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	9.7	77.8%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-249. Oil Spill-Related Reasons for Decreased Availability of Marine Invertebrates, Port Graham, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	18.0	27.7%	2.8	15.4%	0.0	0.0%	0.0	0.0%	1.4	7.7%	2.8	15.4%	4.1	23.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.3	46.2%
Clams	18.0	27.7%	1.4	7.7%	0.0	0.0%	1.4	7.7%	0.0	0.0%	1.4	7.7%	5.5	30.8%	0.0	0.0%	0.0	0.0%	2.8	15.4%	0.0	0.0%	6.9	38.5%
Dungeness Crab	9.7	14.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.8	28.6%	4.1	42.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.8	28.6%
Octopus	8.3	12.8%	4.1	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	16.7%	4.1	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.8	33.3%
Sea Urchin	2.8	4.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.8	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-250. Household Assessment of Change in Marine Invertebrates Available to Harvest, Port Lions, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	42.1	59.3%	28.9	40.7%	1.3	4.5%	15.8	54.5%	11.8	40.9%
Clams	17.1	24.1%	53.9	75.9%	1.3	2.4%	6.6	12.2%	46.0	85.4%
Dungeness Crab	32.9	46.3%	38.1	53.7%	1.3	3.4%	1.3	3.4%	35.5	93.1%
King Crab	69.7	98.1%	1.3	1.9%	0.0	0.0%	0.0	0.0%	1.3	100.0%
Octopus	46.0	64.8%	25.0	35.2%	3.9	15.8%	15.8	63.2%	5.3	21.1%
Sea Urchin	56.5	79.6%	14.5	20.4%	0.0	0.0%	1.3	9.1%	13.1	90.9%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-251. Reasons for Increased Availability of Marine Invertebrates, Port Lions, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	1.3	1.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%
Clams	1.3	1.9%	1.3	100.0%	1.3	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Dungeness Crab	1.3	1.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Octopus	3.9	5.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.9	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-252. Reasons for Decreased Availability of Marine Invertebrates, Port Lions, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	11.8	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.9	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	7.9	66.7%
Clams	46.0	64.8%	15.8	34.3%	32.9	71.4%	0.0	0.0%	1.3	2.9%	1.3	2.9%	26.3	57.1%	0.0	0.0%	0.0	0.0%	1.3	2.9%	0.0	0.0%	7.9	17.1%
Dungeness Crab	35.5	50.0%	2.6	7.4%	1.3	3.7%	0.0	0.0%	0.0	0.0%	1.3	3.7%	19.7	55.6%	0.0	0.0%	0.0	0.0%	3.9	11.1%	1.3	3.7%	10.5	29.6%
King Crab	1.3	1.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%
Octopus	5.3	7.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.9	75.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	25.0%
Sea Urchin	13.1	18.5%	1.3	10.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	10.5	80.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.6	20.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-253. Oil Spill-Related Reasons for Decreased Availability of Marine Invertebrates, Port Lions, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	1.3	1.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%
Clams	25.0	35.2%	15.8	63.2%	21.0	84.2%	0.0	0.0%	1.3	5.3%	0.0	0.0%	18.4	73.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.6	10.5%
Dungeness Crab	5.3	7.4%	1.3	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.9	75.0%	0.0	0.0%	0.0	0.0%	1.3	25.0%	0.0	0.0%	1.3	25.0%
Sea Urchin	2.6	3.7%	1.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.6	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-254. Household Assessment of Change in Marine Invertebrates Available to Harvest, Tatitlek, 2003 Study Year Compared to Five Years Agc

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	6.5	24.0%	20.5	76.0%	0.0	0.0%	6.5	31.6%	14.0	68.4%
Clams	2.2	8.0%	24.8	92.0%	0.0	0.0%	5.4	21.7%	19.4	78.3%
Dungeness Crab	21.6	80.0%	5.4	20.0%	0.0	0.0%	0.0	0.0%	5.4	100.0%
Octopus	8.6	32.0%	18.4	68.0%	0.0	0.0%	5.4	29.4%	13.0	70.6%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-255. Reasons for Decreased Availability of Marine Invertebrates, Tatitlek, 2003 Study Year Compared to Five Years Agc

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	14.0	52.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.1	7.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	13.0	92.3%
Clams	19.4	72.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	19.4	100.0%
Dungeness Crab	5.4	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	5.4	100.0%
Octopus	13.0	48.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	13.0	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-256. Oil Spill-Related Reasons for Decreased Availability of Marine Invertebrates, Tatitlek, 2003 Study Year Compared to Five Years Agc

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Chitons (bidarkis, gumboots)	7.6	28.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.1	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.5	85.7%
Clams	11.9	44.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	11.9	100.0%
Dungeness Crab	2.2	8.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.2	100.0%
Octopus	7.6	28.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	7.6	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-257. Household Assessment of Change in Large Land Mammals Available to Harvest, Akhiok, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Deer	2.7	18.2%	12.3	81.8%	0.0	0.0%	0.0	0.0%	12.3	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-258. Reasons for Decreased Availability of Large Land Mammals, Akhiok, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Deer	12.3	81.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.7	22.2%	6.8	55.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.7	22.2%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-259. Oil Spill-Related Reasons for Decreased Availability of Large Land Mammals, Akhiok, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Deer	2.7	18.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%	1.4	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-260. Household Assessment of Change in Large Land Mammals Available to Harvest, Chenega Bay, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Deer	7.5	37.5%	12.5	62.5%	1.3	10.0%	7.5	60.0%	3.8	30.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-261. Reasons for Increased Availability of Large Land Mammals, Chenega Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Deer	1.3	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-262. Reasons for Decreased Availability of Large Land Mammals, Chenega Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Deer	3.8	18.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	33.3%	0.0	0.0%	2.5	66.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-263. Oil Spill-Related Reasons for Decreased Availability of Large Land Mammals, Chenega Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Deer	1.3	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-264. Household Assessment of Change in Large Land Mammals Available to Harvest, Chignik Bay, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Caribou	13.2	45.5%	15.8	54.5%	0.0	0.0%	1.3	8.3%	14.5	91.7%
Moose	14.5	50.0%	14.5	50.0%	4.0	27.3%	4.0	27.3%	6.6	45.5%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-265. Reasons for Increased Availability of Large Land Mammals, Chignik Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Moose	4.0	13.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	33.3%	1.3	33.3%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-266. Reasons for Decreased Availability of Large Land Mammals, Chignik Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Caribou	14.5	50.0%	0.0	0.0%	0.0	0.0%	2.6	18.2%	0.0	0.0%	4.0	27.3%	6.6	45.5%	0.0	0.0%	0.0	0.0%	2.6	18.2%	0.0	0.0%	1.3	9.1%
Moose	6.6	22.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	20.0%	1.3	20.0%	0.0	0.0%	0.0	0.0%	1.3	20.0%	0.0	0.0%	2.6	40.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-267. Household Assessment of Change in Large Land Mammals Available to Harvest, Chignik Lagoon, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Caribou	0.0	0.0%	22.0	100.0%	1.4	6.3%	0.0	0.0%	20.6	93.8%
Moose	0.0	0.0%	22.0	100.0%	2.8	12.5%	6.9	31.3%	12.4	56.3%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-268. Reasons for Increased Availability of Large Land Mammals, Chignik Lagoon, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non- contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Caribou	1.4	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%
Moose	2.8	12.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-269. Reasons for Decreased Availability of Large Land Mammals, Chignik Lagoon, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non- contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Caribou	20.6	93.8%	0.0	0.0%	0.0	0.0%	2.8	13.3%	1.4	6.7%	5.5	26.7%	9.6	46.7%	0.0	0.0%	1.4	6.7%	1.4	6.7%	0.0	0.0%	5.5	26.7%
Moose	12.4	56.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	5.5	44.4%	5.5	44.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	11.1%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-270. Household Assessment of Change in Large Land Mammals Available to Harvest, Chignik Lake, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Caribou	7.4	23.8%	23.6	76.2%	0.0	0.0%	3.0	12.5%	20.7	87.5%
Moose	8.9	28.6%	22.1	71.4%	0.0	0.0%	8.9	40.0%	13.3	60.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-271. Reasons for Decreased Availability of Large Land Mammals, Chignik Lake, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Caribou	20.7	66.7%	0.0	0.0%	0.0	0.0%	1.5	7.1%	0.0	0.0%	3.0	14.3%	10.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	10.3	50.0%
Moose	13.3	42.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.4	33.3%	4.4	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	5.9	44.4%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-272. Household Assessment of Change in Large Land Mammals Available to Harvest, Cordova, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Deer	303.91	33.40%	606.09	66.60%	165.68	27.34%	357.74	59.03%	82.66	13.64%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-273. Reasons for Increased Availability of Large Land Mammals, Cordova, 2003 Study Year Compared to Five Years Ago

Species	Responses		Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non- contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Deer	165.7	18.2%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	84.40	50.9%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	81.28	49.1%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-274. Reasons for Decreased Availability of Large Land Mammals, Cordova, 2003 Study Year Compared to Five Years Ago

Species	Responses		Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non- contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Deer	82.7	9.1%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	7.99	9.7%	3.13	3.8%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	71.55	86.6%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-275. Oil Spill-Related Reasons for Decreased Availability of Large Land Mammals, Cordova, 2003 Study Year Compared to Five Years Ago

Species	Responses		Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non- contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Deer	20.5	2.3%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	20.49	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-276. Household Assessment of Change in Large Land Mammals Available to Harvest, Karluk, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Deer	2.1	14.3%	12.9	85.7%	0.0	0.0%	2.1	16.7%	10.7	83.3%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-277. Reasons for Decreased Availability of Large Land Mammals, Karluk, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Deer	10.7	71.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	10.7	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-278. Oil Spill-Related Reasons for Decreased Availability of Large Land Mammals, Karluk, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Deer	2.1	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.1	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-279. Household Assessment of Change in Large Land Mammals Available to Harvest, Larsen Bay, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Deer	14.9	48.0%	16.1	52.0%	1.2	7.7%	13.6	84.6%	1.2	7.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-280. Reasons for Increased Availability of Large Land Mammals, Larsen Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non- contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Deer	1.2	4.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-281. Reasons for Decreased Availability of Large Land Mammals, Larsen Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non- contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Deer	1.2	4.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-282. Household Assessment of Change in Large Land Mammals Available to Harvest, Nanwalek, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Moose	11.6	22.7%	39.4	77.3%	0.0	0.0%	23.2	58.8%	16.2	41.2%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-283. Reasons for Decreased Availability of Large Land Mammals, Nanwalek, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Moose	16.2	31.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	13.9	85.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-284. Oil Spill-Related Reasons for Decreased Availability of Large Land Mammals, Nanwalek, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Moose	4.6	9.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	50.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-285. Household Assessment of Change in Large Land Mammals Available to Harvest, Old Harbor, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Deer	16.1	21.2%	59.9	78.8%	8.8	14.6%	19.0	31.7%	32.2	53.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-286. Reasons for Increased Availability of Large Land Mammals, Old Harbor, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non- contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Deer	8.8	11.5%	1.5	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	7.3	83.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	16.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-287. Reasons for Decreased Availability of Large Land Mammals, Old Harbor, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non- contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Deer	32.2	42.3%	1.5	4.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	5.8	18.2%	13.2	40.9%	0.0	0.0%	1.5	4.5%	0.0	0.0%	0.0	0.0%	11.7	36.4%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-288. Oil Spill-Related Reasons for Decreased Availability of Large Land Mammals, Old Harbor, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non- contamination)		Economic		Personal		General/Unspecific		Non-relevant		Non-relevant	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Deer	2.9	3.8%	1.5	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	50.0%	1.5	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-289. Household Assessment of Change in Large Land Mammals Available to Harvest, Ouzinkie, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Deer	27.1	39.2%	41.9	60.8%	4.1	9.7%	31.1	74.2%	6.8	16.1%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-290. Reasons for Increased Availability of Large Land Mammals, Ouzinkie, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Deer	4.1	5.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.1	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-291. Reasons for Decreased Availability of Large Land Mammals, Ouzinkie, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Deer	6.8	9.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	20.0%	4.1	60.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	20.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-292. Oil Spill-Related Reasons for Decreased Availability of Large Land Mammals, Ouzinkie, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Deer	1.4	2.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-293. Household Assessment of Change in Large Land Mammals Available to Harvest, Perryville, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Caribou	7.3	22.2%	25.7	77.8%	0.0	0.0%	3.7	14.3%	22.0	85.7%
Moose	8.6	25.9%	24.4	74.1%	1.2	5.0%	9.8	40.0%	13.4	55.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-294. Reasons for Increased Availability of Large Land Mammals, Perryville, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Moose	1.2	3.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004

Table A-295. Reasons for Decreased Availability of Large Land Mammals, Perryville, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Caribou	22.0	66.7%	0.0	0.0%	0.0	0.0%	2.4	11.1%	0.0	0.0%	2.4	11.1%	15.9	72.2%	0.0	0.0%	0.0	0.0%	1.2	5.6%	0.0	0.0%	4.9	22.2%
Moose	13.4	40.7%	0.0	0.0%	0.0	0.0%	1.2	9.1%	0.0	0.0%	1.2	9.1%	9.8	72.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.7	27.3%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004

Table A-296. Household Assessment of Change in Large Land Mammals Available to Harvest, Port Graham, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Moose	23.5	36.2%	41.5	63.8%	23.5	56.7%	13.8	33.3%	4.1	10.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-297. Reasons for Increased Availability of Large Land Mammals, Port Graham, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Moose	23.5	36.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	5.5	23.5%	0.0	0.0%	6.9	29.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	11.1	47.1%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-298. Reasons for Decreased Availability of Large Land Mammals, Port Graham, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Moose	4.1	6.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.8	66.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-299. Household Assessment of Change in Large Land Mammals Available to Harvest, Port Lions, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Deer	19.7	27.8%	51.3	72.2%	14.5	28.2%	19.7	38.5%	17.1	33.3%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-300. Reasons for Increased Availability of Large Land Mammals, Port Lions, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Deer	14.5	20.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	5.3	36.4%	0.0	0.0%	1.3	9.1%	0.0	0.0%	0.0	0.0%	7.9	54.5%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-301. Reasons for Decreased Availability of Large Land Mammals, Port Lions, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Deer	17.1	24.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.6	15.4%	11.8	69.2%	0.0	0.0%	0.0	0.0%	1.3	7.7%	0.0	0.0%	2.6	15.4%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-302. Oil Spill-Related Reasons for Decreased Availability of Large Land Mammals, Port Lions, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Deer	1.3	1.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-303. Household Assessment of Change in Large Land Mammals Available to Harvest, Tatitlek, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Deer	5.4	20.0%	21.6	80.0%	1.1	5.0%	9.7	45.0%	10.8	50.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-304. Reasons for Increased Availability of Large Land Mammals, Tatitlek, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.		No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Deer	1.1	4.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.1	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-305. Reasons for Decreased Availability of Large Land Mammals, Tatitlek, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Deer	10.8	40.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.1	10.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	9.7	90.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-306. Oil Spill-Related Reasons for Decreased Availability of Large Land Mammals, Tatitlek, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Deer	4.3	16.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.3	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-307. Household Assessment of Change in Marine Mammals Available to Harvest, Akhiok, 2003 Study Year Compared to Five Years Agc

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	1.4	9.1%	13.6	90.9%	0.0	0.0%	2.7	20.0%	10.9	80.0%
Steller Sea Lion	2.7	18.2%	12.3	81.8%	0.0	0.0%	0.0	0.0%	12.3	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-308. Reasons for Decreased Availability of Marine Mammals, Akhiok, 2003 Study Year Compared to Five Years Agc

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	10.9	72.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	12.5%	2.7	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.8	62.5%
Steller Sea Lion	12.3	81.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.7	22.2%	1.4	11.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.2	66.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-309. Oil Spill-Related Reasons for Decreased Availability of Marine Mammals, Akhiok, 2003 Study Year Compared to Five Years Agc

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	5.5	36.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.7	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.7	50.0%
Steller Sea Lion	4.1	27.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.7	66.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-310. Household Assessment of Change in Marine Mammals Available to Harvest, Chenega Bay, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	6.3	31.3%	13.8	68.8%	1.3	9.1%	3.8	27.3%	8.8	63.6%
Steller Sea Lion	6.3	31.3%	13.8	68.8%	3.8	27.3%	3.8	27.3%	6.3	45.5%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-311. Reasons for Increased Availability of Marine Mammals, Chenega Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	1.3	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%
Steller Sea Lion	3.8	18.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.8	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-312. Reasons for Decreased Availability of Marine Mammals, Chenega Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	8.8	43.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.8	100.0%
Steller Sea Lion	6.3	31.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.3	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-313. Oil Spill-Related Reasons for Decreased Availability of Marine Mammals, Chenega Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	8.8	43.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.8	100.0%
Steller Sea Lion	6.3	31.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.3	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-314. Household Assessment of Change in Marine Mammals Available to Harvest, Chignik Bay, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	15.8	54.5%	13.2	45.5%	9.2	70.0%	2.6	20.0%	1.3	10.0%
Steller Sea Lion	22.4	77.3%	6.6	22.7%	1.3	20.0%	1.3	20.0%	4.0	60.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-315. Reasons for Increased Availability of Marine Mammals, Chignik Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	9.2	31.8%	1.3	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	14.3%	2.6	28.6%	0.0	0.0%	0.0	0.0%	5.3	57.1%	0.0	0.0%	0.0	0.0%
Steller Sea Lion	1.3	4.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-316. Reasons for Decreased Availability of Marine Mammals, Chignik Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	1.3	4.5%	1.3	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Steller Sea Lion	4.0	13.6%	1.3	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	33.3%	0.0	0.0%	0.0	0.0%	1.3	33.3%	0.0	0.0%	1.3	33.3%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-317. Oil Spill-Related Reasons for Decreased Availability of Marine Mammals, Chignik Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	25.5	50.0%	2.3	9.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	7.0	27.3%	2.3	9.1%	0.0	0.0%	2.3	9.1%	0.0	0.0%	13.9	54.5%
Steller Sea Lion	9.3	18.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	9.3	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-318. Household Assessment of Change in Marine Mammals Available to Harvest, Chignik Lagoon, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	11.0	50.0%	11.0	50.0%	1.4	12.5%	1.4	12.5%	8.3	75.0%
Steller Sea Lion	9.6	43.8%	12.4	56.3%	1.4	11.1%	2.8	22.2%	8.3	66.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-319. Reasons for Increased Availability of Marine Mammals, Chignik Lagoon, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	1.4	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%
Steller Sea Lion	1.4	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-320. Reasons for Decreased Availability of Marine Mammals, Chignik Lagoon, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	8.3	37.5%	2.8	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	5.5	66.7%
Steller Sea Lion	8.3	37.5%	1.4	16.7%	0.0	0.0%	1.4	16.7%	0.0	0.0%	1.4	16.7%	1.4	16.7%	0.0	0.0%	0.0	0.0%	1.4	16.7%	0.0	0.0%	4.1	50.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-321. Oil Spill-Related Reasons for Decreased Availability of Marine Mammals, Chignik Lagoon, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	4.1	18.8%	2.8	66.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	33.3%
Steller Sea Lion	4.1	18.8%	1.4	33.3%	0.0	0.0%	1.4	33.3%	0.0	0.0%	1.4	33.3%	1.4	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	33.3%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-322. Household Assessment of Change in Marine Mammals Available to Harvest, Chignik Lake, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	7.4	23.8%	23.6	76.2%	3.0	12.5%	11.8	50.0%	8.9	37.5%
Steller Sea Lion	14.8	47.6%	16.2	52.4%	0.0	0.0%	4.4	27.3%	11.8	72.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-323. Reasons for Increased Availability of Marine Mammals, Chignik Lake, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	3.0	9.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.0	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-324. Reasons for Decreased Availability of Marine Mammals, Chignik Lake, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	8.9	28.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.4	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.4	50.0%
Steller Sea Lion	11.8	38.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.4	37.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	7.4	62.5%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-325. Oil Spill-Related Reasons for Decreased Availability of Marine Mammals, Chignik Lake, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	5.9	19.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.0	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.0	50.0%
Steller Sea Lion	3.0	9.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.0	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-326. Household Assessment of Change in Marine Mammals Available to Harvest, Cordova, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	546.4	60.0%	363.6	40.0%	66.7	18.3%	157.3	43.3%	139.6	38.4%
Steller Sea Lion	517.5	56.9%	392.5	43.1%	116.0	29.6%	170.2	43.4%	106.3	27.1%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-327. Reasons for Increased Availability of Marine Mammals, Cordova, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	66.7	7.3%	0.0	0.0%	0.0	0.0%	8.0	12.0%	0.0	0.0%	0.0	0.0%	11.1	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	47.6	71.4%
Steller Sea Lion	116.0	12.7%	8.0	6.9%	0.0	0.0%	16.0	13.8%	0.0	0.0%	0.0	0.0%	25.4	21.9%	0.0	0.0%	0.0	0.0%	8.0	6.9%	0.0	0.0%	66.7	57.5%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-328. Reasons for Decreased Availability of Marine Mammals, Cordova, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	139.6	15.3%	16.0	11.4%	0.0	0.0%	8.0	5.7%	0.0	0.0%	0.0	0.0%	14.2	10.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	101.4	72.6%
Steller Sea Lion	106.3	11.7%	8.0	7.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	19.1	18.0%	0.0	0.0%	8.0	7.5%	0.0	0.0%	0.0	0.0%	71.2	67.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-329. Oil Spill-Related Reasons for Decreased Availability of Marine Mammals, Cordova, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	107.7	11.8%	16.0	14.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	14.2	13.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	77.4	71.9%
Steller Sea Lion	60.1	6.6%	8.0	13.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.1	5.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	49.0	81.5%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-330. Household Assessment of Change in Marine Mammals Available to Harvest, Karluk, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	6.4	42.9%	8.6	57.1%	0.0	0.0%	2.1	25.0%	6.4	75.0%
Steller Sea Lion	10.7	71.4%	4.3	28.6%	4.3	100.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-331. Reasons for Increased Availability of Marine Mammals, Karluk, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Steller Sea Lion	4.3	28.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.3	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-332. Reasons for Decreased Availability of Marine Mammals, Karluk, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	6.4	42.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.4	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-333. Oil Spill-Related Reasons for Decreased Availability of Marine Mammals, Karluk, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	6.4	42.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.4	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-334. Household Assessment of Change in Marine Mammals Available to Harvest, Larsen Bay, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	24.8	80.0%	6.2	20.0%	0.0	0.0%	5.0	80.0%	1.2	20.0%
Steller Sea Lion	28.5	92.0%	2.5	8.0%	0.0	0.0%	2.5	100.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-335. Reasons for Decreased Availability of Marine Mammals, Larsen Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	1.2	4.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-336. Household Assessment of Change in Marine Mammals Available to Harvest, Nanwalek, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	4.6	9.1%	46.4	90.9%	0.0	0.0%	9.3	20.0%	37.1	80.0%
Steller Sea Lion	7.0	13.6%	44.0	86.4%	2.3	5.3%	25.5	57.9%	16.2	36.8%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-337. Reasons for Increased Availability of Marine Mammals, Nanwalek, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Steller Sea Lion	2.3	4.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-338. Reasons for Decreased Availability of Marine Mammals, Nanwalek, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
	37.1	72.7%	4.6	12.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	9.3	25.0%	2.3	6.3%	0.0	0.0%	2.3	6.3%	0.0	0.0%	23.2	62.5%
Steller Sea Lion	16.2	31.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	16.2	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-339. Oil Spill-Related Reasons for Decreased Availability of Marine Mammals, Nanwalek, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	25.5	50.0%	2.3	9.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	7.0	27.3%	2.3	9.1%	0.0	0.0%	2.3	9.1%	0.0	0.0%	13.9	54.5%
Steller Sea Lion	9.3	18.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	9.3	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-340. Household Assessment of Change in Marine Mammals Available to Harvest, Old Harbor, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	20.5	26.9%	55.5	73.1%	4.4	7.9%	35.1	63.2%	16.1	28.9%
Steller Sea Lion	23.4	30.8%	52.6	69.2%	2.9	5.6%	29.2	55.6%	20.5	38.9%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-341. Reasons for Increased Availability of Marine Mammals, Old Harbor, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	4.4	5.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.4	100.0%
Steller Sea Lion	2.9	3.8%	0.0	0.0%	0.0	0.0%	1.5	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	50.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-342. Reasons for Decreased Availability of Marine Mammals, Old Harbor, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	16.1	21.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	9.1%	2.9	18.2%	0.0	0.0%	0.0	0.0%	1.5	9.1%	0.0	0.0%	10.2	63.6%
Steller Sea Lion	20.5	26.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	7.1%	2.9	14.3%	0.0	0.0%	0.0	0.0%	1.5	7.1%	0.0	0.0%	14.6	71.4%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-343. Oil Spill-Related Reasons for Decreased Availability of Marine Mammals, Old Harbor, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	8.8	11.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	16.7%	0.0	0.0%	7.3	83.3%
Steller Sea Lion	8.8	11.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	16.7%	0.0	0.0%	7.3	83.3%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-344. Household Assessment of Change in Marine Mammals Available to Harvest, Ouzinkie, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	43.3	62.7%	25.7	37.3%	1.4	5.3%	10.8	42.1%	13.5	52.6%
Steller Sea Lion	55.5	80.4%	13.5	19.6%	2.7	20.0%	2.7	20.0%	8.1	60.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-345. Reasons for Increased Availability of Marine Mammals, Ouzinkie, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	1.4	2.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%
Steller Sea Lion	2.7	3.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.7	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-346. Reasons for Decreased Availability of Marine Mammals, Ouzinkie, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	13.5	19.6%	1.4	10.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	5.4	40.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.8	50.0%
Steller Sea Lion	8.1	11.8%	1.4	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.7	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	5.4	66.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-347. Oil Spill-Related Reasons for Decreased Availability of Marine Mammals, Ouzinkie, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	9.5	13.7%	1.4	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.7	28.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	5.4	57.1%
Steller Sea Lion	4.1	5.9%	1.4	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.7	66.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	33.3%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-348. Household Assessment of Change in Marine Mammals Available to Harvest, Perryville, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	7.3	22.2%	25.7	77.8%	4.9	19.0%	8.6	33.3%	12.2	47.6%
Steller Sea Lion	13.4	40.7%	19.6	59.3%	2.4	12.5%	6.1	31.3%	11.0	56.3%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-349. Reasons for Increased Availability of Marine Mammals, Perryville, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	4.9	14.8%	0.0	0.0%	0.0	0.0%	1.2	25.0%	0.0	0.0%	0.0	0.0%	3.7	75.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	25.0%
Steller Sea Lion	2.4	7.4%	0.0	0.0%	0.0	0.0%	2.4	100.0%	0.0	0.0%	0.0	0.0%	1.2	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-350. Reasons for Decreased Availability of Marine Mammals, Perryville, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	12.2	37.0%	1.2	10.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.9	40.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	7.3	60.0%
Steller Sea Lion	11.0	33.3%	3.7	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.1	55.6%	0.0	0.0%	0.0	0.0%	1.2	11.1%	0.0	0.0%	3.7	33.3%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-351. Oil Spill-Related Reasons for Decreased Availability of Marine Mammals, Perryville, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/Regul		Change in Area		Competition		Environmental (non-		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	2.4	7.4%	1.2	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.4	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Steller Sea Lion	3.7	11.1%	2.4	66.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.7	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-352. Household Assessment of Change in Marine Mammals Available to Harvest, Port Graham, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	16.6	25.5%	48.4	74.5%	5.5	11.4%	19.4	40.0%	23.5	48.6%
Steller Sea Lion	19.4	29.8%	45.6	70.2%	2.8	6.1%	22.1	48.5%	20.7	45.5%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-353. Reasons for Increased Availability of Marine Mammals, Port Graham, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	5.5	8.5%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	2.77	50.0%	0.00	0.0%	0.00	0.0%	1.38	25.0%	0.00	0.0%	1.38	25.0%
Steller Sea Lion	2.8	4.3%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	2.77	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-354. Reasons for Decreased Availability of Marine Mammals, Port Graham, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	23.5	36.2%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	2.77	11.8%	4.15	17.6%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	16.60	70.6%
Steller Sea Lion	20.7	31.9%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.38	6.7%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	19.36	93.3%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-355. Oil Spill-Related Reasons for Decreased Availability of Marine Mammals, Port Graham, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	11.1	17.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.38	12.5%	1.38	12.5%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	8.30	75.0%
Steller Sea Lion	9.7	14.9%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.38	14.3%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	8.30	85.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-356. Household Assessment of Change in Marine Mammals Available to Harvest, Port Lions, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	51.3	72.2%	19.7	27.8%	3.9	20.0%	11.8	60.0%	3.9	20.0%
Steller Sea Lion	51.3	72.2%	19.7	27.8%	5.3	26.7%	7.9	40.0%	6.6	33.3%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-357. Reasons for Increased Availability of Marine Mammals, Port Lions, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	3.9	5.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.6	66.7%
Steller Sea Lion	5.3	7.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.6	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.6	50.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-358. Reasons for Decreased Availability of Marine Mammals, Port Lions, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	3.9	5.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.9	100.0%
Steller Sea Lion	6.6	9.3%	0.0	0.0%	0.0	0.0%	1.3	20.0%	0.0	0.0%	0.0	0.0%	1.3	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	5.3	80.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-359. Oil Spill-Related Reasons for Decreased Availability of Marine Mammals, Port Lions, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Steller Sea Lion	1.3	1.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-360. Household Assessment of Change in Marine Mammals Available to Harvest, Tatitlek, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	3.2	12.0%	23.8	88.0%	1.1	4.5%	2.2	9.1%	20.5	86.4%
Steller Sea Lion	6.5	24.0%	20.5	76.0%	1.1	5.3%	5.4	26.3%	14.0	68.4%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-361. Reasons for Increased Availability of Marine Mammals, Tatitlek, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	1.1	4.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.1	100.0%
Steller Sea Lion	1.1	4.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.1	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-362. Reasons for Decreased Availability of Marine Mammals, Tatitlek, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	20.5	76.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	20.5	100.0%
Steller Sea Lion	14.0	52.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	14.0	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-363. Oil Spill-Related Reasons for Decreased Availability of Marine Mammals, Tatitlek, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Harbor Seal (saltwater)	15.1	56.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	15.1	100.0%
Steller Sea Lion	13.0	48.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	13.0	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-364. Household Assessment of Change in Birds & Eggs Available to Harvest, Akhiok, 2003 Study Year Compared to Five Years Ag

Resource	Change compared to 5 Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	8.2	54.5%	6.8	45.5%	1.4	20.0%	5.5	80.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003

Table A-365. Reasons for Increased Availability of Birds & Eggs, Akhiok, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change compared to 5 Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	1.4	9.1%	0.0	0.0%	0.0	0.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003

Table A-366. Household Assessment of Change in Birds & Eggs Available to Harvest, Chenega Bay, 2003 Study Year Compared to Five Years Ag

Resource	Change compared to 5 Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	15.0	75.0%	5.0	25.0%	1.3	25.0%	1.3	25.0%	2.5	50.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-367. Reasons for Increased Availability of Birds & Eggs, Chenega Bay, 2003 Study Year Compared to Five Years Ag

Species	Responses		Change compared to 5 Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	1.3	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003

Table A-368. Reasons for Decreased Availability of Birds & Eggs, Chenega Bay, 2003 Study Year Compared to Five Years Ag

Species	Responses		Change compared to 5 Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	2.5	12.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.5	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-369. Oil Spill-Related Reasons for Decreased Availability of Birds & Eggs, Chenega Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change compared to 5 Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	2.5	12.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.5	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003

Table A-370. Household Assessment of Change in Birds & Eggs Available to Harvest, Chignik Bay, 2003 Study Year Compared to Five Years Ago

Resource	Change compared to 5 Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	18.5	63.6%	10.5	36.4%	1.3	12.5%	5.3	50.0%	4.0	37.5%
Ptarmigan	27.7	95.5%	1.3	4.5%	0.0	0.0%	0.0	0.0%	1.3	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-371. Reasons for Increased Availability of Birds & Eggs, Chignik Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change compared to 5 Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	1.3	4.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-372. Reasons for Decreased Availability of Birds & Eggs, Chignik Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change compared to 5 Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	4.0	13.6%	1.3	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	33.3%	0.0	0.0%	0.0	0.0%	1.3	33.3%	0.0	0.0%	1.3	33.3%
Ptarmigan	1.3	4.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-373. Oil Spill-Related Reasons for Decreased Availability of Birds & Eggs, Chignik Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change compared to 5 Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	4.0	13.6%	1.3	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	33.3%	0.0	0.0%	0.0	0.0%	1.3	33.3%	0.0	0.0%	1.3	33.3%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-374. Household Assessment of Change in Birds & Eggs Available to Harvest, Chignik Lagoon, 2003 Study Year Compared to Five Years Ago

Resource	Change compared to 5 Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Common Merganser	20.6	93.8%	1.4	6.3%	0.0	0.0%	0.0	0.0%	1.4	100.0%
Sea Ducks	9.6	43.8%	12.4	56.3%	0.0	0.0%	0.0	0.0%	12.4	100.0%
Ptarmigan	20.6	93.8%	1.4	6.3%	0.0	0.0%	0.0	0.0%	1.4	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-375. Reasons for Decreased Availability of Birds & Eggs, Chignik Lagoon, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change compared to 5 Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Common Merganser	1.4	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%
Sea Ducks	12.4	56.3%	2.8	22.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	11.1%	0.0	0.0%	0.0	0.0%	1.4	11.1%	0.0	0.0%	6.9	55.6%
Ptarmigan	1.4	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-376. Oil Spill-Related Reasons for Decreased Availability of Birds & Eggs, Chignik Lagoon, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change compared to 5 Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Common Merganser	1.4	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%
Sea Ducks	6.9	31.3%	2.8	40.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	20.0%	0.0	0.0%	2.8	40.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-377. Household Assessment of Change in Birds & Eggs Available to Harvest, Chignik Lake, 2003 Study Year Compared to Five Years Ago

Resource	Change compared to 5 Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	14.8	47.6%	16.2	52.4%	3.0	18.2%	10.3	63.6%	3.0	18.2%
Geese	29.5	95.2%	1.5	4.8%	0.0	0.0%	0.0	0.0%	1.5	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-378. Reasons for Increased Availability of Birds & Eggs, Chignik Lake, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change compared to 5 Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	3.0	9.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	50.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-379. Reasons for Decreased Availability of Birds & Eggs, Chignik Lake, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change compared to 5 Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	3.0	9.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	50.0%
Geese	1.5	4.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-380. Oil Spill-Related Reasons for Decreased Availability of Birds & Eggs, Chignik Lake, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change compared to 5 Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	1.5	4.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	100.0%
Geese	1.5	4.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-381. Household Assessment of Change in Birds & Eggs Available to Harvest, Cordova, 2003 Study Year Compared to Five Years Ago

Resource	Change compared to 5 Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Birds and Eggs	894.0	98.2%	16.0	1.8%	0.0	0.0%	8.0	50.0%	8.0	50.0%
Sea Ducks	477.6	52.5%	432.4	47.5%	52.4	12.1%	259.1	59.9%	120.9	28.0%
Black Oystercatcher Eggs	894.0	98.2%	16.0	1.8%	0.0	0.0%	0.0	0.0%	16.0	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-382. Reasons for Increased Availability of Birds & Eggs, Cordova, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change compared to 5 Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	52.4	5.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	17.4	33.1%	0.0	0.0%	0.0	0.0%	8.0	15.2%	0.0	0.0%	27.1	51.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-383. Reasons for Decreased Availability of Birds & Eggs, Cordova, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change compared to 5 Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Birds and Eggs	8.0	0.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.0	100.0%
Sea Ducks	120.9	13.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.00	0.0%	19.1	15.8%	0.0	0.0%	8.0	6.6%	8.0	6.6%	0.0	0.0%	85.8	71.0%
Black Oystercatcher Eggs	16.0	1.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.00	0.0%	0.0	0.0%	16.0	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-384. Oil Spill-Related Reasons for Decreased Availability of Birds & Eggs, Cordova, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change compared to 5 Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	80.9	8.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	11.1	13.7%	0.0	0.0%	8.0	9.9%	0.0	0.0%	0.0	0.0%	61.8	76.4%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-385. Household Assessment of Change in Birds & Eggs Available to Harvest, Karluk, 2003 Study Year Compared to Five Years Ago

Resource	Change compared to 5 Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	8.6	57.1%	6.4	42.9%	0.0	0.0%	0.0	0.0%	6.4	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-386. Reasons for Increased Availability of Birds & Eggs, Karluk, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change compared to 5 Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	6.4	42.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.4	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-387. Oil Spill-Related Reasons for Decreased Availability of Birds & Eggs, Karluk, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change compared to 5 Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	4.3	28.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.3	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-388. Household Assessment of Change in Birds & Eggs Available to Harvest, Larsen Bay, 2003 Study Year Compared to Five Years Ago

Resource	Change compared to 5 Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	28.5	92.0%	2.5	8.0%	0.0	0.0%	2.5	100.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-389. Household Assessment of Change in Birds & Eggs Available to Harvest, Nanwalek, 2003 Study Year Compared to Five Years Ago

Resource	Change compared to 5 Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	11.6	22.7%	39.4	77.3%	0.0	0.0%	16.2	41.2%	23.2	58.8%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-390. Reasons for Increased Availability of Birds & Eggs, Nanwalek, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change compared to 5 Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	23.2	45.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.6	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	18.5	80.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-391. Oil Spill-Related Reasons for Decreased Availability of Birds & Eggs, Nanwalek, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change compared to 5 Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	18.5	36.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.6	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	13.9	75.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-392. Household Assessment of Change in Birds and Eggs Available to Harvest, Old Harbor, 2003 Study Year Compared to Five Years Ago

Resource	Change compared to 5 Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	35.1	46.2%	40.9	53.8%	1.5	3.6%	19.0	46.4%	20.5	50.0%
Geese	74.5	98.1%	1.5	1.9%	1.5	100.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-393. Reasons for Increased Availability of Birds and Eggs, Old Harbor, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change compared to 5 Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	1.5	1.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Geese	1.5	1.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-394. Reasons for Decreased Availability of Birds and Eggs, Old Harbor, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change compared to 5 Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	20.5	26.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	5.8	28.6%	0.0	0.0%	0.0	0.0%	2.9	14.3%	0.0	0.0%	11.7	57.1%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-395. Oil Spill-Related Reasons for Decreased Availability of Birds and Eggs, Old Harbor, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change compared to 5 Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	7.3	9.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	20.0%	0.0	0.0%	0.0	0.0%	2.9	40.0%	0.0	0.0%	2.9	40.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-396. Household Assessment of Change in Birds and Eggs Available to Harvest, Ouzinkie, 2003 Study Year Compared to Five Years Ago

Resource	Change compared to 5 Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	40.6	58.8%	28.4	41.2%	2.7	9.5%	12.2	42.9%	13.5	47.6%
Unknown Gull Eggs	67.6	98.0%	1.4	2.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%

Table A-397. Reasons for Increased Availability of Birds and Eggs Available to Harvest, Ouzinkie, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change compared to 5 Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	2.7	3.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.7	100.0%

Table A-398. Reasons for Decreased Availability of Birds and Eggs Available to Harvest, Ouzinkie, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change compared to 5 Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
	13.5	19.6%	1.4	10.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	10.0%	2.7	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	9.5	70.0%
Unknown Gull Eggs	1.4	2.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

Table A-399. Oil Spill-Related Reasons for Decreased Availability of Birds and Eggs Available to Harvest, Ouzinkie, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change compared to 5 Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	6.8	9.8%	1.4	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.7	40.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.1	60.0%

Table A-400. Household Assessment of Change in Birds and Eggs Available to Harvest, Perryville, 2003 Study Year Compared to Five Years Ago

Resource	Change compared to 5 Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	12.2	37.0%	20.8	63.0%	0.0	0.0%	8.6	41.2%	12.2	58.8%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-401. Reasons for Decreased Availability of Birds and Eggs Available to Harvest, Perryville, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change compared to 5 Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	12.2	37.0%	3.7	30.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.1	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.1	50.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-402. Oil Spill-Related Reasons for Decreased Availability of Birds and Eggs Available to Harvest, Perryville, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change compared to 5 Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	6.1	18.5%	3.7	60.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.1	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-403. Household Assessment of Change in Birds & Eggs Available to Harvest Compared to 5 years Ago, Port Graham, 2003.

Resource	Change compared to 5 Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	27.7	42.6%	37.3	57.4%	1.4	3.7%	18.0	48.1%	18.0	48.1%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-404. Reasons for Increased Availability of Birds & Eggs Compared to 5 Years Ago

Species	Responses		Change compared to 5 Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	1.4	2.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-405. Reasons for Decreased Availability of Birds & Eggs Compared to 5 Years Ago

Species	Responses		Change compared to 5 Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	18.0	27.7%	2.8	15.4%	0.0	0.0%	1.4	7.7%	0.0	0.0%	0.0	0.0%	4.1	23.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	12.4	69.2%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-406. Oil Spill-Related Reasons for Decreased Availability of Birds & Eggs Compared to 5 Years Ago

Species	Responses		Change compared to 5 Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	13.8	21.3%	2.8	20.0%	0.0	0.0%	1.4	10.0%	0.0	0.0%	0.0	0.0%	2.8	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	9.7	70.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-407. Household Assessment of Change in Birds and Eggs Available to Harvest, Port Lions, 2003 Study Year Compared to Five Years Ago

Resource	Change compared to 5 Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	31.6	44.4%	39.4	55.6%	1.3	3.3%	18.4	46.7%	19.7	50.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-408. Reasons for Decreased Availability of Birds and Eggs Available to Harvest, Port Lions, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change compared to 5 Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	19.7	27.8%	2.6	13.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	6.7%	5.3	26.7%	0.0	0.0%	1.3	6.7%	1.3	6.7%	0.0	0.0%	7.9	40.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-409. Oil Spill-Related Reasons for Decreased Availability of Birds and Eggs Available to Harvest, Port Lions, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change compared to 5 Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	2.6	3.7%	2.6	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-410. Household Assessment of Change in Birds and Eggs Available to Harvest, Tatitlek, 2003 Study Year Compared to Five Years Ago

Resource	Change compared to 5 Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	16.2	60.0%	10.8	40.0%	0.0	0.0%	3.2	30.0%	7.6	70.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-411. Reasons for Decreased Availability of Birds and Eggs Available to Harvest, Tatitlek, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change compared to 5 Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	7.6	28.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	7.6	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-412. Oil Spill-Related Reasons for Decreased Availability of Birds and Eggs Available to Harvest, Tatitlek, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change compared to 5 Years Ago																					
			Contamination		PSP		Management/Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Sea Ducks	7.6	28.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	7.6	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2003.

Table A-413. Household Assessment of Change in Wild Plants Available to Harvest, Akhiok, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	4.1	27.3%	10.9	72.7%	1.4	12.5%	6.8	62.5%	2.7	25.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-414. Reasons for Increased Availability of Wild Plants, Akhiok, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	1.4	9.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-415. Reasons for Decreased Availability of Wild Plants, Akhiok, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	2.7	18.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-416. Household Assessment of Change in Wild Plants Available to Harvest, Chenega Bay, 2003 Study Year Compared to Five Years Ag

Resource	Change Compared to Five Years Agc									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	5.0	25.0%	15.0	75.0%	3.8	25.0%	10.0	66.7%	1.3	8.3%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004

Table A-417. Reasons for Increased Availability of Wild Plants, Chenega Bay, 2003 Study Year Compared to Five Years Ag

Species	Responses		Change Compared to Five Years Agc																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	3.8	18.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.8	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004

Table A-418. Reasons for Decreased Availability of Wild Plants, Chenega Bay, 2003 Study Year Compared to Five Years Ag

Species	Responses		Change Compared to Five Years Agc																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	1.3	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004

Table A-419. Household Assessment of Change in Wild Plants Available to Harvest, Chignik Bay, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	9.2	31.8%	19.8	68.2%	1.3	6.7%	9.2	46.7%	9.2	46.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-420. Reasons for Increased Availability of Wild Plants, Chignik Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	1.3	4.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-421. Reasons for Decreased Availability of Wild Plants, Chignik Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	9.2	31.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	14.3%	9.2	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-422. Household Assessment of Change in Wild Plants Available to Harvest, Chignik Lagoon, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	4.1	18.8%	17.9	81.3%	0.0	0.0%	16.5	92.3%	1.4	7.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-423. Reasons for Decreased Availability of Wild Plants, Chignik Lagoon, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	1.4	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-424. Household Assessment of Change in Wild Plants Available to Harvest, Chignik Lake, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	10.3	33.3%	20.7	66.7%	1.5	7.1%	14.8	71.4%	4.4	21.4%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-425. Reasons for Increased Availability of Wild Plants, Chignik Lake, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																			
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	1.5	4.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-426. Reasons for Decreased Availability of Wild Plants, Chignik Lake, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																			
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	4.4	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.0	66.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-427. Household Assessment of Change in Wild Plants Available to Harvest, Cordova, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	215.0	23.6%	695.0	76.4%	43.1	6.2%	445.3	64.1%	206.7	29.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-428. Reasons for Increased Availability of Wild Plants, Cordova, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	43.1	4.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	16.0	37.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	27.1	62.9%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-429. Reasons for Decreased Availability of Wild Plants, Cordova, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	206.7	22.7%	0.0	0.0%	0.0	0.0%	24.0	11.6%	16.0	7.7%	8.0	3.9%	49.3	23.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	109.4	52.9%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-431. Household Assessment of Change in Wild Plants Available to Harvest, Karluk, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	4.3	28.6%	10.7	71.4%	0.0	0.0%	2.1	20.0%	8.6	80.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004

Table A-432. Reasons for Decreased Availability of Wild Plants, Karluk, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	8.6	57.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.6	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004

Table A-433. Oil Spill-Related Reasons for Decreased Availability of Wild Plants, Karluk, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Comp red to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	6.4	42.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.4	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004

Table A-434. Household Assessment of Change in Wild Plants Available to Harvest, Larsen Bay, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	11.2	36.0%	19.8	64.0%	0.0	0.0%	16.1	81.3%	3.7	18.8%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-435. Reasons for Decreased Availability of Wild Plants, Larsen Bay, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	3.7	12.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	33.3%	0.0	0.0%	0.0	0.0%	2.5	66.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-436. Household Assessment of Change in Wild Plants Available to Harvest, Nanwalek, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	2.3	4.5%	48.7	95.5%	2.3	4.8%	25.5	52.4%	20.9	42.9%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-437. Reasons for Increased Availability of Wild Plants, Nanwalek, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	2.3	4.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-438. Reasons for Decreased Availability of Wild Plants, Nanwalek, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	20.9	40.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	11.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	18.5	88.9%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-439. Household Assessment of Change in Wild Plants Available to Harvest, Old Harbor, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	8.8	11.5%	67.2	88.5%	5.8	8.7%	57.0	84.8%	4.4	6.5%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-440. Reasons for Increased Availability of Wild Plants, Old Harbor, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	5.8	7.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	5.8	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-441. Reasons for Decreased Availability of Wild Plants, Old Harbor, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	4.4	5.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	33.3%	0.0	0.0%	1.5	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	33.3%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-443. Household Assessment of Change in Wild Plants Available to Harvest, Ouzinkie, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	8.1	11.8%	60.9	88.2%	6.8	11.1%	54.1	88.9%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-444. Reasons for Increased Availability of Wild Plants, Ouzinkie, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	6.8	9.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.8	100.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-445. Household Assessment of Change in Wild Plants Available to Harvest, Perryville, 2003 Study Year Compared to Five Years Agc

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	215.0	23.6%	695.0	76.4%	43.1	6.2%	445.3	64.1%	206.7	29.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-446. Reasons for Increased Availability of Wild Plants, Perryville, 2003 Study Year Compared to Five Years Agc

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	3.7	11.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.4	66.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-447. Reasons for Decreased Availability of Wild Plants, Perryville, 2003 Study Year Compared to Five Years Agc

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	13.4	40.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	9.1%	0.0	0.0%	2.4	18.2%	1.2	9.1%	2.4	18.2%	0.0	0.0%	0.0	0.0%	8.6	63.6%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-448. Household Assessment of Change in Wild Plants Available to Harvest, Port Graham, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	9.7	14.9%	55.3	85.1%	4.1	7.5%	23.5	42.5%	27.7	50.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-449. Reasons for Increased Availability of Wild Plants, Port Graham, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	4.1	6.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.8	66.7%	0.0	0.0%	0.0	0.0%	1.4	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-450. Reasons for Decreased Availability of Wild Plants, Port Graham, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	27.7	42.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	19.4	70.0%	0.0	0.0%	1.4	5.0%	0.0	0.0%	0.0	0.0%	6.9	25.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-451. Household Assessment of Change in Wild Plants Available to Harvest, Port Lions, 2003 Study Year Compared to Five Years Ago

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	17.1	24.1%	53.9	75.9%	3.9	7.3%	43.4	80.5%	6.6	12.2%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-452. Reasons for Increased Availability of Wild Plants, Port Lions, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	3.9	5.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.6	66.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-453. Reasons for Decreased Availability of Wild Plants, Port Lions, 2003 Study Year Compared to Five Years Ago

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	6.6	9.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	20.0%	1.3	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.9	60.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-454. Household Assessment of Change in Wild Plants Available to Harvest, Tatitlek, 2003 Study Year Compared to Five Years Ag

Resource	Change Compared to Five Years Ago									
	No Response		Valid Responses		More		Same		Less	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	4.3	16.0%	22.7	84.0%	0.0	0.0%	11.9	52.4%	10.8	47.6%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004

Table A-455. Reasons for Decreased Availability of Wild Plants, Tatitlek, 2003 Study Year Compared to Five Years Ag

Species	Responses		Change Compared to Five Years Ago																					
			Contamination		PSP		Management/ Regulations		Change in Area		Competition		Environmental (non-contamination)		Economic		Personal		General/Unspecific		Non-relevant		No Reason	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Plants And Berries	10.8	40.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.1	10.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	9.7	90.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004

Table A-456. Household Assessment of Change in Habitat or Environment of Subsistence Resources, 2003 Study Year

Region / Community	Estimated Households	No Response No.	No Response Pctg.	Valid Responses No.	Valid Responses Pctg.	No No.	No Pctg.	Yes No.	Yes Pctg.
		Observed Change in Habitat or Environment of Subsistence Resources							
Alaska Penninsula									
Chignik Bay	29	5.3	18.2%	23.7	81.8%	9.2	38.9%	14.5	61.1%
Chignik Lagoon	22	0.0	0.0%	22.0	100.0%	9.6	43.8%	12.4	56.3%
Chignik Lake	31	4.4	14.3%	26.6	85.7%	13.3	50.0%	13.3	50.0%
Perryville	33	0.0	0.0%	33.0	100.0%	11.0	33.3%	22.0	66.7%
Cook Inlet									
Nanwalek	51	0.0	0.0%	51.0	100.0%	18.5	36.4%	32.5	63.6%
Port Graham	65	5.5	8.5%	59.5	91.5%	38.7	65.1%	20.7	34.9%
Kodiak									
Akhiok	15	2.7	18.2%	12.3	81.8%	5.5	44.4%	6.8	55.6%
Karluk	15	4.3	28.6%	10.7	71.4%	4.3	40.0%	6.4	60.0%
Larsen Bay	31	8.7	28.0%	22.3	72.0%	19.8	88.9%	2.5	11.1%
Old Harbor	76	5.8	7.7%	70.2	92.3%	42.4	60.4%	27.8	39.6%
Ouzinkie	69	12.2	17.6%	56.8	82.4%	33.8	59.5%	23.0	40.5%
Port Lions	71	2.6	3.7%	68.4	96.3%	47.3	69.2%	21.0	30.8%
Prince William Sound									
Chenega Bay	20	2.5	12.5%	17.5	87.5%	8.8	50.0%	8.8	50.0%
Cordova	910	90.3	9.9%	819.7	90.1%	446.0	54.4%	373.7	45.6%
Tatitlek	27	3.2	12.0%	23.8	88.0%	6.5	27.3%	17.3	72.7%

Note: 'No Response' includes those who responded 'Don't Know.'

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-457. Reasons for Change in Habitat or Environment, 2003 Study Year

				Changes in Habitat or Environment*																									
Region	Households Responding to Changes in Habitat or Environment	Households Responding 'Yes' to Changes in Habitat**		Less Resources		Contamination / Pollution / PSP		Reduced Quality		Climate / Weather		More Resources		Food Chain		Predation		Logging / Economic Development		Other Natural Changes		Habitat Protection / Improvement		General / Unspecific		Non-Relevant	
Community	No.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Penninsula																													
Chignik Bay	23.7	14.5	61.1%	1.3	9.1%	2.6	18.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	13.2	90.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Chignik Lagoon	22.0	12.4	56.3%	4.1	33.3%	2.8	22.2%	0.0	0.0%	0.0	0.0%	5.5	44.4%	0.0	0.0%	1.4	11.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Chignik Lake	26.6	13.3	50.0%	1.5	11.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	11.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	11.8	88.9%	0.0	0.0%	0.0	0.0%
Perryville	33.0	22.0	66.7%	3.7	16.7%	3.7	16.7%	3.7	16.7%	3.7	16.7%	4.9	22.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	5.6%	11.0	50.0%	0.0	0.0%	0.0	0.0%
Cook Inlet																													
Nanwalek	51.0	32.5	63.6%	9.3	28.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	7.0	21.4%	0.0	0.0%	2.3	7.1%	2.3	7.1%	4.6	14.3%	7.0	21.4%	0.0	0.0%	7.0	21.4%
Port Graham	59.5	20.7	34.9%	0.0	0.0%	5.6	27.1%	4.2	20.3%	4.2	20.3%	4.2	20.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	7.0	33.8%	5.6	27.1%	0.0	0.0%	0.0	0.0%
Kodiak																													
Akhiok	12.3	6.8	55.6%	2.7	40.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	20.0%	2.7	40.0%	0.0	0.0%	0.0	0.0%
Karluk	10.7	6.4	60.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.4	100.0%	0.0	0.0%	0.0	0.0%
Larsen Bay	22.3	2.5	11.1%	2.5	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Old Harbor	70.2	27.8	39.6%	14.6	52.6%	5.8	21.1%	0.0	0.0%	0.0	0.0%	1.5	5.3%	1.5	5.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	5.3%	0.0	0.0%	0.0	0.0%
Ouzinkie	56.8	23.0	40.5%	10.8	47.1%	4.1	17.6%	1.4	5.9%	1.4	5.9%	1.4	5.9%	1.4	5.9%	2.7	11.8%	0.0	0.0%	1.4	5.9%	0.0	0.0%	0.0	0.0%	2.7	11.8%
Port Lions	68.4	21.0	30.8%	2.6	12.5%	3.9	18.8%	0.0	0.0%	0.0	0.0%	10.5	50.0%	1.3	6.3%	2.6	12.5%	0.0	0.0%	0.0	0.0%	1.3	6.3%	0.0	0.0%	0.0	0.0%
Prince William Sound																													
Chenega Bay	17.5	8.8	50.0%	2.5	28.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.5	28.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.5	28.6%	0.0	0.0%	1.3	14.3%
Cordova	819.7	373.7	45.6%	69.8	18.7%	68.4	18.3%	3.1	0.8%	3.1	0.8%	11.1	3.0%	8.0	2.1%	14.2	3.8%	11.1	3.0%	73.3	19.6%	91.0	24.4%	8.0	2.1%	14.2	3.8%
Tatitlek	23.8	17.3	72.7%	9.7	56.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.1	6.3%	0.0	0.0%	0.0	0.0%	1.1	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%

* Based upon only responses of 'Yes' to changes in habitat or environment. Percentages may not add to 100% as multiple responses were permitted.

** Percentages are based upon valid responses only.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004

Table A-458. Safety of Clams for Family to Eat, 2003 Study Year

Region / Community	Estimated Households	Clams: No Response No.	Pctg.	Valid Responses No.	Pctg.	Safe No.	Pctg	Not Safe No.	Pctg.	Unsure No.	Pctg.
Alaska Peninsula											
Chignik Bay	29	1.32	4.5%	27.68	95.5%	22.41	81.0%	2.64	9.5%	2.64	9.5%
Chignik Lagoon	22	5.50	25.0%	16.50	75.0%	11.00	66.7%	2.75	16.7%	2.75	16.7%
Chignik Lake	31	2.95	9.5%	28.05	90.5%	23.62	84.2%	1.48	5.3%	2.95	10.5%
Perryville	33	0.00	0.0%	33.00	100.0%	25.67	77.8%	0.00	0.0%	7.33	22.2%
Cook Inlet											
Nanwalek	51	0.00	0.0%	51.00	100.0%	18.55	36.4%	9.27	18.2%	23.18	45.5%
Port Graham	65	1.38	2.1%	63.62	97.9%	22.13	34.8%	5.53	8.7%	35.96	56.5%
Kodiak Island											
Akhiok	15	1.36	9.1%	13.64	90.9%	10.91	80.0%	1.36	10.0%	1.36	10.0%
Karluk	15	0.00	0.0%	15.00	100.0%	0.00	0.0%	15.00	100.0%	0.00	0.0%
Larsen Bay	31	0.00	0.0%	31.00	100.0%	6.20	20.0%	2.48	8.0%	22.32	72.0%
Old Harbor	76	4.38	5.8%	71.62	94.2%	52.62	73.5%	10.23	14.3%	8.77	12.2%
Ouzinkie	69	6.76	9.8%	62.24	90.2%	2.71	4.3%	59.53	95.7%	0.00	0.0%
Port Lions	71	0.00	0.0%	71.00	100.0%	6.57	9.3%	64.43	90.7%	0.00	0.0%
Prince William Sound											
Chenega Bay	20	0.00	0.0%	20.00	100.0%	12.50	62.5%	5.00	25.0%	2.50	12.5%
Cordova	910	43.07	4.7%	866.93	95.3%	493.56	56.9%	109.40	12.6%	263.97	30.4%
Tatitlek	27	0.00	0.0%	27.00	100.0%	18.36	68.0%	1.08	4.0%	7.56	28.0%

Note: 'No Response' includes those who responded 'Don't Know.'
SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-459. Reasons Why Clams Are Unsafe for Family to Eat, 2003 Study Year

Region / Community	Estimated Households	Not Safe Responses** No.	Not Safe Responses** Pctg.	Clams*: Lack of or Poor Information No.	Lack of or Poor Information Pctg.	Agency Advice No.	Agency Advice Pctg	PSP No.	PSP Pctg.	EVOS Contamination No.	EVOS Contamination Pctg.	Non-EVOS Contamination No.	Non-EVOS Contamination Pctg.	Resource Condition No.	Resource Condition Pctg.	Caused Illness or Reaction No.	Caused Illness or Reaction Pctg.	Unspecified No.	Unspecified Pctg.	Don't Know / No Response No.	Don't Know / No Response Pctg.
Alaska Peninsula																					
Chignik Bay	29	2.64	9.5%	0.00	0.0%	0.00	0.0%	1.32	50.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.32	50.0%
Chignik Lagoon	22	2.75	16.7%	0.00	0.0%	0.00	0.0%	1.38	50.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.38	50.0%	0.00	0.0%
Chignik Lake	31	1.48	5.3%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.48	100.0%
Perryville	33	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Cook Inlet																					
Nanwalek	51	9.27	18.2%	0.00	0.0%	0.00	0.0%	2.32	25.0%	2.32	25.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	4.64	50.0%
Port Graham	65	5.53	8.7%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.38	25.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	4.15	75.0%
Kodiak Island																					
Akhiok	15	1.36	10.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.36	100.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Karluk	15	15.00	100.0%	0.00	0.0%	0.00	0.0%	15.00	100.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Larsen Bay	31	2.48	8.0%	1.24	50.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.24	50.0%
Old Harbor	76	10.23	14.3%	0.00	0.0%	0.00	0.0%	5.85	57.1%	1.46	14.3%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	2.92	28.6%
Ouzinkie	69	59.53	95.7%	0.00	0.0%	2.71	4.5%	40.59	68.2%	36.53	61.4%	0.00	0.0%	14.88	25.0%	13.53	22.7%	0.00	0.0%	17.59	29.5%
Port Lions	71	64.43	90.7%	0.00	0.0%	2.63	4.1%	26.30	40.8%	10.52	16.3%	0.00	0.0%	3.94	6.1%	7.89	12.2%	1.31	2.0%	35.50	55.1%
Prince William Sound																					
Chenega Bay	20	5.00	25.0%	1.25	25.0%	1.25	25.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.25	25.0%	0.00	0.0%	0.00	0.0%	1.25	25.0%
Cordova	910	109.40	12.6%	3.13	2.9%	0.00	0.0%	0.00	0.0%	46.20	42.2%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	60.08	54.9%
Tatitlek	27	1.08	4.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.08	100.0%

* Based upon only unsafe assessments. Percentages may not add to 100% as multiple responses were permitted.

** Percentages are based upon valid responses only.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-460. Safety of Chitons for Family to Eat, 2003 Study Year

Region	Estimated	Chitons (bidarkis, gumboots)									
		No Response		Valid Responses		Safe		Not Safe		Unsure	
Community	Households	No.	Pctg.	No.	Pctg.	No.	Pctg	No.	Pctg.	No.	Pctg.
Alaska Peninsula											
Chignik Bay	29	5.27	18.2%	23.73	81.8%	21.09	88.9%	0.00	0.0%	2.64	11.1%
Chignik Lagoon	22	5.50	25.0%	16.50	75.0%	5.50	33.3%	1.38	8.3%	9.63	58.3%
Chignik Lake	31	2.95	9.5%	28.05	90.5%	25.10	89.5%	0.00	0.0%	2.95	10.5%
Perryville	33	0.00	0.0%	33.00	100.0%	30.56	92.6%	0.00	0.0%	2.44	7.4%
Cook Inlet											
Nanwalek	51	0.00	0.0%	51.00	100.0%	18.55	36.4%	16.23	31.8%	16.23	31.8%
Port Graham	65	1.38	2.1%	63.62	97.9%	41.49	65.2%	2.77	4.3%	19.36	30.4%
Kodiak Island											
Akhiok	15	1.36	9.1%	13.64	90.9%	12.27	90.0%	0.00	0.0%	1.36	10.0%
Karluk	15	0.00	0.0%	15.00	100.0%	12.86	85.7%	0.00	0.0%	2.14	14.3%
Larsen Bay	31	0.00	0.0%	31.00	100.0%	9.92	32.0%	1.24	4.0%	19.84	64.0%
Old Harbor	76	8.77	11.5%	67.23	88.5%	49.69	73.9%	5.85	8.7%	11.69	17.4%
Ouzinkie	69	6.76	9.8%	62.24	90.2%	56.82	91.3%	4.06	6.5%	1.35	2.2%
Port Lions	71	22.35	31.5%	48.65	68.5%	34.19	70.3%	7.89	16.2%	6.57	13.5%
Prince William Sound											
Chenega Bay	20	0.00	0.0%	20.00	100.0%	16.25	81.3%	0.00	0.0%	3.75	18.8%
Cordova	910	73.29	8.1%	836.71	91.9%	201.44	24.1%	48.97	5.9%	586.30	70.1%
Tatitlek	27	3.24	12.0%	23.76	88.0%	19.44	81.8%	0.00	0.0%	4.32	18.2%

Note: 'No Response' includes those who responded 'Don't Know.'

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-461. Reasons Why Chitons Are Unsafe for Family to Eat, 2003 Study Year

Region / Community	Estimated Households	Not Safe Responses** No.	Not Safe Responses** Pctg.	Chitons(bidarkis, gumboots)* Lack of or Poor Information No.	Lack of or Poor Information Pctg.	Agency Advice No.	Agency Advice Pctg	PSP No.	PSP Pctg.	EVOS Contamination No.	EVOS Contamination Pctg.	Non-EVOS Contamination No.	Non-EVOS Contamination Pctg.	Resource Condition No.	Resource Condition Pctg.	Caused Illness or Reaction No.	Caused Illness or Reaction Pctg.	Unspecified No.	Unspecified Pctg.	Don't Know / No Response No.	Don't Know / No Response Pctg.
Alaska Peninsula																					
Chignik Bay	29	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Chignik Lagoon	22	1.38	8.3%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.38	100.0%	0.00	0.0%
Chignik Lake	31	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Perryville	33	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Cook Inlet																					
Nanwalek	51	16.23	31.8%	2.32	14.3%	0.00	0.0%	2.32	14.3%	4.64	28.6%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	6.95	42.9%
Port Graham	65	2.77	4.3%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	2.77	100.0%
Kodiak Island																					
Akhiok	15	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Karluk	15	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Larsen Bay	31	1.24	4.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.24	100.0%
Old Harbor	76	5.85	8.7%	0.00	0.0%	0.00	0.0%	2.92	50.0%	1.46	25.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.46	25.0%
Ouzinkie	69	4.06	6.5%	0.00	0.0%	0.00	0.0%	1.35	33.3%	1.35	33.3%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	2.71	66.7%
Port Lions	71	7.89	16.2%	0.00	0.0%	0.00	0.0%	2.63	33.3%	1.31	16.7%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	5.26	66.7%
Prince William Sound																					
Chenega Bay	20	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Cordova	910	48.97	5.9%	0.00	0.0%	0.00	0.0%	0.00	0.0%	27.09	55.3%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	21.88	44.7%
Tatitlek	27	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%

* Based upon only unsafe assessments. Percentages may not add to 100% as multiple responses were permitted

** Percentages are based upon valid responses only.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004

Table A-462. Safety of Herring for Family to Eat, 2003 Study Year

Region	Estimated	Herring									
		No Response		Valid Responses		Safe		Not Safe		Unsure	
Community	Households	No.	Pctg.	No.	Pctg.	No.	Pctg	No.	Pctg.	No.	Pctg.
Alaska Peninsula											
Chignik Bay	29	9.23	31.8%	19.77	68.2%	10.55	53.3%	0.00	0.0%	9.23	46.7%
Chignik Lagoon	22	4.13	18.8%	17.88	81.3%	5.50	30.8%	0.00	0.0%	12.38	69.2%
Chignik Lake	31	4.43	14.3%	26.57	85.7%	13.29	50.0%	0.00	0.0%	13.29	50.0%
Perryville	33	11.00	33.3%	22.00	66.7%	4.89	22.2%	0.00	0.0%	17.11	77.8%
Cook Inlet											
Nanwalek	51	2.32	4.5%	48.68	95.5%	4.64	9.5%	2.32	4.8%	41.73	85.7%
Port Graham	65	1.38	2.1%	63.62	97.9%	34.57	54.3%	2.77	4.3%	26.28	41.3%
Kodiak Island											
Akhiok	15	8.18	54.5%	6.82	45.5%	0.00	0.0%	0.00	0.0%	6.82	100.0%
Karluk	15	8.57	57.1%	6.43	42.9%	2.14	33.3%	0.00	0.0%	4.29	66.7%
Larsen Bay	31	1.24	4.0%	29.76	96.0%	6.20	20.8%	0.00	0.0%	23.56	79.2%
Old Harbor	76	20.46	26.9%	55.54	73.1%	32.15	57.9%	0.00	0.0%	23.38	42.1%
Ouzinkie	69	37.88	54.9%	31.12	45.1%	24.35	78.3%	1.35	4.3%	5.41	17.4%
Port Lions	71	35.50	50.0%	35.50	50.0%	22.35	63.0%	0.00	0.0%	13.15	37.0%
Prince William Sound											
Chenega Bay	20	0.00	0.0%	20.00	100.0%	12.50	62.5%	0.00	0.0%	7.50	37.5%
Cordova	910	41.33	4.5%	868.67	95.5%	362.96	41.8%	101.77	11.7%	403.94	46.5%
Tatitlek	27	0.00	0.0%	27.00	100.0%	19.44	72.0%	2.16	8.0%	5.40	20.0%

Note: 'No Response' includes those who responded 'Don't Know.'

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-463. Reasons Why Herring Are Unsafe for Family to Eat, 2003 Study Year

Region / Community	Estimated Households	Not Safe Responses** No.	Not Safe Responses** Pctg.	Herring*: Lack of or Poor Information No.	Lack of or Poor Information Pctg.	Agency Advice No.	Agency Advice Pctg	PSP No.	PSP Pctg.	EVOS Contamination No.	EVOS Contamination Pctg.	Non-EVOS Contamination No.	Non-EVOS Contamination Pctg.	Resource Condition No.	Resource Condition Pctg.	Caused Illness or Reaction No.	Caused Illness or Reaction Pctg.	Unspecified No.	Unspecified Pctg.	Don't Know / No Response No.	Don't Know / No Response Pctg.
Alaska Peninsula																					
Chignik Bay	29	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Chignik Lagoon	22	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Chignik Lake	31	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Perryville	33	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Cook Inlet																					
Nanwalek	51	2.32	4.8%	0.00	0.0%	0.00	0.0%	0.00	0.0%	2.32	100.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Port Graham	65	2.77	4.3%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.38	50.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.38	50.0%
Kodiak Island																					
Akhiok	15	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Karluk	15	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Larsen Bay	31	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Old Harbor	76	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Ouzinkie	69	1.35	4.3%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.35	100.0%
Port Lions	71	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Prince William Sound																					
Chenega Bay	20	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Cordova	910	101.77	11.7%	0.00	0.0%	0.00	0.0%	7.99	7.9%	31.96	31.4%	0.00	0.0%	15.98	15.7%	11.11	10.9%	0.00	0.0%	42.72	42.0%
Tatitlek	27	2.16	8.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.08	50.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.08	50.0%

* Based upon only unsafe assessments. Percentages may not add to 100% as multiple responses were permitted.
** Percentages are based upon valid responses only.
SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-464. Safety of Seal for Family to Eat, 2003 Study Year

Region Community	Estimated Households	Seal: No Response No.	Pctg.	Valid Responses No.	Pctg.	Safe No.	Pctg	Not Safe No.	Pctg.	Unsure No.	Pctg.
Alaska Peninsula											
Chignik Bay	29	7.91	27.3%	21.09	72.7%	14.50	68.8%	0.00	0.0%	6.59	31.3%
Chignik Lagoon	22	4.13	18.8%	17.88	81.3%	6.88	38.5%	1.38	7.7%	9.63	53.8%
Chignik Lake	31	2.95	9.5%	28.05	90.5%	22.14	78.9%	0.00	0.0%	5.90	21.1%
Perryville	33	1.22	3.7%	31.78	96.3%	28.11	88.5%	0.00	0.0%	3.67	11.5%
Cook Inlet											
Nanwalek	51	2.32	4.5%	48.68	95.5%	16.23	33.3%	4.64	9.5%	27.82	57.1%
Port Graham	65	5.53	8.5%	59.47	91.5%	37.34	62.8%	1.38	2.3%	20.74	34.9%
Kodiak Island											
Akhiok	15	1.36	9.1%	13.64	90.9%	12.27	90.0%	0.00	0.0%	1.36	10.0%
Karluk	15	0.00	0.0%	15.00	100.0%	12.86	85.7%	0.00	0.0%	2.14	14.3%
Larsen Bay	31	6.20	20.0%	24.80	80.0%	9.92	40.0%	0.00	0.0%	14.88	60.0%
Old Harbor	76	5.85	7.7%	70.15	92.3%	62.85	89.6%	4.38	6.3%	2.92	4.2%
Ouzinkie	69	23.00	33.3%	46.00	66.7%	41.94	91.2%	0.00	0.0%	4.06	8.8%
Port Lions	71	32.87	46.3%	38.13	53.7%	27.61	72.4%	0.00	0.0%	10.52	27.6%
Prince William Sound											
Chenega Bay	20	2.50	12.5%	17.50	87.5%	17.50	100.0%	0.00	0.0%	0.00	0.0%
Cordova	910	690.19	75.8%	219.81	24.2%	89.24	40.6%	31.60	14.4%	98.97	45.0%
Tatitlek	27	0.00	0.0%	27.00	100.0%	21.60	80.0%	1.08	4.0%	4.32	16.0%

Note: 'No Response' includes those who responded 'Don't Know.'

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-465. Reasons Why Seal Are Unsafe for Family to Eat, 2003 Study Year

Region / Community	Estimated Households	Not Safe Responses** No.	Not Safe Responses** Pctg.	Seal*: Lack of or Poor Information No.	Pctg.	Agency Advice No.	Pctg	PSP No.	Pctg.	EVOS Contamination No.	Pctg.	Non-EVOS Contamination No.	Pctg.	Resource Condition No.	Pctg.	Caused Illness or Reaction No.	Pctg.	Unspecified No.	Pctg.	Don't Know / No Response No.	Pctg.
Alaska Peninsula																							
Chignik Bay	29	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Chignik Lagoon	22	1.38	7.7%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.38	100.0%	0.00	0.0%	0.00	0.0%
Chignik Lake	31	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Perryville	33	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Cook Inlet																							
Nanwalek	51	4.64	9.5%	0.00	0.0%	0.00	0.0%	0.00	0.0%	2.32	50.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	2.32	50.0%
Port Graham	65	1.38	2.3%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.38	100.0%
Kodiak Island																							
Akhiok	15	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Karluk	15	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Larsen Bay	31	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Old Harbor	76	4.38	6.3%	0.00	0.0%	0.00	0.0%	1.46	33.3%	1.46	33.3%	0.00	0.0%	1.46	33.3%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Ouzinkie	69	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Port Lions	71	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Prince William Sound																							
Chenega Bay	20	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Cordova	910	31.60	14.4%	0.00	0.0%	0.00	0.0%	0.00	0.0%	11.11	35.2%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	20.49	64.8%
Tatitlek	27	1.08	4.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.08	100.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%

* Based upon only unsafe assessments. Percentages may not add to 100% as multiple responses were permitted.

** Percentages are based upon valid responses only.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-466. Household Assessment of Young Adults Learning Enough Subsistence Skills, 2003 Study Year

Region / Community	Estimated Households	Are Young Adults Learning Enough Hunting, Fishing, and Processing Skills? No Response No.	No Response Pctg.	Do Not Know No.	Do Not Know Pctg.	Valid Responses No.	Valid Responses Pctg.	Yes No.	Yes Pctg.	No No.	No Pctg.
Alaska Penninsula											
Chignik Bay	29	2.6	9.1%	2.6	9.1%	23.7	81.8%	13.2	55.6%	10.5	44.4%
Chignik Lagoon	22	0.0	0.0%	1.4	6.3%	20.6	93.8%	8.3	40.0%	12.4	60.0%
Chignik Lake	31	3.0	9.5%	1.5	4.8%	26.6	85.7%	10.3	38.9%	16.2	61.1%
Perryville	33	1.2	3.7%	3.7	11.1%	29.3	88.9%	14.7	50.0%	14.7	50.0%
Cook Inlet											
Nanwalek	51	0.0	0.0%	4.6	9.1%	46.4	90.9%	20.9	45.0%	25.5	55.0%
Port Graham	65	1.4	2.1%	11.1	17.0%	58.1	89.4%	20.7	35.7%	37.3	64.3%
Kodiak											
Akhiok	15	2.7	18.2%	0.0	0.0%	12.3	81.8%	5.5	44.4%	6.8	55.6%
Karluk	15	0.0	0.0%	0.0	0.0%	15.0	100.0%	2.1	14.3%	12.9	85.7%
Larsen Bay	31	2.5	8.0%	9.9	32.0%	21.1	68.0%	13.6	64.7%	7.4	35.3%
Old Harbor	76	1.5	1.9%	8.8	11.5%	67.2	88.5%	38.0	56.5%	29.2	43.5%
Ouzinkie	69	2.7	3.9%	2.7	3.9%	64.9	94.1%	58.2	89.6%	6.8	10.4%
Port Lions	71	0.0	0.0%	15.8	22.2%	56.5	79.6%	31.6	55.8%	25.0	44.2%
Prince William Sound											
Chenega Bay	20	0.0	0.0%	1.3	6.3%	18.8	93.8%	11.3	60.0%	7.5	40.0%
Cordova	910	0.0	0.0%	205.3	22.6%	720.7	79.2%	380.7	52.8%	340.0	47.2%
Tatitlek	27	0.0	0.0%	3.2	12.0%	25.9	96.0%	8.6	33.3%	17.3	66.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-467. Reasons Why Young Adults Not Learning Enough Subsistence Skills, 2003 Study Year

Region / Community	Households	Not Learning Enough Responses**		Why Young Adults Not Learning Enough Hunting, Fishing, and Processing Skills*: No Time		No Interest		Lack of Teachers		Change in Community Way of Life		Too Much Else to Do		Subsistence Involvement Impeded		Decline in/Scarcity of Subsistence Resources		No Reason Given	
	Responding	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Penninsula																			
Chignik Bay	23.7	10.5	44.4%	0.0	0.0%	9.2	87.5%	1.3	12.5%	2.6	25.0%	0.0	0.0%	1.3	12.5%	0.0	0.0%	0.0	0.0%
Chignik Lagoon	20.6	12.4	60.0%	2.8	22.2%	4.1	33.3%	2.8	22.2%	5.5	44.4%	1.4	11.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Chignik Lake	26.6	16.2	61.1%	0.0	0.0%	3.0	18.2%	3.0	18.2%	3.0	18.2%	8.9	54.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Perryville	29.3	14.7	50.0%	1.2	8.3%	7.3	50.0%	7.3	50.0%	7.3	50.0%	3.7	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Cook Inlet																			
Nanwalek	46.4	25.5	55.0%	2.3	9.1%	16.2	63.6%	4.6	18.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	9.1%
Port Graham	58.1	37.3	64.3%	2.8	7.4%	12.4	33.3%	12.4	33.3%	4.1	11.1%	2.8	7.4%	0.0	0.0%	0.0	0.0%	2.8	7.4%
Kodiak																			
Akhiok	12.3	6.8	55.6%	0.0	0.0%	5.5	80.0%	2.7	40.0%	0.0	0.0%	4.1	60.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Karluk	15.0	12.9	85.7%	0.0	0.0%	2.1	16.7%	8.6	66.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.1	16.7%
Larsen Bay	21.1	7.4	35.3%	0.0	0.0%	3.7	50.0%	2.5	33.3%	1.2	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Old Harbor	67.2	29.2	43.5%	0.0	0.0%	8.8	30.0%	5.8	20.0%	5.8	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.8	30.0%
Ouzinkie	64.9	6.8	10.4%	0.0	0.0%	2.7	40.0%	1.4	20.0%	2.7	40.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Port Lions	56.5	25.0	44.2%	1.3	5.3%	7.9	31.6%	2.6	10.5%	1.3	5.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	11.8	47.4%
Prince William Sound																			
Chenega Bay	18.8	7.5	40.0%	0.0	0.0%	5.0	66.7%	2.5	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Cordova	720.7	340.0	47.2%	30.2	8.9%	125.7	37.0%	45.8	13.5%	39.6	11.6%	24.0	7.0%	3.1	0.9%	0.0	0.0%	71.5	21.0%
Tatitlek	25.9	17.3	66.7%	0.0	0.0%	9.7	56.3%	2.2	12.5%	2.2	12.5%	1.1	6.3%	0.0	0.0%	1.1	6.3%	1.1	6.2%

* Based upon only assessments of youth not learning enough. Percentages may not add to 100% as multiple responses were permitted.

** Percentages are based upon valid responses only.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-468. How Young Adults Are Learning Subsistence Skills, 2003 Study Year

Region					How Young Adults Are Learning Hunting, Fishing, and Processing Skills*													
			Youth Learning Responses**		Family Members		Elders		Involvement in Activities		Spirit Camps and Native Programs		School Programs		Other Community Members & Friends		No Response	
	Community	Households Responding	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Penninsula																		
	Chignik Bay	23.7	13.2	55.6%	4.0	30.0%	1.3	10.0%	4.0	30.0%	0.0	0.0%	1.3	10.0%	0.0	0.0%	0.0	0.0%
	Chignik Lagoon	20.6	8.3	40.0%	4.1	50.0%	4.1	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Chignik Lake	26.6	10.3	38.9%	0.0	0.0%	0.0	0.0%	1.5	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	14.3%
	Perryville	29.3	14.7	50.0%	0.0	0.0%	2.4	16.7%	1.2	8.3%	1.2	8.3%	1.2	8.3%	6.1	41.7%	0.0	0.0%
Cook Inlet																		
	Nanwalek	46.4	20.9	45.0%	4.6	22.2%	4.6	22.2%	9.3	44.4%	0.0	0.0%	0.0	0.0%	4.6	22.2%	2.3	11.1%
	Port Graham	58.1	20.7	35.7%	1.4	6.7%	4.1	20.0%	1.4	6.7%	0.0	0.0%	0.0	0.0%	1.4	6.7%	4.1	20.0%
Kodiak																		
	Akhiok	12.3	5.5	44.4%	1.4	25.0%	0.0	0.0%	2.7	50.0%	0.0	0.0%	0.0	0.0%	1.4	25.0%	0.0	0.0%
	Karluk	15.0	2.1	14.3%	0.0	0.0%	0.0	0.0%	2.1	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Larsen Bay	21.1	13.6	64.7%	5.0	36.4%	5.0	36.4%	3.7	27.3%	0.0	0.0%	0.0	0.0%	1.2	9.1%	0.0	0.0%
	Old Harbor	67.2	38.0	56.5%	8.8	23.1%	8.8	23.1%	4.4	11.5%	2.9	7.7%	8.8	23.1%	8.8	23.1%	2.9	7.7%
	Ouzinkie	64.9	58.2	89.6%	4.1	7.0%	2.7	4.7%	0.0	0.0%	4.1	7.0%	2.7	4.7%	1.4	2.3%	2.7	4.7%
	Port Lions	56.5	31.6	55.8%	13.1	41.7%	0.0	0.0%	1.3	4.2%	1.3	4.2%	5.3	16.7%	1.3	4.2%	6.6	20.8%
Prince William Sound																		
	Chenega Bay	18.8	11.3	60.0%	1.3	11.1%	7.5	66.7%	3.8	33.3%	2.5	22.2%	0.0	0.0%	1.3	11.1%	0.0	0.0%
	Cordova	720.7	380.7	52.8%	210.5	55.3%	22.2	5.8%	11.1	2.9%	22.2	5.8%	115.0	30.2%	63.9	16.8%	16.0	4.2%
	Tatitlek	25.9	8.6	33.3%	2.2	25.0%	1.1	12.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.1	12.5%

* Based upon only assessments that youth are learning enough. Percentages may not add to 100% as multiple responses were permitted.

** Percentages based upon valid responses only.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-469. Household Assessment of Change in Elders' Influence, 2003 Study Year

Region	Estimated	Change in Elders' Influence Compared to Five Years Ago (1998)									
		No Response		Valid Responses		More		Same		Less	
Community	Households	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Penninsula											
Chignik Bay	29	10.5	36.4%	18.5	63.6%	2.6	14.3%	4.0	21.4%	11.9	64.3%
Chignik Lagoon	22	2.8	12.5%	19.3	87.5%	1.4	7.1%	6.9	35.7%	11.0	57.1%
Chignik Lake	31	4.4	14.3%	26.6	85.7%	7.4	27.8%	10.3	38.9%	8.9	33.3%
Perryville	33	1.2	3.7%	31.8	96.3%	6.1	19.2%	3.7	11.5%	22.0	69.2%
Cook Inlet											
Nanwalek	51	7.0	13.6%	44.0	86.4%	11.6	26.3%	9.3	21.1%	23.2	52.6%
Port Graham	65	22.1	34.0%	42.9	66.0%	9.7	22.6%	11.1	25.8%	22.1	51.6%
Kodiak											
Akhiok	15	1.4	9.1%	13.6	90.9%	2.7	20.0%	2.7	20.0%	8.2	60.0%
Karluk	15	0.0	0.0%	15.0	100.0%	0.0	0.0%	0.0	0.0%	15.0	100.0%
Larsen Bay	31	13.6	44.0%	17.4	56.0%	1.2	7.1%	9.9	57.1%	6.2	35.7%
Old Harbor	76	5.8	7.7%	70.2	92.3%	26.3	37.5%	17.5	25.0%	26.3	37.5%
Ouzinkie	69	6.8	9.8%	62.2	90.2%	47.4	76.1%	8.1	13.0%	6.8	10.9%
Port Lions	71	15.8	22.2%	55.2	77.8%	7.9	14.3%	18.4	33.3%	28.9	52.4%
Prince William Sound											
Chenega Bay	20	0.0	0.0%	20.0	100.0%	5.0	25.0%	8.8	43.8%	6.3	31.3%
Cordova	910	402.9	44.3%	507.1	55.7%	257.7	50.8%	135.1	26.6%	114.3	22.5%
Tatitlek	27	1.1	4.0%	25.9	96.0%	4.3	16.7%	7.6	29.2%	14.0	54.2%

Note: 'No Response' includes those who responded 'Don't Know.' 'Not in Community' includes those who did not live in the community during the comparison year.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-470. Reasons for Increased Influence of Elders, 2003 Study Year

Region / Community	Households Responding**	Increased Influence Responses*** No.	Increased Influence Responses*** Pctg.	Increased Influence of Elders Compared to Five Years Ago (1998)*: Demographic No.	Demographic Pctg.	Cultural No.	Cultural Pctg.	Elders Less Active No.	Elders Less Active Pctg.	Elders More Active No.	Elders More Active Pctg.	Social/Political No.	Social/Political Pctg.	Economic No.	Economic Pctg.	Non-Specific No.	Non-Specific Pctg.	No Reason Given No.	No Reason Given Pctg.
Alaska Penninsula																			
Chignik Bay	18.5	2.6	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.6	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Chignik Lagoon	19.3	1.4	7.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Chignik Lake	26.6	7.4	27.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	20.0%	1.5	20.0%	0.0	0.0%	0.0	0.0%	4.4	60.0%
Perryville	31.8	6.1	19.2%	0.0	0.0%	2.4	40.0%	0.0	0.0%	6.1	100.0%	2.4	40.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Cook Inlet																			
Nanwalek	44.0	11.6	26.3%	0.0	0.0%	4.6	40.0%	0.0	0.0%	4.6	40.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	20.0%
Port Graham	42.9	9.7	22.6%	0.0	0.0%	1.4	14.3%	0.0	0.0%	5.5	57.1%	1.4	14.3%	0.0	0.0%	0.0	0.0%	2.8	28.6%
Kodiak																			
Akhiok	13.6	2.7	20.0%	0.0	0.0%	1.4	50.0%	1.4	50.0%	1.4	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Karluk	15.0	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Larsen Bay	17.4	1.2	7.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	100.0%
Old Harbor	70.2	26.3	37.5%	0.0	0.0%	13.2	50.0%	0.0	0.0%	8.8	33.3%	1.5	5.6%	0.0	0.0%	0.0	0.0%	4.4	16.7%
Ouzinkie	62.2	47.4	76.1%	0.0	0.0%	1.4	2.9%	0.0	0.0%	1.4	2.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	46.0	97.1%
Port Lions	55.2	7.9	14.3%	0.0	0.0%	3.9	50.0%	0.0	0.0%	3.9	50.0%	1.3	16.7%	0.0	0.0%	0.0	0.0%	2.6	33.3%
Prince W Chenega Bay	20.0	5.0	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.8	75.0%
Cordova	507.1	257.7	50.8%	0.0	0.0%	52.4	20.4%	11.1	4.3%	111.1	43.1%	8.0	3.1%	0.0	0.0%	0.0	0.0%	78.2	30.3%
Tatitlek	25.9	4.3	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.1	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.2	75.0%

* Based upon only increased influence assessments. Percentages may not add to 100% as multiple responses were permitted.

** Includes only households that provided a valid response to the change in influence of elders.

** Percentages are based upon valid responses only.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-471. Reasons for Decreased Influence of Elders, 2003 Study Year

Region	Households	Decreased Influence Responses***		Decreased Influence of Elders Compared to Five Years Ago (1998)*															
				Demographic		Cultural		Elders Less Active		Elders More Active		Social/Political		Economic		Non-Specific		No Reason Given	
Community	Responding**	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Penninsula																			
Chignik Bay	18.5	11.9	64.3%	7.9	66.7%	4.0	33.3%	2.6	22.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Chignik Lagoon	19.3	11.0	57.1%	8.3	75.0%	1.4	12.5%	0.0	0.0%	0.0	0.0%	1.4	12.5%	0.0	0.0%	0.0	0.0%	1.4	12.5%
Chignik Lake	26.6	8.9	33.3%	1.5	16.7%	0.0	0.0%	1.5	16.7%	0.0	0.0%	3.0	33.3%	0.0	0.0%	0.0	0.0%	4.4	50.0%
Perryville	31.8	22.0	69.2%	14.7	66.7%	4.9	22.2%	9.8	44.4%	0.0	0.0%	3.7	16.7%	1.2	5.6%	0.0	0.0%	1.2	5.6%
Cook Inlet																			
Nanwalek	44.0	23.2	52.6%	2.3	10.0%	7.0	30.0%	7.0	30.0%	2.3	10.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	7.0	30.0%
Port Graham	42.9	22.1	51.6%	6.9	31.3%	4.1	18.8%	6.9	31.3%	0.0	0.0%	1.4	6.3%	1.4	6.3%	0.0	0.0%	4.1	18.8%
Kodiak																			
Akhiok	13.6	8.2	60.0%	4.1	50.0%	4.1	50.0%	0.0	0.0%	0.0	0.0%	2.7	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Karluk	15.0	15.0	100.0%	12.9	85.7%	2.1	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.1	14.3%
Larsen Bay	17.4	6.2	35.7%	2.5	40.0%	1.2	20.0%	2.5	40.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Old Harbor	70.2	26.3	37.5%	11.7	44.4%	5.8	22.2%	4.4	16.7%	0.0	0.0%	1.5	5.6%	1.5	5.6%	0.0	0.0%	5.8	22.2%
Ouzinkie	62.2	6.8	10.9%	4.1	60.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	20.0%	0.0	0.0%	1.4	20.0%
Port Lions	55.2	28.9	52.4%	23.7	81.8%	5.3	18.2%	2.6	9.1%	0.0	0.0%	1.3	4.5%	1.3	4.5%	0.0	0.0%	2.6	9.1%
Prince William Sound																			
Chenega Bay	20.0	6.3	31.3%	6.3	100.0%	1.3	20.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Cordova	507.1	114.3	22.5%	41.0	35.9%	25.4	22.2%	16.0	14.0%	0.0	0.0%	0.0	0.0%	3.1	2.7%	0.0	0.0%	39.9	35.0%
Tatitlek	25.9	14.0	54.2%	3.2	23.1%	1.1	7.7%	3.2	23.1%	0.0	0.0%	1.1	7.7%	0.0	0.0%	1.1	7.7%	4.3	30.8%

* Based upon only decreased influence assessments. Percentages may not add to 100% as multiple responses were permitted.

** Includes only those households that provided a valid response to the change in influence of elders.

*** Percentages are based upon valid responses only.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-472. Household Assessment of Change in Sharing of Wild Resources, 2003 Study Year Compared to Five Years Ago

Region / Community	Estimated Households	No Response No.	No Response Pctg.	Not in Community No.	Not in Community Pctg.	Valid Responses No.	Valid Responses Pctg.	More No.	More Pctg.	Same No.	Same Pctg.	Less No.	Less Pctg.
Alaska Penninsula													
Chignik Bay	29	2.6	9.1%	5.3	18.2%	21.1	72.7%	1.3	6.3%	14.5	68.8%	5.3	25.0%
Chignik Lagoon	22	0.0	0.0%	0.0	0.0%	22.0	100.0%	2.8	12.5%	13.8	62.5%	5.5	25.0%
Chignik Lake	31	1.5	4.8%	1.5	4.8%	28.0	90.5%	5.9	21.1%	17.7	63.2%	4.4	15.8%
Perryville	33	1.2	3.7%	0.0	0.0%	31.8	96.3%	6.1	19.2%	18.3	57.7%	7.3	23.1%
Cook Inlet													
Nanwalek	51	0.0	0.0%	0.0	0.0%	51.0	100.0%	13.9	27.3%	16.2	31.8%	20.9	40.9%
Port Graham	65	5.5	8.5%	2.8	4.3%	56.7	87.2%	15.2	26.8%	15.2	26.8%	26.3	46.3%
Kodiak													
Akhiok	15	1.4	9.1%	0.0	0.0%	13.6	90.9%	1.4	10.0%	8.2	60.0%	4.1	30.0%
Karluk	15	0.0	0.0%	2.1	14.3%	12.9	85.7%	2.1	16.7%	2.1	16.7%	8.6	66.7%
Larsen Bay	31	1.2	4.0%	2.5	8.0%	27.3	88.0%	2.5	9.1%	21.1	77.3%	3.7	13.6%
Old Harbor	76	1.5	1.9%	1.5	1.9%	73.1	96.2%	13.2	18.0%	46.8	64.0%	13.2	18.0%
Ouzinkie	69	1.4	2.0%	2.7	3.9%	64.9	94.1%	6.8	10.4%	50.1	77.1%	8.1	12.5%
Port Lions	71	0.0	0.0%	6.6	9.3%	64.4	90.7%	21.0	32.7%	27.6	42.9%	15.8	24.5%
Prince William Sound													
Chenega Bay	20	0.0	0.0%	2.5	12.5%	17.5	87.5%	2.5	14.3%	10.0	57.1%	5.0	28.6%
Cordova	910	8.0	0.9%	43.1	4.7%	858.9	94.4%	168.8	19.7%	557.1	64.9%	133.0	15.5%
Tatitlek	27	0.0	0.0%	1.1	4.0%	25.9	96.0%	1.1	4.2%	9.7	37.5%	15.1	58.3%

Change Compared to Five Years Ago (1998) applies to the No Response through Less columns.

Note: 'No Response' includes those who responded 'Don't Know.' 'Not in Community' includes those who did not live in the community during the comparison year.
SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-473. Reasons for Increased Sharing of Wild Resources, 2003 Study Year Compared to Five Years Ago

Region	Estimated	Increased Sharing Responses**		Compared to Five Years Ago (1998)*																			
				Contamination		PSP		Management /Regulations /Rules		Change in Area		Competition		Environmental		Economic		Personal		General Unspecific		Non-Relevant	
Community	Households	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Penninsula																							
Chignik Bay	29.0	1.3	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	100.0%
Chignik Lagoon	22.0	2.8	12.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	50.0%	1.4	50.0%	1.4	50.0%	0.0	0.0%	0.0	0.0%
Chignik Lake	31.0	5.9	21.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	25.0%	1.5	25.0%	4.4	75.0%	0.0	0.0%	0.0	0.0%
Perryville	33.0	6.1	19.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.4	40.0%	4.9	80.0%	0.0	0.0%	0.0	0.0%
Cook Inlet																							
Nanwalek	51.0	13.9	27.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.6	33.3%	2.3	16.7%	0.0	0.0%
Port Graham	65.0	15.2	26.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.9	45.5%	5.5	36.4%	1.4	9.1%	4.1	27.3%
Kodiak																							
Akhiok	15.0	1.4	10.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	100.0%	0.0	0.0%	0.0	0.0%
Karluk	15.0	2.1	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Larsen Bay	31.0	2.5	9.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.5	100.0%	0.0	0.0%	0.0	0.0%
Old Harbor	76.0	13.2	18.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.9	22.2%	1.5	11.1%	0.0	0.0%	4.4	33.3%	0.0	0.0%
Ouzinkie	69.0	6.8	10.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	20.0%	1.4	20.0%	1.4	20.0%	0.0	0.0%
Port Lions	71.0	21.0	32.7%	0.0	0.0%	0.0	0.0%	1.3	6.3%	0.0	0.0%	0.0	0.0%	2.6	12.5%	6.6	31.3%	3.9	18.8%	1.3	6.3%	0.0	0.0%
Prince William Sound																							
Chenega Bay	20.0	2.5	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	50.0%	0.0	0.0%	1.3	50.0%	0.0	0.0%	0.0	0.0%
Cordova	910.0	168.8	19.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.0	4.7%	27.1	16.0%	39.6	23.5%	62.2	36.8%	0.0	0.0%	0.0	0.0%
Tatitlek	27.0	1.1	4.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

* Based upon only increased sharing assessments. Percentages may not add to 100% as multiple responses were permitted.
** Percentages are based upon valid responses only.
SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-474. Reasons for Decreased Sharing of Wild Resources, 2003 Study Year Compared to Five Years Ago

Region	Estimated	Decreased Sharing Responses**		Compared to Five Years Ago (1998)*																			
				Contamination		PSP		Management /Regulations /Rules		Change in Area		Competition		Environmental		Economic		Personal		General Unspecific		Non-Relevant	
Community	Households	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Penninsula																							
Chignik Bay	29.0	5.3	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.6	50.0%	2.6	50.0%	0.0	0.0%	0.0	0.0%	2.6	50.0%
Chignik Lagoon	22.0	5.5	25.0%	0.0	0.0%	0.0	0.0%	1.4	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.1	75.0%	0.0	0.0%	1.4	25.0%	0.0	0.0%
Chignik Lake	31.0	4.4	15.8%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	33.3%
Perryville	33.0	7.3	23.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.7	50.0%	0.0	0.0%	3.7	50.0%	0.0	0.0%	0.0	0.0%
Cook Inlet																							
Nanwalek	51.0	20.9	40.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	9.3	44.4%	4.6	22.2%	2.3	11.1%	2.3	11.1%	0.0	0.0%
Port Graham	65.0	26.3	46.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.3	31.6%	5.5	21.1%	6.9	26.3%	1.4	5.3%	5.5	21.1%
Kodiak																							
Akhiok	15.0	4.1	30.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	33.3%	1.4	33.3%	1.4	33.3%	0.0	0.0%	0.0	0.0%
Karluk	15.0	8.6	66.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.1	25.0%	0.0	0.0%	2.1	25.0%	2.1	25.0%	0.0	0.0%
Larsen Bay	31.0	3.7	13.6%	1.2	33.3%	1.2	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.5	66.7%	0.0	0.0%	0.0	0.0%
Old Harbor	76.0	13.2	18.0%	1.5	11.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.9	22.2%	0.0	0.0%	5.8	44.4%	2.9	22.2%	1.5	11.1%
Ouzinkie	69.0	8.1	12.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	16.7%	1.4	16.7%	2.7	33.3%	0.0	0.0%	0.0	0.0%
Port Lions	71.0	15.8	24.5%	0.0	0.0%	1.3	8.3%	1.3	8.3%	0.0	0.0%	0.0	0.0%	2.6	16.7%	3.9	25.0%	5.3	33.3%	1.3	8.3%	1.3	8.3%
Prince William Sound																							
Chenega Bay	20.0	5.0	28.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.5	50.0%	0.0	0.0%	0.0	0.0%	1.3	25.0%	0.0	0.0%
Cordova	910.0	133.0	15.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	15.6	11.7%	26.7	20.1%	52.4	39.4%	16.0	12.0%	0.0	0.0%
Tatitlek	27.0	15.1	58.3%	1.1	7.1%	1.1	7.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.1	7.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%

* Based upon only decreased sharing assessments. Percentages may not add to 100% as multiple responses were permitted.
** Percentages are based upon valid responses only.
SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-475. Household Assessment of Having to Purchase Subsistence Foods, 2003 Study Year

Region / Community	Subsistence Foods Purchased Because Unavailable Through Harvesting or Sharing								
Region	Estimated	No Response		Valid Responses		Yes		No	
Community	Households	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Penninsula									
Chignik Bay	29	2.6	9.1%	26.4	90.9%	2.6	10.0%	23.7	90.0%
Chignik Lagoon	22	1.4	6.3%	20.6	93.8%	2.8	13.3%	17.9	86.7%
Chignik Lake	31	3.0	9.5%	28.0	90.5%	3.0	10.5%	25.1	89.5%
Perryville	33	0.0	0.0%	33.0	100.0%	3.7	11.1%	29.3	88.9%
Cook Inlet									
Nanwalek	51	0.0	0.0%	51.0	100.0%	41.7	81.8%	9.3	18.2%
Port Graham	65	1.4	2.1%	63.6	97.9%	44.3	69.6%	19.4	30.4%
Kodiak									
Akhiok	15	1.4	9.1%	13.6	90.9%	2.7	20.0%	10.9	80.0%
Karluk	15	2.1	14.3%	12.9	85.7%	8.6	66.7%	4.3	33.3%
Larsen Bay	31	0.0	0.0%	31.0	100.0%	5.0	16.0%	26.0	84.0%
Old Harbor	76	1.5	1.9%	74.5	98.1%	5.8	7.8%	68.7	92.2%
Ouzinkie	69	4.1	5.9%	64.9	94.1%	48.7	75.0%	16.2	25.0%
Port Lions	71	3.9	5.6%	67.1	94.4%	35.5	52.9%	31.6	47.1%
Prince William Sound									
Chenega Bay	20	0.0	0.0%	20.0	100.0%	10.0	50.0%	10.0	50.0%
Cordova	910	24.0	2.6%	886.0	97.4%	376.5	42.5%	509.5	57.5%
Tatitlek	27	1.1	4.0%	25.9	96.0%	10.8	41.7%	15.1	58.3%

Note: 'No Response' includes those who responded 'Don't Know.'

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-476. Reasons for Having to Purchase Subsistence Foods, 2003 Study Year

region / Community	Households Responding to Purchasing Subsistence Foods No.	Households responding 'Yes' to Purchasing Subsistence Foods** No.	Pctg.	Contamination No.	Pctg.	PSP No.	Pctg.	Management/Regulations/Rules No.	Pctg.	Change in Area No.	Pctg.	Competition No.	Pctg.	Climate/Weather No.	Pctg.	Resource Condition No.	Pctg.
Alaskan Penninsula																	
Chignik Bay	26.4	2.6	10.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Chignik Lagoon	20.6	2.8	13.3%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Chignik Lake	28.0	3.0	10.5%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Perryville	33.0	3.7	11.1%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.22	33.3%	0.00	0.0%	0.00	0.0%
Cook Inlet																	
Nanwalek	51.0	41.7	81.8%	4.64	11.1%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	18.55	44.4%
Port Graham	63.6	44.3	69.6%	1.38	3.1%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	26.28	59.4%
Kodiak																	
Akhiok	13.6	2.7	20.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.36	50.0%	0.00	0.0%	0.00	0.0%
Karluk	12.9	8.6	66.7%	0.00	0.0%	0.00	0.0%	2.14	25.0%	0.00	0.0%	2.14	25.0%	0.00	0.0%	0.00	0.0%
Larsen Bay	31.0	5.0	16.0%	1.24	25.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.24	25.0%
Old Harbor	74.5	5.8	7.8%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Ouzinkie	64.9	48.7	75.0%	6.76	13.9%	18.94	38.9%	0.00	0.0%	0.00	0.0%	1.35	2.8%	0.00	0.0%	5.41	11.1%
Port Lions	67.1	35.5	52.9%	0.00	0.0%	21.04	59.3%	1.31	3.7%	0.00	0.0%	0.00	0.0%	1.31	3.7%	0.00	0.0%
Prince William Sound																	
Chenega Bay	20.0	10.0	50.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Cordova	886.0	376.5	42.5%	0.00	0.0%	0.00	0.0%	62.17	16.5%	0.00	0.0%	7.99	2.1%	0.00	0.0%	19.10	5.1%
Tatitlek	25.9	10.8	41.7%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%

Reasons for Having to Purchase Subsistence Foods* (continued)

region / Community	Food Chain No.	Pctg.	Predation No.	Pctg.	Habitat Loss No.	Pctg.	Habitat Change No.	Pctg.	Population Factors No.	Pctg.	Animal Behavior No.	Pctg.	Economic No.	Pctg.	Personal No.	Pctg.	General/Unspecific No.	Pctg.	No Reason for Purchasing of Subsistence Foods Given No.	Pctg.
Alaskan Penninsula																				
Chignik Bay	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.32	50.0%	0.00	0.0%	1.32	50.0%
Chignik Lagoon	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	2.75	100.0%
Chignik Lake	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	2.95	100.0%
Perryville	0.00	0.0%	1.22	33.3%	0.00	0.0%	0.00	0.0%	1.22	33.3%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.22	33.3%
Cook Inlet																				
Nanwalek	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	2.32	5.6%	0.00	0.0%	0.00	0.0%	2.32	5.6%	2.32	5.6%	13.91	33.3%
Port Graham	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	2.77	6.3%	0.00	0.0%	2.77	6.3%	0.00	0.0%	2.77	6.3%	8.30	18.8%
Kodiak																				
Akhiok	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.36	50.0%	0.00	0.0%	0.00	0.0%	1.36	50.0%	0.00	0.0%	0.00	0.0%
Karluk	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	4.29	50.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	2.14	25.0%
Larsen Bay	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.24	25.0%	1.24	25.0%
Old Harbor	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.46	25.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	4.38	75.0%
Ouzinkie	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	13.53	27.8%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	24.35	50.0%
Port Lions	0.00	0.0%	2.63	7.4%	0.00	0.0%	0.00	0.0%	2.63	7.4%	0.00	0.0%	0.00	0.0%	1.31	3.7%	1.31	3.7%	11.83	33.3%
Prince William Sound																				
Chenega Bay	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	10.00	100.0%
Cordova	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	60.43	16.1%	0.00	0.0%	30.22	8.0%	38.21	10.1%	0.00	0.0%	169.48	45.0%
Tatitlek	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	10.80	100.0%

* Based upon only responses of 'Yes' to purchasing subsistence foods. Percentages may not add to 100% as multiple responses were permitted.
** Percentages Based Upon Valid Responses Only.
SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-477. Household Assessment of the Food Purchases to Replace Subsistence Resources, 2003 Study Year

Region	Estimated	Needed to Buy Store Bought Foods to Replace Subsistence Foods									
		No Response		Do Not Know		Valid Responses		Yes		No	
Community	Households	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Penninsula											
Chignik Bay	29	2.6	9.1%	0.0	0.0%	26.4	90.9%	14.5	55.0%	11.9	45.0%
Chignik Lagoon	22	0.0	0.0%	0.0	0.0%	22.0	100.0%	16.5	75.0%	5.5	25.0%
Chignik Lake	31	3.0	9.5%	0.0	0.0%	28.0	90.5%	16.2	57.9%	11.8	42.1%
Perryville	33	0.0	0.0%	0.0	0.0%	33.0	100.0%	19.6	59.3%	13.4	40.7%
Cook Inlet											
Nanwalek	51	0.0	0.0%	0.0	0.0%	51.0	100.0%	41.7	81.8%	9.3	18.2%
Port Graham	65	1.4	2.1%	0.0	0.0%	63.6	97.9%	42.9	67.4%	20.7	32.6%
Kodiak											
Akhiok	15	1.4	9.1%	0.0	0.0%	13.6	90.9%	8.2	60.0%	5.5	40.0%
Karluk	15	2.1	14.3%	0.0	0.0%	12.9	85.7%	10.7	83.3%	2.1	16.7%
Larsen Bay	31	1.2	4.0%	0.0	0.0%	29.8	96.0%	9.9	33.3%	19.8	66.7%
Old Harbor	76	1.5	1.9%	0.0	0.0%	74.5	98.1%	19.0	25.5%	55.5	74.5%
Ouzinkie	69	4.1	5.9%	1.4	2.0%	63.6	92.2%	21.6	34.0%	41.9	66.0%
Port Lions	71	2.6	3.7%	0.0	0.0%	68.4	96.3%	7.9	11.5%	60.5	88.5%
Prince William Sound											
Chenega Bay	20	0.0	0.0%	0.0	0.0%	20.0	100.0%	15.0	75.0%	5.0	25.0%
Cordova	910	8.0	0.9%	0.0	0.0%	902.0	99.1%	341.4	37.9%	560.6	62.1%
Tatitlek	27	1.1	4.0%	0.0	0.0%	25.9	96.0%	22.7	87.5%	3.2	12.5%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-478. Reasons for Purchasing Food to Replace Subsistence Resources, 2003 Study Year

Region / Community	Households Responding to Purchasing Subsistence Foods	Households responding 'Yes' to Purchasing Subsistence Foods**		Reasons for Having to Purchase Food to Replace Subsistence Resources*: Contamination		PSP		Management/Regulations/Rules		Change in Area		Competition		Climate/Weather		Resource Condition	
	No.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaskan Penninsula																	
Chignik Bay	26.4	14.5	55.0%	0.00	0.0%	0.00	0.0%	1.32	9.1%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.32	9.1%
Chignik Lagoon	22.0	16.5	75.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.38	8.3%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Chignik Lake	28.0	16.2	57.9%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Perryville	33.0	19.6	59.3%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.22	6.3%	1.22	6.3%	0.00	0.0%
Cook Inlet																	
Nanwalek	51.0	41.7	81.8%	2.32	5.6%	0.00	0.0%	2.32	5.6%	0.00	0.0%	4.64	11.1%	0.00	0.0%	18.55	44.4%
Port Graham	63.6	42.9	67.4%	1.38	3.2%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	31.81	74.2%
Kodiak																	
Akhiok	13.6	8.2	60.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Karluk	12.9	10.7	83.3%	0.00	0.0%	0.00	0.0%	2.14	20.0%	0.00	0.0%	2.14	20.0%	0.00	0.0%	0.00	0.0%
Larsen Bay	29.8	9.9	33.3%	2.48	25.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Old Harbor	74.5	19.0	25.5%	1.46	7.7%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Ouzinkie	63.6	21.6	34.0%	0.00	0.0%	1.35	6.3%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Port Lions	68.4	7.9	11.5%	1.31	16.7%	6.57	83.3%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.31	16.7%
Prince William Sound																	
Chenega Bay	20.0	15.0	75.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	2.50	16.7%
Cordova	902.0	341.4	37.9%	6.25	1.8%	0.00	0.0%	19.10	5.6%	7.99	2.3%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Tatitlek	25.9	22.7	87.5%	0.00	0.0%	1.08	4.8%	1.08	4.8%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%

Region / Community	Food Chain		Predation		Habitat Loss		Habitat Change		Population Factors		Animal Behavior		Economic		Personal		General/Unspecific		No Reason for Purchasing of Food Given	
	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaskan Penninsula																				
Chignik Bay	0.00	0.0%	1.32	9.1%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	10.55	72.7%	0.00	0.0%	1.32	9.1%	1.32	9.1%
Chignik Lagoon	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	8.25	50.0%	1.38	8.3%	2.75	16.7%	2.75	16.7%
Chignik Lake	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	16.24	100.0%
Perryville	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	7.33	37.5%	0.00	0.0%	0.00	0.0%	4.89	25.0%	0.00	0.0%	7.33	37.5%
Cook Inlet																				
Nanwalek	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	6.95	16.7%	4.64	11.1%	0.00	0.0%	4.64	11.1%
Port Graham	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.38	3.2%	0.00	0.0%	4.15	9.7%	2.77	6.5%	5.53	12.9%	0.00	0.0%
Kodiak																				
Akhiok	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	6.82	83.3%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.36	16.7%
Karluk	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	8.57	80.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	2.14	20.0%	0.00	0.0%
Larsen Bay	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.24	12.5%	0.00	0.0%	6.20	62.5%
Old Harbor	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	4.38	23.1%	0.00	0.0%	0.00	0.0%	1.46	7.7%	5.85	30.8%	7.31	38.5%
Ouzinkie	0.00	0.0%	1.35	6.3%	0.00	0.0%	0.00	0.0%	12.18	56.3%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	9.47	43.8%
Port Lions	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.31	16.7%	0.00	0.0%	1.31	16.7%	0.00	0.0%	0.00	0.0%	1.31	16.7%
Prince William Sound																				
Chenega Bay	0.00	0.0%	1.25	8.3%	0.00	0.0%	0.00	0.0%	1.25	8.3%	0.00	0.0%	5.00	33.3%	0.00	0.0%	0.00	0.0%	5.00	33.3%
Cordova	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	19.10	5.6%	0.00	0.0%	26.74	7.8%	58.70	17.2%	38.21	11.2%	179.57	52.6%
Tatitlek	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.08	4.8%	1.08	4.8%	0.00	0.0%	18.36	81.0%

* Based upon only responses of 'Yes' to purchasing food to replace subsistence resources. Percentages may not add to 100% as multiple responses were permitted.

** Percentages Based Upon Valid Responses Only.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004

Table A-479. Household Assessment of the Effect on Traditional Way of Life since the Oil Spill, 2003 Study Year

Region / Community	Estimated Households	Was the Traditional Way of Life Affected by the *Exxon Valdez* Oil Spill? No Response		Valid Responses		Affected		Not Affected		Do Not Know	
		No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Peninsula											
Chignik Bay	29	4.0	13.6%	25.0	86.4%	15.8	63.2%	1.3	5.3%	7.9	31.6%
Chignik Lagoon	22	0.0	0.0%	22.0	100.0%	19.3	87.5%	0.0	0.0%	2.8	12.5%
Chignik Lake	31	4.4	14.3%	26.6	85.7%	22.1	83.3%	1.5	5.6%	3.0	11.1%
Perryville	33	1.2	3.7%	31.8	96.3%	20.8	65.4%	2.4	7.7%	8.6	26.9%
Cook Inlet											
Nanwalek	51	0.0	0.0%	51.0	100.0%	46.4	90.9%	0.0	0.0%	4.6	9.1%
Port Graham	65	1.4	2.1%	63.6	97.9%	49.8	78.3%	6.9	10.9%	6.9	10.9%
Kodiak											
Akhiok	15	1.4	9.1%	13.6	90.9%	9.5	70.0%	2.7	20.0%	1.4	10.0%
Karluk	15	2.1	14.3%	12.9	85.7%	10.7	83.3%	0.0	0.0%	2.1	16.7%
Larsen Bay	31	0.0	0.0%	31.0	100.0%	16.1	52.0%	3.7	12.0%	11.2	36.0%
Old Harbor	76	1.5	1.9%	74.5	98.1%	61.4	82.4%	8.8	11.8%	4.4	5.9%
Ouzinkie	69	4.1	5.9%	64.9	94.1%	63.6	97.9%	0.0	0.0%	1.4	2.1%
Port Lions	71	0.0	0.0%	71.0	100.0%	57.9	81.5%	6.6	9.3%	6.6	9.3%
Prince William Sound											
Chenega Bay	20	0.0	0.0%	20.0	100.0%	17.5	87.5%	0.0	0.0%	2.5	12.5%
Cordova	910	3.1	0.3%	906.9	99.7%	750.6	82.8%	43.1	4.7%	113.2	12.5%
Tatitlek	27	0.0	0.0%	27.0	100.0%	25.9	96.0%	0.0	0.0%	1.1	4.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004

Table A-480. Household Assessment of the Recovery of Traditional Way of Life since the Oil Spill, 2003 Study Year

Region / Community	Households Responding To Traditional Way of Life Affected	Has the Traditional Way of Life Recovered From the *Exxon Valdez* Oil Spill?* No Response		Valid Responses		Recovered		Has Not Recovered		Do Not Know if Recovered	
		No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Penninsula											
Chignik Bay	15.8	0.0	0.0%	15.8	100.0%	4.0	25.0%	7.9	50.0%	4.0	25.0%
Chignik Lagoon	19.3	0.0	0.0%	19.3	100.0%	4.1	21.4%	15.1	78.6%	0.0	0.0%
Chignik Lake	22.1	0.0	0.0%	22.1	100.0%	7.4	33.3%	11.8	53.3%	3.0	13.3%
Perryville	20.8	0.0	0.0%	20.8	100.0%	3.7	17.6%	12.2	58.8%	4.9	23.5%
Cook Inlet											
Nanwalek	46.4	0.0	0.0%	46.4	100.0%	4.6	10.0%	34.8	75.0%	7.0	15.0%
Port Graham	49.8	0.0	0.0%	49.8	100.0%	9.7	19.4%	38.7	77.8%	1.4	2.8%
Kodiak											
Akhiok	9.5	0.0	0.0%	9.5	100.0%	2.7	28.6%	6.8	71.4%	0.0	0.0%
Karluk	10.7	0.0	0.0%	10.7	100.0%	0.0	0.0%	6.4	60.0%	4.3	40.0%
Larsen Bay	16.1	12.4	76.9%	3.7	23.1%	0.0	0.0%	2.5	66.7%	1.2	33.3%
Old Harbor	61.4	0.0	0.0%	61.4	100.0%	14.6	23.8%	39.5	64.3%	7.3	11.9%
Ouzinkie	63.6	8.1	12.8%	55.5	87.2%	8.1	14.6%	44.6	80.5%	2.7	4.9%
Port Lions	57.9	2.6	4.5%	55.2	95.5%	11.8	21.4%	32.9	59.5%	10.5	19.0%
Prince William Sound											
Chenega Bay	17.5	1.3	7.1%	16.3	92.9%	5.0	30.8%	8.8	53.8%	2.5	15.4%
Cordova	750.6	49.3	6.6%	701.3	93.4%	73.3	10.5%	516.5	73.6%	111.5	15.9%
Tatitlek	25.9	2.2	8.3%	23.8	91.7%	2.2	9.1%	20.5	86.4%	1.1	4.5%

* Only households responding that the traditional way of life was affected by the *Exxon Valdez* Oil Spill are included.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-481. What Should Be Done to Help in the Recovery of the Traditional Way of Life, 2003 Study Year

				What Should Be Done to Help in the Recovery of the Traditional Way of Life*																									
Region	Households Responding that Traditional Way of Life Was Affected	Households Responding that Traditional Way of Life Has Not Recovered**		Increase Resource Populations		Respond to Social Disruptions		Create New Jobs & New Sources of Income		Get Rid of the Oil		Continue Studies on Impacts		Take Legal & Political Action		Stop Cash Distributions & Dividend Payments		More Education & Spirit Camps		Nothing Can Be Done		Time		Need to Involve Elders More		No Suggestion Given for Recovery of Way of Life	
Community		No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Penninsula																													
Chignik Bay	15.8	7.9	50.0%	1.3	16.7%	2.6	33.3%	2.6	33.3%	0.0	0.0%	1.3	16.7%	0.0	0.0%	0.0	0.0%	1.3	16.7%	1.3	16.7%	0.0	0.0%	1.3	16.7%	0.0	0.0%
Chignik Lagoon	19.3	15.1	78.6%	1.4	9.1%	2.8	18.2%	0.0	0.0%	0.0	0.0%	1.4	9.1%	1.4	9.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	9.1%	0.0	0.0%	6.9	45.5%
Chignik Lake	22.1	11.8	53.3%	0.0	0.0%	1.5	12.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	12.5%	1.5	12.5%	0.0	0.0%	0.0	0.0%	7.4	62.5%
Perryville	20.8	12.2	58.8%	3.7	30.0%	2.4	20.0%	0.0	0.0%	0.0	0.0%	1.2	10.0%	0.0	0.0%	0.0	0.0%	7.3	60.0%	0.0	0.0%	1.2	10.0%	1.2	10.0%	0.0	0.0%
Cook Inlet																													
Nanwalek	46.4	34.8	75.0%	9.3	26.7%	2.3	6.7%	2.3	6.7%	2.3	6.7%	0.0	0.0%	0.0	0.0%	2.3	6.7%	4.6	13.3%	0.0	0.0%	0.0	0.0%	2.3	6.7%	9.3	26.7%
Port Graham	49.8	38.7	77.8%	0.0	0.0%	2.8	7.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.1	10.7%	0.0	0.0%	4.1	10.7%	1.4	3.6%	1.4	3.6%	2.8	7.1%	22.1	57.1%
Kodiak																													
Akhiok	9.5	6.8	71.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.8	100.0%
Karluk	10.7	6.4	60.0%	0.0	0.0%	2.1	33.3%	2.1	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.1	33.3%
Larsen Bay	16.1	2.5	15.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.5	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Old Harbor	61.4	39.5	64.3%	0.0	0.0%	0.0	0.0%	1.5	3.7%	0.0	0.0%	2.9	7.4%	1.5	3.7%	0.0	0.0%	13.2	33.3%	2.9	7.4%	7.3	18.5%	0.0	0.0%	10.2	25.9%
Ouzinkie	63.6	44.6	70.2%	1.4	3.0%	0.0	0.0%	0.0	0.0%	1.4	3.0%	1.4	3.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	5.4	12.1%	4.1	9.1%	0.0	0.0%	31.1	69.7%
Port Lions	57.9	32.9	56.8%	1.3	4.0%	6.6	20.0%	1.3	4.0%	0.0	0.0%	1.3	4.0%	2.6	8.0%	0.0	0.0%	2.6	8.0%	7.9	24.0%	1.3	4.0%	0.0	0.0%	7.9	24.0%
Prince William Sound																													
Chenega Bay	17.5	8.8	50.0%	0.0	0.0%	1.3	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	14.3%	0.0	0.0%	1.3	14.3%	1.3	14.3%	0.0	0.0%	0.0	0.0%	3.8	42.9%
Cordova	750.6	516.5	68.8%	77.8	15.1%	35.1	6.8%	3.1	0.6%	6.3	1.2%	39.6	7.7%	44.5	8.6%	0.0	0.0%	20.5	4.0%	16.0	3.1%	42.7	8.3%	0.0	0.0%	231.0	44.7%
Tatitlek	25.9	20.5	79.2%	0.0	0.0%	0.0	0.0%	1.1	5.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	3.2	15.8%	0.0	0.0%	1.1	5.3%	0.0	0.0%	15.1	73.7%
42																													

* Based upon only households responding 'has not recovered'. Percentages may not add to 100% as multiple responses were permitted.

** Includes households responding 'do not know if recovered.' Percentages are based upon responses of traditional way of life was affected.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-482. Household Assessment of Being Informed about the Trustee Council and GEM Programs, 2003 Study Year

Region	Estimated	Informed about the Trustee Council and GEM Programs?									
		No Response		Do Not Know		Valid Responses		Yes		No	
Community	Households	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Penninsula											
Chignik Bay	29.0	6.6	22.7%	4.0	13.6%	18.5	63.6%	2.6	14.3%	15.8	85.7%
Chignik Lagoon	22.0	2.8	12.5%	4.1	18.8%	15.1	68.8%	0.0	0.0%	15.1	100.0%
Chignik Lake	31.0	3.0	9.5%	8.9	28.6%	19.2	61.9%	3.0	15.4%	16.2	84.6%
Perryville	33.0	0.0	0.0%	9.8	29.6%	23.2	70.4%	7.3	31.6%	15.9	68.4%
Cook Inlet											
Nanwalek	51.0	0.0	0.0%	4.6	9.1%	46.4	90.9%	4.6	10.0%	41.7	90.0%
Port Graham	65.0	1.4	2.1%	11.1	17.0%	52.6	80.9%	15.2	28.9%	37.3	71.1%
Kodiak											
Akhiok	15.0	2.7	18.2%	2.7	18.2%	9.5	63.6%	4.1	42.9%	5.5	57.1%
Karluk	15.0	2.1	14.3%	0.0	0.0%	12.9	85.7%	0.0	0.0%	12.9	100.0%
Larsen Bay	31.0	1.2	4.0%	12.4	40.0%	17.4	56.0%	2.5	14.3%	14.9	85.7%
Old Harbor	76.0	2.9	3.8%	20.5	26.9%	52.6	69.2%	29.2	55.6%	23.4	44.4%
Ouzinkie	69.0	6.8	9.8%	41.9	60.8%	20.3	29.4%	1.4	6.7%	18.9	93.3%
Port Lions	71.0	5.3	7.4%	15.8	22.2%	50.0	70.4%	11.8	23.7%	38.1	76.3%
Prince William Sound											
Chenega Bay	20.0	0.0	0.0%	5.0	25.0%	15.0	75.0%	10.0	66.7%	5.0	33.3%
Cordova	910.0	16.0	1.8%	364.7	40.1%	529.3	58.2%	206.7	39.0%	322.7	61.0%
Tatitlek	27.0	2.2	8.0%	5.4	20.0%	19.4	72.0%	6.5	33.3%	13.0	66.7%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-483. Suggestions For Improving Communication about the Trustee Council and GEM Programs, 2003 Study Year

Region / Community	Households Responding to Being Informed about the Trustee Council and GEM programs	Households responding 'no' to being informed about GEM programs**		Suggestions for Improving Communication about the Trustee Council and GEM Programs*: Newsletters or Mailings		Structural Changes		Direct Communication to Tribal Council		Community Meetings		Videos or CDs		Public Broadcasting		Internet		Better Staffing		Simplify the Information		No Suggestions for Improving Communication Given.	
	No.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Penninsula																							
Chignik Bay	18.5	15.8	85.7%	6.6	41.7%	1.3	8.3%	2.6	16.7%	1.3	8.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.0	25.0%
Chignik Lagoon	15.1	15.1	100.0%	8.3	54.5%	0.0	0.0%	0.0	0.0%	1.4	9.1%	0.0	0.0%	1.4	9.1%	1.4	9.1%	0.0	0.0%	0.0	0.0%	2.8	18.2%
Chignik Lake	19.2	16.2	84.6%	1.5	9.1%	0.0	0.0%	0.0	0.0%	1.5	9.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	9.1%	0.0	0.0%	11.8	72.7%
Perryville	23.2	15.9	68.4%	6.1	38.5%	0.0	0.0%	1.2	7.7%	2.4	15.4%	1.2	7.7%	3.7	23.1%	0.0	0.0%	1.2	7.7%	0.0	0.0%	0.0	0.0%
Cook Inlet																							
Nanwalek	46.4	41.7	90.0%	13.9	33.3%	2.3	5.6%	0.0	0.0%	7.0	16.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.3	5.6%	0.0	0.0%	16.2	38.9%
Port Graham	52.6	37.3	71.1%	11.1	29.6%	1.4	3.7%	0.0	0.0%	9.7	25.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	15.2	40.7%
Kodiak																							
Akhiok	9.5	5.5	57.1%	4.1	75.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Karluk	12.9	12.9	100.0%	2.1	16.7%	0.0	0.0%	0.0	0.0%	4.3	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.4	50.0%
Larsen Bay	17.4	14.9	85.7%	1.2	8.3%	0.0	0.0%	0.0	0.0%	8.7	58.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	5.0	33.3%
Old Harbor	52.6	23.4	44.4%	7.3	31.3%	1.5	6.3%	1.5	6.3%	1.5	6.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	11.7	50.0%
Ouzinkie	20.3	18.9	93.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	18.9	100.0%
Port Lions	50.0	38.1	76.3%	13.1	34.5%	1.3	3.4%	0.0	0.0%	2.6	6.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	21.0	55.2%
Prince William Sound																							
Chenega Bay	15.0	5.0	33.3%	1.3	25.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.3	25.0%	1.3	25.0%	0.0	0.0%	1.3	25.0%
Cordova	529.3	322.7	61.0%	103.5	32.1%	16.0	5.0%	0.0	0.0%	17.4	5.4%	0.0	0.0%	8.0	2.5%	14.2	4.4%	0.0	0.0%	3.1	1.0%	160.5	49.7%
Tatitlek	19.4	13.0	66.7%	4.3	33.3%	0.0	0.0%	0.0	0.0%	2.2	16.7%	0.0	0.0%	1.1	8.3%	1.1	8.3%	1.1	8.3%	0.0	0.0%	3.2	25.0%

* Based upon only responses of 'no' to being informed about Trustee Council and GEM programs. Percentages may not add to 100% as multiple responses were permitted.

** Percentages are based upon valid responses only.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-484. Household Assessment of Adequacy of Tribal Council Involvement in Research and Monitoring, 2003 Study Year

Region / Community	Estimated Households	Is the Tribal Council Adequately Involved?									
		No Response		Do Not Know		Valid Responses		Yes		No	
		No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Penninsula											
Chignik Bay	29	7.9	27.3%	11.9	40.9%	9.2	31.8%	1.3	14.3%	7.9	85.7%
Chignik Lagoon	22	1.4	6.3%	13.8	62.5%	6.9	31.3%	1.4	20.0%	5.5	80.0%
Chignik Lake	31	3.0	9.5%	10.3	33.3%	17.7	57.1%	4.4	25.0%	13.3	75.0%
Perryville	33	0.0	0.0%	17.1	51.9%	15.9	48.1%	9.8	61.5%	6.1	38.5%
Cook Inlet											
Nanwalek	51	0.0	0.0%	13.9	27.3%	37.1	72.7%	9.3	25.0%	27.8	75.0%
Port Graham	65	2.8	4.3%	40.1	61.7%	22.1	34.0%	8.3	37.5%	13.8	62.5%
Kodiak											
Akhiok	15	2.7	18.2%	5.5	36.4%	6.8	45.5%	0.0	0.0%	6.8	100.0%
Karluk	15	2.1	14.3%	2.1	14.3%	10.7	71.4%	0.0	0.0%	10.7	100.0%
Larsen Bay	31	0.0	0.0%	21.1	68.0%	9.9	32.0%	1.2	12.5%	8.7	87.5%
Old Harbor	76	1.5	1.9%	36.5	48.1%	38.0	50.0%	23.4	61.5%	14.6	38.5%
Ouzinkie	69	5.4	7.8%	48.7	70.6%	14.9	21.6%	4.1	27.3%	10.8	72.7%
Port Lions	71	9.2	13.0%	30.2	42.6%	31.6	44.4%	13.1	41.7%	18.4	58.3%
Prince William Sound											
Chenega Bay	20	1.3	6.3%	1.3	6.3%	17.5	87.5%	13.8	78.6%	3.8	21.4%
Cordova	910	27.1	3.0%	595.7	65.5%	287.2	31.6%	239.6	83.4%	47.6	16.6%
Tatitlek	27	0.0	0.0%	7.6	28.0%	19.4	72.0%	17.3	88.9%	2.2	11.1%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

Table A-485. Suggestions for Improving Tribal Council Involvement in GEM Program, 2003 Study Year

Region	Households Responding to Adequecy of Tribal Involvement	Households Responding 'No' to Adequate Tribal Involvement		Suggestions for Improving Tribal Council Involvement*													
				More Funding		Improve Communication		Develop Better Relations		Specific Project Proposal		Technical Assistance to Tribe		Get More Involved		No Suggestions for improving Tribal Involvement Given	
Community	No.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.	No.	Pctg.
Alaska Penninsula																	
Chignik Bay	9.2	7.9	85.7%	0.0	0.0%	6.6	83.3%	2.6	33.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Chignik Lagoon	6.9	5.5	80.0%	0.0	0.0%	2.8	50.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.8	50.0%
Chignik Lake	17.7	13.3	75.0%	0.0	0.0%	8.9	66.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.5	11.1%	3.0	22.2%
Perryville	15.9	6.1	38.5%	0.0	0.0%	1.2	20.0%	0.0	0.0%	1.2	20.0%	1.2	20.0%	0.0	0.0%	2.4	40.0%
Cook Inlet																	
Nanwalek	37.1	27.8	75.0%	2.3	8.3%	16.2	58.3%	0.0	0.0%	2.3	8.3%	4.6	16.7%	2.3	8.3%	0.0	0.0%
Port Graham	22.1	13.8	62.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.8	20.0%	0.0	0.0%	1.4	10.0%	9.7	70.0%
Kodiak																	
Akhiok	6.8	6.8	100.0%	0.0	0.0%	5.5	80.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	20.0%
Karluk	10.7	10.7	100.0%	0.0	0.0%	4.3	40.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	6.4	60.0%
Larsen Bay	9.9	8.7	87.5%	0.0	0.0%	7.4	85.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.2	14.3%
Old Harbor	38.0	14.6	38.5%	0.0	0.0%	5.8	40.0%	0.0	0.0%	0.0	0.0%	2.9	20.0%	2.9	20.0%	2.9	20.0%
Ouzinkie	14.9	10.8	72.7%	1.4	12.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1.4	12.5%	0.0	0.0%	8.1	75.0%
Port Lions	31.6	18.4	58.3%	0.0	0.0%	2.6	14.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.6	14.3%	13.1	71.4%
Prince William Sound																	
Chenega Bay	17.5	3.8	21.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.5	14.3%	1.3	33.3%
Cordova	287.2	47.6	16.6%	3.1	1.1%	3.1	1.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	27.1	9.4%	14.2	29.9%
Tatitlek	19.4	2.2	11.1%	0.0	0.0%	0.0	0.0%	1.1	5.6%	0.0	0.0%	0.0	0.0%	1.1	5.6%	0.0	0.0%

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

APPENDIX B: RESEARCH PLANNING WORKSHOP AGENDA

AGENDA: RESEARCH PLANNING WORKSHOP
PROJECT 040471: UPDATE OF THE STATUS OF SUBSISTENCE USES IN EXXON VALDEZ OIL SPILL AREA COMMUNITIES

Hilton Garden Inn
100 West Tudor (SE corner of Tudor Road and C Street)
Anchorage, AK
February 3 and 4, 2004

Sponsored by:

Exxon Valdez Oil Spill Trustee Council
Bristol Bay Native Association
Chugach Regional Resources Commission
Kodiak Area Native Association
Division of Subsistence, Alaska Department of Fish and Game

Purpose: Review findings of previous research on subsistence uses in the EVOS area, discuss research methods, and develop recommendations for research topics and interview questions for next round of household surveys for Project 040471.

DAY ONE (Tuesday, February 3, 2004)
(Note: each agenda item includes a question/answer period.)

8:30	Greetings, Introductions, Agenda	Jim Fall, ADF&G Patty Brown-Schwalenberg, CRRC Ralph Andersen, BBNA Alex Panamaroff III, KANA
9:00	Why We Are Here: EVOS Trustee Council Evaluation of Natural Resource Services	Gail Phillips, Executive Director, EVOS Trustee Council
9:15	Overview of Previous Findings about Subsistence and the Oil Spill, and Overview of Proposed Project	Jim Fall, ADF&G
10:00	Break	
10:15	Community Reports & Open Discussion	

Lunch Break: 12 Noon - 1:30

1:30	Continue Community Reports	
2:15	Research Methods	Panel, ADF&G
2:45	Data Management Methods	Robert Walker, ADF&G
3:00	Break	
3:15	Small Group Discussions	
4:30	Recess for the day	

DAY TWO (Wednesday, February 4, 2004)

8:30	Continue Small Group Discussions	
10:00	Break	
10:15	Small Group Reports	Group chairs and/or reporters

Lunch Break 12 Noon - 1:30

1:30	Discussion of Group Reports and Previous Research	
3:00	Break	
3:15	Summarize Recommendations of Group Formation of Survey Instrument Drafting Committee (if necessary)	
4:00	Wrap Up: What's Next?	Fall, Brown-Schwalenberg, Andersen, and Panamaroff
4:30	Adjourn	

APPENDIX C: SURVEY INSTRUMENT (example)

HH ID: ____

COMMUNITY: **TATITLEK** 338

ID # OF PERSON RESPONDING TO SURVEY: _____

START TIME: ____

STOP TIME: ____

INTERVIEWER: ____

DATE: ____

CODER: ____

FIELD SUPERVISOR: ____

HOUSEHOLD INFORMATION. WHO WERE MEMBERS OF THIS HOUSEHOLD BETWEEN JANUARY 1, 2003, AND DECEMBER 31, 2003?

							IN THE STUDY YEAR, DID YOU HUNT/PROCESS:							
							GAME/MAR. MAL./BIRDS*		FISH/MARINE INVERTEBRATES		FURBEARERS		PLANTS	
PERSON ID#	M/F	RELATION TO HH HEAD	AGE	RESIDENCE OF PARENTS WHEN PERSON BORN	TOTAL YEARS IN COMM.	ETHNICITY	HUNT? Y/N	PROCESS? Y/N	FISH? Y/N	PROCESS? Y/N	HUNT/TRAP? Y/N	PROCESS? Y/N	GATHER? Y/N	PROCESS? Y/N
1 HEAD														
2 HEAD														
3														
4														
5														
6														
7														
8														
9														
10														

* GAME/MAR. Mal./BIRDS - Game/Marine Mammals/Birds - should include harvesting/attempting to harvest large and small game, birds, and marine mammals **IN THE STUDY YEAR.**

DID ANY MEMBERS OF YOUR HOUSEHOLD FISH, HUNT, OR GATHER RESOURCES IN PRINCE WILLIAM SOUND IN 1988, THE YEAR BEFORE THE OIL SPILL?

____**YES** ____**NO**

COMMERCIAL FISHING - SALMON.

DID MEMBERS OF YOUR HOUSEHOLD PARTICIPATE IN COMMERCIAL SALMON FISHING BETWEEN Jan. 1, 2003, AND Dec. 31, 2003? YES ____ NO ____

IF YES: PLEASE COMPLETE THE FOLLOWING TABLE (UNITS SHOULD INDICATE INDIVIDUALS, IF POUNDS THEN EDIBLE WEIGHT):

IF NO: DID YOU INCIDENTALLY HARVEST SALMON WHILE COMMERCIAL FISHING OTHER SPECIES?

	COMMERCIAL FISHED?		REMOVED FOR OWN USE	GAVE AWAY		UNITS	ID #'S OF FISHERS		
				TO CREW	TO OTHERS				
SPECIES	Y/N	INCIDENTAL*	NUMBER	NUMBER	NUMBER		PERMIT HOLDER	CREW	**NOTES:**
KING SALMON						IND			
113000001						1			
CHUM SALMON						IND			
111000001						1			
SOCKEYE SALMON						IND			
115000001						1			
PINK SALMON						IND			
114000001						1			
COHO SALMON						IND			
112000001						1			
UNKNOWN SALMON						IND			
119000001						1			

* Incidental harvest - use only if household was not engaged in any commercial salmon fishing.

NOTES:

COMMERCIAL FISHING - NON-SALMON FISH

DID MEMBERS OF YOUR HOUSEHOLD PARTICIPATE IN COMMERCIAL FISHING (OTHER THAN SALMON) BETWEEN JAN 1, 2003, AND DEC. 31, 2003? YES: ____ NO: ____

IF YES: PLEASE COMPLETE THE FOLLOWING TABLE (POUNDS SHOULD INDICATE EDIBLE WEIGHT):

IF NO: DID YOU INCIDENTALLY HARVEST OTHER FISH WHILE COMMERCIAL FISHING FOR SALMON?

SPECIES	COMMERCIAL FISHED? Y/N	COMMERCIAL FISHED? INCIDENTAL	REMOVED FOR OWN USE NUMBER	GAVE AWAY TO CREW NUMBER	GAVE AWAY TO OTHERS NUMBER	UNITS	ID #'S OF FISHERS PERMIT HOLDER	ID #'S OF FISHERS CREW	**NOTES:**
HERRING						GAL			
120200001						4			
SPAWN ON KELP						GAL			
120306001						4			
HERRING SAC ROE						GAL			
120304001						4			
STURGEON						IND			
125899001						1			
LINGCOD						IND			
121606001						1			
PACIFIC COD (GRAY)						IND			
121004001						1			
SABLEFISH (BLACK COD)						IND			
122800001						1			
UNKNOWN FLOUNDER						IND			
121499001						1			
UNKNOWN SOLE						IND			
123699001						1			
HALIBUT						LBS			
121800001						2			
BLACK ROCKFISH* (BLACK BASS)						IND			
122602001						1			
RED ROCKFISH**						IND			
122604001						1			
UNKNOWN ROCKFISH						IND			
122699001						1			

* BLACK ROCKFISH = DARK DUSKY, BLACK, LIGHT DUSKY, SILVERGRAY, WIDOW, YELLOWTAIL, "SEA BASS" OR "BLACK BASS".

** RED ROCKFISH = YELLOWEYE (RED SNAPPER), ROUGHEYE, PACIFIC OCEAN PERCH, DARK BLOTCHED, HARLEQUIN, NORTH, COPPER, QUILLBACK, ROSETHORN, REDSTRIPE, CANARY, SHORTRAKER, BLACKQUILL, RED BANDED, TIGER, AND "IDIOTFISH" OR "SHORTSPINE THORNYHEAD".

	COMMERCIAL FISHED?		REMOVED FOR OWN USE	GAVE AWAY		UNITS	ID #'S OF FISHERS		
				TO CREW	TO OTHERS				
SPECIES	Y/N	INCIDENTAL	NUMBER	NUMBER	NUMBER		PERMIT HOLDER	CREW	**NOTES:**
GREENLING (POGIES)						IND			
121699001						1			
SHARK						IND			
123299001						1			
WALLEYE POLLOCK(WHITING)						IND			
121012001						1			
SCULPIN						IND			
123099001						1			
DOLLY VARDEN						IND			
125006001						1			

NOTES:

COMMERCIAL FISHING - MARINE INVERTEBRATES

DID MEMBERS OF YOUR HOUSEHOLD PARTICIPATE IN COMM. FISHING FOR MARINE INVERTEBRATES BETWEEN JAN. 1, 2003, AND DEC. 31, 2003? YES: ____ NO: ____

IF YES: PLEASE COMPLETE THE FOLLOWING TABLE (POUNDS SHOULD BE EDIBLE WEIGHT):

IF NO: DID YOU INCIDENTALLY HARVEST MARINE INVERTEBRATES WHILE COMMERCIAL FISHING FOR OTHER SPECIES?

	COMMERCIAL FISHED?		REMOVED FOR OWN USE	GAVE AWAY		UNITS	SHELLS ON?	ID #'S OF FISHERS		
SPECIES	Y/N	INCIDENTAL	NUMBER	TO CREW NUMBER	TO OTHERS NUMBER		Y/N	PERMIT HOLDER	CREW	NOTES:
RAZOR CLAMS						GAL				
500612001						4				
PACIFIC LITTLENECK CLAMS (STEAMERS)						GAL				
501008991						4				
DUNGENESS CRAB						IND				
501004001						1				
KING CRAB						IND				
501008991						1				
TANNER CRAB						IND				
501012991						1				
OCTOPUS						IND				
502200001						1				
SHRIMP						GAL				
503400001						4				

NOTES:

NON-COMMERCIAL FISHING: SALMON.

DID MEMBERS OF YOUR HOUSEHOLD TRY TO HARVEST OR USE SALMON BETWEEN JAN 1, 2003, AND DEC 31, 2003? YES: ____ NO: ____ . IF YES:
PLEASE COMPLETE THE FOLLOWING TABLE (UNITS SHOULD INDICATE INDIVIDUALS UNLESS NOTED OTHERWISE. POUNDS SHOULD BE EDIBLE WEIGHT):

SPECIES	USED? Y/N	TRIED TO HARVEST Y/N	NUMBER HARVESTED BY: BEACH SEINE #	SET NET #	DIP NET #	HAND LINE #	ROD & REEL* #	OTHER TYPE	OTHER #	UNITS	RECEIVED Y/N	GAVE AWAY Y/N	**NOTES:**
KING SALMON										IND			
113000002										1			
CHUM SALMON										IND			
111000002										1			
SOCKEYE SALMON										IND			
115000002										1			
PINK SALMON										IND			
114000002										1			
COHO SALMON										IND			
112000002										1			
LANDLOCKED SALMON										IND			
116000002										1			
UNKNOWN SALMON										IND			
11900002										1			
										IND			
										1			

* 'ROD & REEL' INCLUDES TROLLING IN OPEN WATER

THINK BACK TO ABOUT FIVE YEARS AGO (1998) WOULD YOU SAY THAT **KING SALMON** AVAILABLE TO HARVEST IN THIS AREA ARE LESS, THE SAME, OR MORE THAN FIVE YEARS AGO? _____LESS ______SAME _____MORE IF NOT THE SAME, WHY? DO YOU THINK IT IS RELATED TO THE OIL SPILL? _____YES _____NO _____NOT SURE

REC.	RES.	DIRECT.	SPILLREL	REAS1	REAS2	REAS3
185	113000000					

WOULD YOU SAY THAT **CHUM SALMON** AVAILABLE TO HARVEST IN THIS AREA ARE LESS, THE SAME, OR MORE THAN FIVE YEARS AGO (1998)?
_____LESS ______SAME _____MORE IF NOT THE SAME, WHY? DO YOU THINK IT IS RELATED TO THE OIL SPILL? _____YES _____NO _____NOT SURE

REC.	RES.	DIRECT.	SPILLREL	REAS1	REAS2	REAS3
185	111000000					

WOULD YOU SAY THAT **SOCKEYE SALMON** AVAILABLE TO HARVEST IN THIS AREA ARE LESS, THE SAME, OR MORE THAN FIVE YEARS AGO (1998)

_____LESS ______SAME _____MORE IF NOT THE SAME, WHY? DO YOU THINK IT IS RELATED TO THE OIL SPILL? _____YES _____NO _____NOT SURE

185	115000000					
REC.	RES.	DIRECT.	SPILLREL	REAS1	REAS2	REAS3

WOULD YOU SAY THAT **PINK SALMON** AVAILABLE TO HARVEST IN THIS AREA ARE LESS, THE SAME, OR MORE THAN FIVE YEARS AGO?

_____LESS ______SAME _____MORE IF NOT THE SAME, WHY? DO YOU THINK IT IS RELATED TO THE OIL SPILL? _____YES _____NO _____NOT SURE

185	114000000					
REC.	RES.	DIRECT.	SPILLREL	REAS1	REAS2	REAS3

WOULD YOU SAY THAT **COHO SALMON** AVAILABLE TO HARVEST IN THIS AREA ARE LESS, THE SAME, OR MORE THAN FIVE YEARS AGO?

_____LESS ______SAME _____MORE IF NOT THE SAME, WHY? DO YOU THINK IT IS RELATED TO THE OIL SPILL? _____YES _____NO _____NOT SURE

185	112000000					
REC.	RES.	DIRECT.	SPILLREL	REAS1	REAS2	REAS3

HOW DO YOU COMPARE YOUR HOUSEHOLD'S **EFFORT** TO HARVEST SALMON IN 2003 WITH FIVE YEARS AGO (1998)?

IS THERE LESS, THE SAME, OR MORE **EFFORT** NOW? _____LESS _____SAME _____MORE ____NO EFFORT IF THE **EFFORT** IS NOT THE SAME, HOW IS IT DIFFERENT?

DO YOU HAVE TO **TRAVEL FURTHER** TO HARVEST SALMON? _____YES _____NO

ARE SALMON LESS, THE SAME, OR MORE **ABUNDANT**? _____LESS _____SAME _____MORE

HAVE YOU OBSERVED INCREASED COMPETITION OR TRAFFIC IN YOUR TRADITIONAL HARVEST AREA? _____YES _____NO

COMMENTS

186	110000000				
REC.	RES.	EFFORT	AREA	ABUND	COMP

HOW WOULD YOU COMPARE YOUR HOUSEHOLD'S USE AND HARVEST OF SALMON IN 2003 WITH YOUR HOUSEHOLD'S USE AND HARVEST ABOUT FIVE YEARS AGO (1998)?

WAS IT LESS, ABOUT THE SAME, OR MORE THAN IN 1998? ____ LESS ____ SAME ____ MORE WAS THE CHANGE OIL SPILL RELATED? ____YES ____NO _____NOT SURE

WHY IS IT DIFFERENT?

134	110000000					
REC.	RES.	DIRECT.	SPILLREL	REAS1	REAS2	REAS3

IF YOUR HOUSEHOLD LIVED IN THE PRINCE WILLIAM SOUND AREA BEFORE THE OIL SPILL, HOW WOULD YOU COMPARE YOUR HOUSEHOLD'S USE AND HARVEST OF SALMON IN 2003 WITH YOUR HOUSEHOLD'S USE AND HARVEST IN THE YEAR BEFORE THE EXXON VALDEZ OIL SPILL (1988)? LIVING IN AREA: _____YES _____NO

WAS IT LESS, ABOUT THE SAME, OR MORE THAN IN 1988? ____ LESS ____ SAME ____ MORE WAS THE CHANGE OIL SPILL RELATED? ____YES ____NO _____NOT SURE

WHY IS IT DIFFERENT?

34	110000000					
REC.	RES.	DIRECT.	SPILLREL	REAS1	REAS2	REAS3

NON-COMMERCIAL FISHING: NON-SALMON FINFISH.

DID MEMBERS OF YOUR HOUSEHOLD TRY TO HARVEST OR USE FISH OTHER THAN SALMON BETWEEN JAN 1, 2003, AND DEC. 31, 2003? YES: ____ NO: ____

IF YES, PLEASE COMPLETE THE FOLLOWING TABLE (UNITS SHOULD INDICATE INDIVIDUALS UNLESS NOTED OTHERWISE. POUNDS SHOULD BE EDIBLE WEIGHT):

SPECIES	USED? Y/N	TRIED TO HARVEST Y/N	BEACH SEINE #	ROD & REEL #	DIP NET #	SKATE #	HAND LINE #	SET NET #	ICE FISHING #	OTHER TYPE	OTHER #	UNITS	RECEIVED Y/N	GAVE AWAY Y/N
HERRING												GAL		
120200002												4		
HERRING ROE												GAL		
120302002												4		
EULACHON (HOOLIGAN)												GAL		
120404002												4		
UNKNOWN SMELT												GAL		
120499002												4		
SABLEFISH (BLACK COD)												IND		
122800002												1		
PACIFIC COD (GRAY)												IND		
121004002												1		
LINGCOD												IND		
121606002												1		
PACIFIC TOMCOD												IND		
121008002												1		
STARRY FLOUNDER												IND		
121406002												1		
SOLE												IND		
123699002												1		
HALIBUT												LBS		
121800002												2		
BLACK ROCKFISH* (BLACK BASS)												IND		
122602002												1		
RED ROCKFISH**												IND		
122604002												1		
UNKNOWN ROCKFISH												IND		
122699002												1		
GREENLING (POGIES)												IND		
121699002												1		

* BLACK ROCKFISH = DARK DUSKY, BLACK, LIGHT DUSKY, SILVERGRAY, WIDOW, YELLOWTAIL, "SEA BASS" OR "BLACK BASS".

** RED ROCKFISH = YELLOWEYE (RED SNAPPER), ROUGHEYE, PACIFIC OCEAN PERCH, DARK BLOTCHED, HARLEQUIN, NORTH, COPPER, QUILLBACK, ROSETHORN, REDSTRIPE, CANARY, SHORTRAKER, BLACKQUILL, RED BANDED, TIGER, AND "IDIOTFISH" OR "SHORTSPINE THORNYHEAD".

SPECIES	USED? Y/N	TRIED TO HARVEST Y/N	BEACH SEINE #	ROD & REEL #	DIP NET #	SKATE #	HAND LINE #	SET NET #	ICE FISHING #	OTHER TYPE	OTHER #	UNITS	RECEIVED Y/N	GAVE AWAY Y/N
WALLEYE POLLOCK (WHITING)												IND		
121012002												1		
SHARK												IND		
123299002												1		
SKATES												IND		
123400002												1		
DOLLY VARDEN												IND		
125006002												1		
LAKE TROUT												IND		
125010002												1		
RAINBOW TROUT												IND		
126204002												1		
STEELHEAD												IND		
126206002												1		
TROUT, UNKNOWN												IND		
126299002												1		
SEA BASS												IND		
120602002												1		
WOLF EEL (WOLFFISH)												IND		
124200002												1		
IRISH LORD												IND		
123006992												1		
UNKNOWN SCULPIN												IND		
123099002												1		
EEL												IND		
121200002												1		
GRAYLING												IND		
125200002												1		
WHITEFISH												IND		
126499002												1		

THINK BACK TO ABOUT FIVE YEARS AGO (1998). WOULD YOU SAY THAT **HALIBUT** AVAILABLE TO HARVEST IN THIS AREA ARE LESS, THE SAME, OR MORE THAN FIVE YEARS AGO? _____ LESS ______ SAME _____ MORE IF NOT THE SAME, WHY? DO YOU THINK IT IS RELATED TO THE OIL SPILL? ____ YES ____ NO _____NOT SURE

185	121800000					
REC.	RES.	DIRECT.	SPILL	REAS1	REAS2	REAS3

WOULD YOU SAY THAT **ROCKFISH ("BLACK BASS")** AVAILABLE TO HARVEST IN THIS AREA ARE LESS, THE SAME, OR MORE THAN FIVE YEARS AGO?
_____ LESS ______ SAME _____ MORE IF NOT THE SAME, WHY? DO YOU THINK IT IS RELATED TO THE OIL SPILL? ____ YES ____ NO _____NOT SURE

185	122600000					
REC.	RES.	DIRECT.	SPILL	REAS1	REAS2	REAS3

WOULD YOU SAY THAT **HERRING** AVAILABLE TO HARVEST IN THIS AREA IS LESS, THE SAME, OR MORE THAN FIVE YEARS AGO?
_____ LESS ______ SAME _____ MORE IF NOT THE SAME, WHY? DO YOU THINK IT IS RELATED TO THE OIL SPILL? ____ YES ____ NO _____NOT SURE

185	120200000					
REC.	RES.	DIRECT.	SPILL	REAS1	REAS2	REAS3

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WOULD YOU SAY THAT [ ] AVAILABLE TO HARVEST IN THIS AREA IS LESS, THE SAME, OR MORE THAN FIVE YEARS AGO?
_____ LESS ______ SAME _____ MORE IF NOT THE SAME, WHY? DO YOU THINK IT IS RELATED TO THE OIL SPILL? ____ YES ____ NO _____NOT SURE

185						
REC.	RES.	DIRECT.	SPILL	REAS1	REAS2	REAS3

HOW DO YOU COMPARE YOUR HOUSEHOLD'S **EFFORT** TO HARVEST NONSALMON FISH IN 2003 WITH FIVE YEARS AGO (1998)?
IS THERE LESS, THE SAME, OR MORE **EFFORT** NOW? _____LESS _____SAME _____MORE ____NO EFFORT IF THE **EFFORT** IS NOT THE SAME, HOW IS IT DIFFERENT?

DO YOU HAVE TO **TRAVEL FURTHER** TO HARVEST NONSALMONFISH? _____YES _____NO
ARE NONSALMON FISH LESS, THE SAME, OR MORE **ABUNDANT**? _____LESS _____SAME _____MORE
HAVE YOU OBSERVED INCREASED COMPETITION OR TRAFFIC IN YOUR TRADITIONAL HARVEST AREA? _____YES _____NO

COMMENTS

186	120000000				
REC.	RES.	EFFORT	AREA	ABUND	COMP

HOW WOULD YOU COMPARE YOUR HOUSEHOLD'S USE AND HARVEST OF NONSALMON FISH IN 2003 WITH YOUR HOUSEHOLD'S USE AND HARVEST ABOUT FIVE YEARS AGO (1998)?
WAS IT LESS, ABOUT THE SAME, OR MORE THAN IN 1998? ____ LESS ____ SAME ____ MORE WAS THE CHANGE OIL SPILL RELATED? ____YES ____NO _____NOT SURE

WHY IS IT DIFFERENT?

134	120000000					
REC.	RES.	DIRECT.	SPILLREL	REAS1	REAS2	REAS3

IF YOUR HOUSEHOLD LIVED IN THE PRINCE WILLIAM SOUND AREA BEFORE THE OIL SPILL, HOW WOULD YOU COMPARE YOUR HOUSEHOLD'S USE AND HARVEST OF NONSALMON FISH IN 2003
WITH YOUR HOUSEHOLD'S USE AND HARVEST IN THE YEAR BEFORE THE EXXON VALDEZ OIL SPILL (1988)? LIVING IN AREA: _____YES _____NO
WAS IT LESS, ABOUT THE SAME, OR MORE THAN IN 1988? ____ LESS ____ SAME ____ MORE WAS THE CHANGE OIL SPILL RELATED? ____YES ____NO _____NOT SURE

WHY IS IT DIFFERENT?

34	120000000					
REC.	RES.	DIRECT.	SPILLREL	REAS1	REAS2	REAS3

NON-COMMERCIAL FISHING: INTERTIDAL AND SHELLFISH.

DID MEMBERS OF YOUR HOUSEHOLD TRY TO HARVEST OR USE INTERTIDAL RESOURCES BETWEEN JAN 1, 2003, AND DEC 31, 2003? YES: ____________ NO: ____________

IF YES, PLEASE COMPLETE THE FOLLOWING TABLE (UNITS SHOULD INDICATE INDIVIDUALS UNLESS NOTED OTHERWISE. POUNDS SHOULD BE EDIBLE WEIGHT):

SPECIES	USED? Y/N	TRIED TO HARVEST Y/N	HARVESTED NUMBER #	HARVESTED UNITS	RECEIVED Y/N	GAVE AWAY Y/N	**SHELLS ON? Y/N**	**NOTES**
BUTTER CLAMS				GAL				
500602002				4				
RAZOR CLAMS				GAL				
500612002				4				
LITTLENECK CLAMS (STEAMERS)				GAL				
500608002				4				
PINKNECK (SURF) CLAMS				GAL				
500610002				4				
HORSE CLAMS (GAPER)				GAL				
500606002				4				
UNKNOWN CLAMS				GAL				
500699002				4				
DUNGENESS CRAB				IND				
501004002				1				
KING CRAB				IND				
501008992				1				
TANNER CRAB, BAIRDI (SNOW CRAB)				IND				
501012022				1				
UNKNOWN CRABS				IND				
501099002				1				
COCKLES				GAL				
500899002				4				
WEATHERVANE SCALLOPS				GAL				
502602002				4				
MUSSELS				GAL				
502099002				4				
BLACK BIDARKIS (CHITONS)				GAL				
500408002				4				
RED (LARGE) BIDARKIS				GAL				
500404002				4				
SEA URCHIN				GAL				
503299002				4				
SHRIMP				LBS				
503400002				2				
OCTOPUS				IND				
502200002				1				

SPECIES	USED? Y/N	TRIED TO HARVEST Y/N	HARVESTED NUMBER #	HARVESTED UNITS	RECEIVED Y/N	GAVE AWAY Y/N	**SHELLS ON? Y/N**	**NOTES**
SNAILS				GAL				
503600002				4				
LIMPETS				GAL				
501800002				4				
SEA CUCUMBER				GAL				
503099002				4				
GEODUCK				GAL				
501200002				4				

THINK BACK TO ABOUT FIVE YEARS AGO (1998). WOULD YOU SAY THAT **CLAMS** AVAILABLE TO HARVEST IN THIS AREA ARE LESS, THE SAME, OR MORE THAN FIVE YEARS AGO? _____LESS ______SAME _____MORE IF NOT THE SAME, WHY? DO YOU THINK IT IS RELATED TO THE OIL SPILL? ____YES ____NO _____NOT SURE

REC.	RES.	DIRECT.	SPILL	REAS1	REAS2	REAS3
185	500600000					

WOULD YOU SAY THAT **BIDARKIS** AVAILABLE TO HARVEST IN THIS AREA ARE LESS, THE SAME, OR MORE THAN FIVE YEARS AGO?
_____LESS ______SAME _____MORE IF NOT THE SAME, WHY? DO YOU THINK IT IS RELATED TO THE OIL SPILL? ____YES ____NO _____NOT SURE

REC.	RES.	DIRECT.	SPILL	REAS1	REAS2	REAS3
185	500400000					

WOULD YOU SAY THAT **DUNGENESS CRAB** AVAILABLE TO HARVEST IN THIS AREA ARE LESS, THE SAME, OR MORE THAN FIVE YEARS AGO?
_____LESS ______SAME _____MORE IF NOT THE SAME, WHY? DO YOU THINK IT IS RELATED TO THE OIL SPILL? ____YES ____NO _____NOT SURE

REC.	RES.	DIRECT.	SPILL	REAS1	REAS2	REAS3
185	501004000					

WOULD YOU SAY THAT **SEA URCHINS** AVAILABLE TO HARVEST IN THIS AREA ARE LESS, THE SAME, OR MORE THAN FIVE YEARS AGO?
_____LESS ______SAME _____MORE IF NOT THE SAME, WHY? DO YOU THINK IT IS RELATED TO THE OIL SPILL? ____YES ____NO _____NOT SURE

REC.	RES.	DIRECT.	SPILL	REAS1	REAS2	REAS3
185	503200000					

WOULD YOU SAY THAT **OCTOPUS** AVAILABLE TO HARVEST IN THIS AREA ARE LESS, THE SAME, OR MORE THAN FIVE YEARS AGO?

_____LESS ______SAME _____MORE IF NOT THE SAME, WHY? DO YOU THINK IT IS RELATED TO THE OIL SPILL? ____YES ____NO _____NOT SURE

REC.	RES.	DIRECT.	SPILL	REAS1	REAS2	REAS3
185	502200000					

WOULD YOU SAY THAT **[** **]** AVAILABLE TO HARVEST IN THIS AREA ARE LESS, THE SAME, OR MORE THAN FIVE YEARS AGO?

_____LESS ______SAME _____MORE IF NOT THE SAME, WHY? DO YOU THINK IT IS RELATED TO THE OIL SPILL? ____YES ____NO _____NOT SURE

REC.	RES.	DIRECT.	SPILL	REAS1	REAS2	REAS3
185						

HOW DO YOU COMPARE YOUR HOUSEHOLD'S **EFFORT** TO HARVEST INTERTIDAL RESOURCES AND SHELLFISH IN 2003 WITH FIVE YEARS AGO?

IS THERE LESS, THE SAME, OR MORE **EFFORT** NOW? _____LESS _____SAME _____MORE ____NO EFFORT

IF THE **EFFORT** IS NOT THE SAME, HOW IS IT DIFFERENT?

DO YOU HAVE TO **TRAVEL FURTHER** TO HARVEST INTERTIDAL RESOURCES? _____YES _____NO

ARE INTERTIDAL RESOURCES LESS, THE SAME, OR MORE **ABUNDANT**? _____LESS _____SAME _____MORE

HAVE YOU OBSERVED INCREASED COMPETITION OR TRAFFIC IN YOUR TRADITIONAL HARVEST AREA? _____YES _____NO

COMMENTS

REC.	RES.	EFFORT	AREA	ABUND	COMP
186	500000000				

HOW WOULD YOU COMPARE YOUR HOUSEHOLD'S USE AND HARVEST OF MARINE INVERTEBRATES IN 2003 WITH YOUR HOUSEHOLD'S USE AND HARVEST FIVE YEARS AGO?

WAS IT LESS, ABOUT THE SAME, OR MORE THAN IN 1998? ____ LESS ____ SAME ____ MORE WAS THE CHANGE OIL SPILL RELATED? ____YES ____NO _____NOT SURE

WHY IS IT DIFFERENT?

REC.	RES.	DIRECT.	SPILL	REAS1	REAS2	REAS3
134	500000000					

IF YOUR HOUSEHOLD LIVED IN THE PRINCE WILLIAM SOUND AREA BEFORE THE OIL SPILL, HOW WOULD YOU COMPARE YOUR HOUSEHOLD'S USE AND HARVEST OF MARINE INVERTEBRATES IN 2003 WITH YOUR HOUSEHOLD'S USE AND HARVEST IN THE YEAR BEFORE THE EXXON VALDEZ OIL SPILL (1988)? LIVING IN AREA: _____YES _____NO

WAS IT LESS, ABOUT THE SAME, OR MORE THAN IN 1988? ____ LESS ____ SAME ____ MORE WAS THE CHANGE OIL SPILL RELATED? ____YES ____NO _____NOT SURE

WHY IS IT DIFFERENT?

REC.	RES.	DIRECT.	SPILLREL	REAS1	REAS2	REAS3
34	500000000					

LARGE LAND MAMMALS.

DID MEMBERS OF YOUR HOUSEHOLD TRY TO HARVEST OR USE LARGE LAND MAMMALS BETWEEN JAN 1, 2003, AND DEC 31, 2003? YES: ____ NO: ____

IF YES, PLEASE COMPLETE THE FOLLOWING TABLE (UNITS SHOULD BE INDIVIDUALS):

SPECIES	USED? Y/N	TRIED TO HARVEST Y/N	HARVESTED FOR FOOD Number	HARVESTED FUR ONLY Number	HARVESTED TOTAL Number	UNITS	RECEIVED Y/N	GAVE AWAY Y/N	NOTES:
BROWN BEAR						IND			
210800000						1			
BLACK BEAR						IND			
210600000						1			
DEER						IND			
211200000						1			
MOUNTAIN GOAT						IND			
211600000						1			
CARIBOU						IND			
211000000						1			
MOOSE						IND			
211800000						1			
DALL SHEEP						IND			
212200000						1			
ELK						IND			
211400000						1			

WOULD YOU SAY THAT **DEER** AVAILABLE TO HARVEST IN THIS AREA ARE LESS, THE SAME, OR MORE THAN FIVE YEARS AGO (1998)?

_____LESS ______SAME _____MORE IF NOT THE SAME, WHY? DO YOU THINK IT IS RELATED TO THE OIL SPILL? ____YES ____NO _____NOT SURE

REC.	RES.	DIRECT.	SPILL	REAS1	REAS2	REAS3
185	211200000					

HOW DO YOU COMPARE YOUR HOUSEHOLD'S **EFFORT** TO HARVEST LARGE LAND MAMMALS IN 2003 WITH ABOUT FIVE YEARS AGO?

IS THERE LESS, THE SAME, OR MORE **EFFORT** NOW ? _____LESS _____SAME _____MORE _____NO EFFORT

IF THE **EFFORT** IS NOT THE SAME, HOW IS IT DIFFERENT?

DO YOU HAVE TO **TRAVEL FURTHER** TO HARVEST LARGE LAND MAMMALS? _____YES _____NO

ARE LARGE LAND MAMMALS LESS, THE SAME, OR MORE **ABUNDANT**? _____LESS _____SAME _____MORE

HAVE YOU OBSERVED INCREASED COMPETITION OR TRAFFIC IN YOUR TRADITIONAL HARVEST AREA? _____YES _____NO

COMMENTS

REC.	RES.	EFFORT	AREA	ABUND	COMP
186	200000000				

HOW WOULD YOU COMPARE YOUR HOUSEHOLD'S USE AND HARVEST OF LARGE LAND MAMMALS IN 2003 WITH YOUR HOUSEHOLD'S USE AND HARVEST ABOUT FIVE YEARS AGO?

WAS IT LESS, ABOUT THE SAME, OR MORE THAN IN 1998? ____ LESS ____ SAME ____ MORE WAS THE CHANGE OIL SPILL RELATED? ____YES ____NO _____NOT SURE

WHY IS IT DIFFERENT?

REC.	RES.	DIRECT.	SPILL	REAS1	REAS2	REAS3
134	200000000					

IF YOUR HOUSEHOLD LIVED IN THE PRINCE WILLIAM SOUND AREA BEFORE THE OIL SPILL, HOW WOULD YOU COMPARE YOUR HOUSEHOLD'S USE AND HARVEST OF LARGE LAND MAMMALS IN 2003 WITH YOUR HOUSEHOLD'S USE AND HARVEST IN THE YEAR BEFORE THE EXXON VALDEZ OIL SPILL (1988)? LIVING IN AREA: _____YES _____NO

WAS IT LESS, ABOUT THE SAME, OR MORE THAN IN 1988? ____ LESS ____ SAME ____ MORE WAS THE CHANGE OIL SPILL RELATED? ____YES ____NO _____NOT SURE

WHY IS IT DIFFERENT?

REC.	RES.	DIRECT.	SPILLREL	REAS1	REAS2	REAS3
34	200000000					

SMALL LAND MAMMALS/FURBEARERS.

DID MEMBERS OF YOUR HOUSEHOLD TRY TO HARVEST OR USE SMALL LAND MAMMALS/FURBEARERS BETWEEN JAN 1, 2003, AND DEC 31, 2003? YES: ____ NO: ____
IF YES, PLEASE COMPLETE THE FOLLOWING TABLE (UNITS SHOULD INDICATE INDIVIDUALS).

SPECIES	USED? Y/N	TRIED TO HARVEST Y/N	NUMBER HARVESTED FOOD NUMBER	FUR ONLY NUMBER	TOTAL NUMBER	UNITS	RECEIVED Y/N	GAVE AWAY Y/N	NOTES
RED FOX						IND			
220804000						1			
BEAVER						IND			
220200000						1			
MUSKRAT						IND			
222400000						1			
SNOWSHOE HARE						IND			
221004000						1			
LAND OTTER						IND			
221200000						1			
WEASEL						IND			
223000000						1			
COYOTE						IND			
220400000						1			
LYNX						IND			
221600000						1			
MARTEN						IND			
222000000						1			
MINK						IND			
222200000						1			
PORCUPINE						IND			
222600000						1			
WOLF						IND			
223200000						1			
WOLVERINE						IND			
223400000						1			
TREE SQUIRREL (RED)						IND			
222804000						1			
						IND			
						1			

HOW WOULD YOU COMPARE YOUR HOUSEHOLD'S USE AND HARVEST OF SMALL GAME/FURBEARERS IN 2003 WITH YOUR HOUSEHOLD'S USE AND HARVEST FIVE YEARS AGO (1998)?
WAS IT LESS, ABOUT THE SAME, OR MORE THAN IN 1998? ____ LESS ____ SAME ____ MORE WAS THE CHANGE OIL SPILL RELATED? ____YES ____NO _____NOT SURE
WHY IS IT DIFFERENT?

134	220000000					
REC.	RES.	DIRECT.	SPILL	REAS1	REAS2	REAS3

IF YOUR HOUSEHOLD LIVED IN THE PRINCE WILLIAM SOUND AREA BEFORE THE OIL SPILL, HOW WOULD YOU COMPARE YOUR HOUSEHOLD'S USE AND HARVEST OF SMALL GAME AND FURBEARERS IN 2003 WITH YOUR HOUSEHOLD'S USE AND HARVEST IN THE YEAR BEFORE THE EXXON VALDEZ OIL SPILL (1988)? LIVING IN AREA: _____YES _____NO
IWAS IT LESS, ABOUT THE SAME, OR MORE THAN IN 1988? ____ LESS ____ SAME ____ MORE WAS THE CHANGE OIL SPILL RELATED? ____YES ____NO _____NOT SURE
WHY IS IT DIFFERENT?

34	220000000					
REC.	RES.	DIRECT.	SPILLREL	REAS1	REAS2	REAS3

MARINE MAMMALS.

DID MEMBERS OF YOUR HOUSEHOLD TRY TO HARVEST OR USE MARINE MAMMALS BETWEEN JAN 1, 2003, AND DEC 31, 2003? YES: ____ NO: ____
IF YES, PLEASE COMPLETE THE FOLLOWING:
COMPLETE THE FOLLOWING TABLE (UNITS ARE INDIVIDUALS. POUNDS SHOULD BE EDIBLE WEIGHT.):

SPECIES	USED*? Y/N	TRIED TO HARVEST? Y/N	SALVAGE? Y/N	NUMBER HARVESTED FOR FOOD #	FOR HIDE ONLY #	TOTAL	UNITS	RECEIVED Y/N	GAVE AWAY Y/N
HARBOR SEAL							IND		
300806040							1		
STELLER SEA LION							IND		
301200000							1		
SEA OTTER							IND		
301000000							1		
UNKNOWN WHALE							IND		
301699000							1		
PORPOISE							IND		
300600000							1		
BELUGA WHALE							IND		
301602000							1		
							IND		
							1		

* Use includes meat and/or oil, and/or fur.

THINK BACK ABOUT FIVE YEARS AGO. WOULD YOU SAY THAT **HARBOR SEAL** AVAILABLE TO HARVEST IN THIS AREA ARE LESS, THE SAME, OR MORE THAN BEFORE 1998? _____LESS ______SAME _____MORE IF NOT THE SAME, WHY? DO YOU THINK IT IS RELATED TO THE OIL SPILL? ____YES ____NO _____NOT SURE

REC.	RES.	DIRECT.	SPILL	REAS1	REAS2	REAS3
185	300806000					

WOULD YOU SAY THAT **SEA LION** AVAILABLE TO HARVEST IN THIS AREA ARE LESS, THE SAME, OR MORE THAN ABOUT FIVE YEARS AGO? _____LESS ______SAME _____MORE IF NOT THE SAME, WHY? DO YOU THINK IT IS RELATED TO THE OIL SPILL? ____YES ____NO _____NOT SURE

REC.	RES.	DIRECT.	SPILL	REAS1	REAS2	REAS3
185	301200000					

HOW DO YOU COMPARE YOUR HOUSEHOLD'S **EFFORT** TO HARVEST MARINE MAMMALS IN 2003 COMPARED TO FIVE YEARS AGO?

IS THERE LESS, THE SAME, OR MORE **EFFORT** NOW ? _____LESS _____SAME _____MORE _____NO EFFORT

IF THE **EFFORT** IS NOT THE SAME, HOW IS IT DIFFERENT?

DO YOU HAVE TO **TRAVEL FURTHER** TO HARVEST MARINE MAMMALS? _____YES _____NO

ARE MARINE MAMMALS LESS, THE SAME, OR MORE **ABUNDANT**? _____LESS _____SAME _____MORE

HAVE YOU OBSERVED INCREASED COMPETITION OR TRAFFIC IN YOUR TRADITIONAL HARVEST ARE/ _____YES _____NO

COMMENTS

186	300000000				
REC.	RES.	EFFORT	AREA	ABUND	COMP

HOW WOULD YOU COMPARE YOUR HOUSEHOLD'S USE AND HARVEST OF MARINE MAMMALS IN 2003 WITH YOUR HOUSEHOLD'S USE AND HARVEST ABOUT FIVE YEARS AGO?

WAS IT LESS, ABOUT THE SAME, OR MORE THAN IN 1998? ____ LESS ____ SAME ____ MORE WAS THE CHANGE OIL SPILL RELATED? ____YES ____NO _____NOT SURE

WHY IS IT DIFFERENT?

134	300000000					
REC.	RES.	DIRECT.	SPILL	REAS1	REAS2	REAS3

IF YOUR HOUSEHOLD LIVED IN THE PRINCE WILLIAM SOUND AREA BEFORE THE OIL SPILL, HOW WOULD YOU COMPARE YOUR HOUSEHOLD'S USE AND HARVEST OF MARINE MAMMALS IN 2003 WITH YOUR HOUSEHOLD'S USE AND HARVEST IN THE YEAR BEFORE THE EXXON VALDEZ OIL SPILL (1988)? LIVING IN AREA: _____YES _____NO

WAS IT LESS, ABOUT THE SAME, OR MORE THAN IN 1988? ____ LESS ____ SAME ____ MORE WAS THE CHANGE OIL SPILL RELATED? ____YES ____NO _____NOT SURE

WHY IS IT DIFFERENT?

34	300000000					
REC.	RES.	DIRECT.	SPILLREL	REAS1	REAS2	REAS3

BIRDS AND EGGS.

DID MEMBERS OF YOUR HOUSEHOLD TRY TO HARVEST OR USE BIRDS OR EGGS BETWEEN JAN 1, 2003, AND DEC 31, 2003?   YES: ____   NO: ____

IF YES, PLEASE COMPLETE THE FOLLOWING TABLE (UNITS SHOULD BE INDIVIDUALS).

SPECIES	USED? Y/N	TRIED TO HARVEST Y/N	NUMBER HARVESTED BY SEASON (MONTHS) WINTER J F M	SPRING A M	SUMMER J J A	FALL S O N D	UNKNOWN	UNIT	RECEIVED Y/N	GAVE AWAY Y/N
GROUSE								IND		
421802000								1		
PTARMIGAN								IND		
421804990								1		
HARLEQUIN (ROCK DUCK)								IND		
410212000								1		
GOLDENEYE (COPPERHEAD)								IND		
410210990								1		
BUFFLEHEAD (BUTTERBALL)								IND		
410202000								1		
COMMON MERGANSER (SAWBILL)								IND		
410216020								1		
SCAUP (BLUEBILL)								IND		
410226990								1		
MALLARD								IND		
410214000								1		
PINTAIL								IND		
410220000								1		
AMERICAN WIGEON								IND		
410236020								1		
GREEN-WINGED TEAL								IND		
410232060								1		
GADWALL								IND		
410208000								1		
OLDSQUAW								IND		
410218000								1		
EIDER SPECIFY:								IND		
4102 __ __ __ __ __								1		
BLACK SCOTER								IND		
410228020								1		

SPECIES	USED? Y/N	TRIED TO HARVEST Y/N	NUMBER HARVESTED BY SEASON (MONTHS) WINTER J F M	SPRING A M	SUMMER J J A	FALL S O N D	UNKNOWN	UNIT	RECEIVED Y/N	GAVE AWAY Y/N
WHITE-WINGED SCOTER								IND		
410228060								1		
SURF SCOTER								IND		
410228040								1		
UNKNOWN SCOTER								IND		
410228990								1		
SHOVELER								IND		
410230000								1		
DUCKS, UNKNOWN								IND		
410299000								1		
BRANT								IND		
410402000								1		
WHITE-FRONTED GEESE								IND		
410410000								1		
CANADA GEESE, UNKNOWN								IND		
410404990								1		
EMPEROR GEESE								IND		
410406000								1		
UNKNOWN GEESE								IND		
410499000								1		
SANDHILL CRANE								IND		
410802000								1		
COMMON SNIPE								IND		
411002000								1		
UNKNOWN CORMORANT								IND		
411204020								1		
HORNED PUFFINS								IND		
411222020								1		
TUFTED PUFFINS								IND		
411222040								1		
UNKNOWN PUFFIN								IND		
411222990								1		

SPECIES	USED? Y/N	TRIED TO HARVEST Y/N	NUMBER HARVESTED BY SEASON (MONTHS) WINTER J F M	SPRING A M	SUMMER J J A	FALL S O N D	UNKNOWN	UNIT	RECEIVED Y/N	GAVE AWAY Y/N
GULLS								IND		
411212990								1		
COMMON MURRE								IND		
411218020								1		
								IND		
								1		
GULL EGGS, UNKNOWN										
431212990										
PUFFIN EGGS								IND		
431222990								1		
GEESE EGGS								IND		
430499000								1		
DUCK EGGS, UNKNOWN								IND		
430299000								1		
SEABIRD EGGS, UNKNOWN								IND		
431299000								1		
TERN EGGS								IND		
431226000								1		

WOULD YOU SAY THAT **SEA DUCKS** AVAILABLE TO HARVEST IN THIS AREA ARE LESS, THE SAME, OR MORE THAN ABOUT FIVE YEARS AGO?

_____LESS ______SAME _____MORE IF NOT THE SAME, WHY? DO YOU THINK IT IS RELATED TO THE OIL SPILL? ____YES ____NO _____NOT SURE

REC.	RES.	DIRECT.	SPILL	REAS1	REAS2	REAS3
185	411299000					

WOULD YOU SAY THAT [ ] AVAILABLE TO HARVEST IN THIS AREA ARE LESS, THE SAME, OR MORE THAN ABOUT FIVE YEARS AGO?

_____LESS ______SAME _____MORE IF NOT THE SAME, WHY? DO YOU THINK IT IS RELATED TO THE OIL SPILL? ____YES ____NO _____NOT SURE

REC.	RES.	DIRECT.	SPILL	REAS1	REAS2	REAS3
185						

HOW DO YOU COMPARE YOUR HOUSEHOLD'S **EFFORT** TO HARVEST BIRDS AND EGGS IN 2003 WITH FIVE YEARS AGO (1998)?

IS THERE LESS, THE SAME, OR MORE **EFFORT** NOW? _____LESS _____SAME _____MORE _____NO EFFORT

IF THE **EFFORT** IS NOT THE SAME, HOW IS IT DIFFERENT?

DO YOU HAVE TO **TRAVEL FURTHER** TO HARVEST BIRDS AND EGGS? _____YES _____NO

ARE BIRDS AND EGGS LESS, THE SAME, OR MORE **ABUNDANT**? _____LESS _____SAME _____MORE

HAVE YOU OBSERVED INCREASED COMPETITION OR TRAFFIC IN YOUR TRADITIONAL HARVES _____YES _____NO

COMMENTS

186	400000000				

HOW WOULD YOU COMPARE YOUR HOUSEHOLD'S USE AND HARVEST OF BIRDS AND EGGS IN 2003 WITH YOUR HOUSEHOLD'S USE AND HARVEST ABOUT FIVE YEARS AGO?

WAS IT LESS, ABOUT THE SAME, OR MORE THAN IN 1998? ____ LESS ____ SAME ____ MORE WAS THE CHANGE OIL SPILL RELATED? ____YES ____NO _____NOT SURE

WHY IS IT DIFFERENT?

REC.	RES.	DIRECT.	SPILL	REAS1	REAS2	REAS3
134	400000000					

IF YOUR HOUSEHOLD LIVED IN THE PRINCE WILLIAM SOUND AREA BEFORE THE OIL SPILL, HOW WOULD YOU COMPARE YOUR HOUSEHOLD'S USE AND HARVEST OF BIRDS AND EGGS IN 2003 WITH YOUR HOUSEHOLD'S USE AND HARVEST IN THE YEAR BEFORE THE EXXON VALDEZ OIL SPILL (1988)? LIVING IN AREA: _____YES _____NO

WAS IT LESS, ABOUT THE SAME, OR MORE THAN IN 1988? ____ LESS ____ SAME ____ MORE WAS THE CHANGE OIL SPILL RELATED? ____YES ____NO _____NOT SURE

WHY IS IT DIFFERENT?

REC.	RES.	DIRECT.	SPILLREL	REAS1	REAS2	REAS3
34	400000000					

WILD PLANTS.

DID MEMBERS OF YOUR HOUSEHOLD TRY TO HARVEST OR USE WILD PLANTS (INCLUDING FIREWOOD) BETWEEN JAN 1, 2003, AND DEC 31, 2003?   YES: ____   NO: ____

IF YES, PLEASE COMPLETE THE FOLLOWING TABLE (POUNDS SHOULD INDICATE EDIBLE WEIGHT).

SPECIES	USED? Y/N	TRIED TO HARVEST Y/N	AMOUNT HARVESTED NUMBER	UNIT	RECEIVED Y/N	GAVE AWAY Y/N	NOTES
BERRIES				GAL			
601000000				4			
PLANTS/GREENS/MUSHROOMS				GAL			
602000000				4			
SEAWEED/KELP (FOOD)				GAL			
603099000				4			
WOOD				CORDS			
604000000				6			

WOULD YOU SAY THAT **PLANTS AND BERRIES** AVAILABLE TO HARVEST IN THIS AREA ARE LESS, THE SAME, OR MORE THAN FIVE YEARS AGO?

_____LESS   ______SAME   _____MORE   IF NOT THE SAME, WHY? DO YOU THINK IT IS RELATED TO THE OIL SPILL? ____YES ____NO _____NOT SURE

185	600000000					
REC.	RES.	DIRECT.	SPILL	REAS1	REAS2	REAS3

HOW DO YOU COMPARE YOUR HOUSEHOLD'S **EFFORT** TO HARVEST PLANTS AND BERRIES IN 2003 WITH 1988?

IS THERE LESS, THE SAME, OR MORE **EFFORT** NOW? _____LESS _____SAME _____MORE _____NO EFFORT

IF THE **EFFORT** IS NOT THE SAME, HOW IS IT DIFFERENT?

DO YOU HAVE TO **TRAVEL FURTHER** TO HARVEST WILD PLANTS AND BERRIES? _____YES _____NO

ARE WILD PLANTS AND BERRIES LESS, THE SAME, OR MORE **ABUNDANT**? _____LESS _____SAME _____MORE

HAVE YOU OBSERVED INCREASED COMPETITION OR TRAFFIC IN YOUR TRADITIONAL HARVEST _____YES _____NO

COMMENTS

186	600000000				

HOW WOULD YOU COMPARE YOUR HOUSEHOLD'S USE AND HARVEST OF PLANTS AND BERRIES IN 2003 WITH YOUR HOUSEHOLD'S USE AND HARVEST IN 1988?

WAS IT LESS, ABOUT THE SAME, OR MORE THAN IN 1998?   ____ LESS ____ SAME ____ MORE   WAS THE CHANGE OIL SPILL RELATED? ____YES ____NO _____NOT SURE

WHY IS IT DIFFERENT?

134	600000000					
REC.	RES.	DIRECT.	SPILL	REAS1	REAS2	REAS3

IF YOUR HOUSEHOLD LIVED IN THE PRINCE WILLIAM SOUND AREA BEFORE THE OIL SPILL, HOW WOULD YOU COMPARE YOUR HOUSEHOLD'S USE AND HARVEST OF WILD PLANTS & BERRIES IN 2003 WITH YOUR HOUSEHOLD'S USE AND HARVEST IN THE YEAR BEFORE THE EXXON VALDEZ OIL SPILL (1988)?   LIVING IN AREA: _____YES _____NO

WAS IT LESS, ABOUT THE SAME, OR MORE THAN IN 1988?   ____ LESS ____ SAME ____ MORE   WAS THE CHANGE OIL SPILL RELATED? ____YES ____NO _____NOT SURE

WHY IS IT DIFFERENT?

34	600000000					
REC.	RES.	DIRECT.	SPILLREL	REAS1	REAS2	REAS3

MISCELLANEOUS.

OVERALL.

HOW WOULD YOU COMPARE YOUR HOUSEHOLD'S OVERALL USE AND HARVESTS IN 2003 WITH YOUR HOUSEHOLD'S OVERALL USE AND HARVEST FIVE YEARS AGO?

WAS IT LESS, ABOUT THE SAME, OR MORE THAN IN 1998? ____ LESS ____ SAME ____ MORE WAS THE CHANGE OIL SPILL RELATED? ____YES ____NO _____NOT SURE

WHY IS IT DIFFERENT?

REC.	RES.	DIRECT.	SPILL	REAS1	REAS2	REAS3
134	0					

IF YOUR HOUSEHOLD LIVED IN THE PRINCE WILLIAM SOUND AREA BEFORE THE OIL SPILL, HOW WOULD YOU COMPARE YOUR HOUSEHOLD'S OVERALL USE AND HARVEST IN 2003 WITH YOUR HOUSEHOLD'S USE AND HARVEST IN THE YEAR BEFORE THE EXXON VALDEZ OIL SPILL (1988)? LIVING IN AREA: _____YES _____NO

WAS IT LESS, ABOUT THE SAME, OR MORE THAN IN 1988? ____ LESS ____ SAME ____ MORE WAS THE CHANGE OIL SPILL RELATED? ____YES ____NO _____NOT SURE

WHY IS IT DIFFERENT?

REC.	RES.	DIRECT.	SPILLREL	REAS1	REAS2	REAS3
34						

FOOD.

IN 2003, WERE THERE SUBSISTENCE FOODS WHICH YOU HAD TO BUY BECAUSE YOU COULD NOT GET THEM THROUGH SUBSISTENCE HARVESTING OR SHARING?

_____YES _____NO [98]

IF YES, WHAT SPECIES AND WHY?

REC.	RESOURCE	REAS1	REAS2	REAS3
87				
87				
87				

IN 2003, DID YOU NEED TO BUY STORE BOUGHT FOODS TO REPLACE SUBSISTENCE FOODS? _____YES _____NO

WHY?

REC.	REPLACE	REAS1	REAS2	REAS3
99				

SHARING.

DURING THE PAST 12 MONTHS, DID YOUR HOUSEHOLD SHARE WILD RESOURCES LESS THAN, ABOUT THE SAME AS, OR MORE OFTEN THAN FIVE YEARS AGO? _____LESS _____ SAME _____MORE

IF NOT THE SAME, WHY?

REC.	DIR.	REAS1	REAS2	REAS3
88				

ELDERS.

OVER THE LAST FIVE YEARS, DO YOU THINK THE INFLUENCE OF ELDERS IN TEACHING SUBSISTENCE SKILLS AND VALUES IN THE COMMUNITY HAS DECREASED, STAYED THE SAME, OR INCREASED? _____DECREASED _____STAYED THE SAME _____INCREASED _____DON'T KNOW

IF NOT THE SAME, WHY?

189				
REC.	DIR.	REAS1	REAS2	REAS3

SUBSISTENCE SKILLS.

DO YOU THINK THAT YOUNG ADULTS ARE LEARNING ENOUGH HUNTING, FISHING, AND PROCESSING SKILLS? _____YES _____NO ____DON'T KNOW

IF YES, HOW ARE THEY LEARNING THESE SKILLS?

IF NO, WHY?

90				
REC.	SKILLS	REAS1	REAS2	REAS3

RECOVERY.

IN YOUR VIEW HAVE SUBSISTENCE RESOURCES RECOVERED SINCE THE OIL SPILL? _____YES _____NO _____DON'T KNOW

IF NO, WHAT DO YOU THINK SHOULD BE DONE TO HELP IN THE RECOVERY OF SUBSISTENCE RESOURCES?

92				
REC.	RECOVER	REAS1	REAS2	REAS3

PLEASE PROVIDE ANY IDEAS ABOUT POTENTIAL RESEARCH AND MONITORING PROJECTS

DO YOU THINK THE TRADITIONAL WAY OF LIFE WAS AFFECTED BY THE OIL SPILL? _____YES _____NO _____DON'T KNOW

IF YES, IN YOUR VIEW HAS THE TRADITIONAL WAY OF LIFE RECOVERED SINCE THE OIL SPILL? _____YES _____NO _____DON'T KNOW

IF NOT RECOVERED, WHAT DO YOU THINK IS NEEDED TO HELP THE TRADITIONAL WAY OF LIFE RECOVER? [CONSIDER SPILL AND NON-SPILL FACTORS]

REC.	TRAD	RECOVER	REAS1	REAS2	REAS3
93					

FOOD SAFETY.

DO YOU THINK CLAMS FROM YOUR TRADITIONAL HARVEST AREAS ARE SAFE FOR YOUR FAMILY TO EAT? ______SAFE _____NOT SAFE _____DON'T KNOW

IF NOT SAFE, WHY?

RECORD	RES.	EAT	SAFE	REAS 1	REAS 2	REAS 3
94	500600000					

480

DO YOU THINK BIDARKIES FROM YOUR TRADITIONAL HARVEST AREAS ARE SAFE FOR YOUR FAMILY TO EAT? ______SAFE _____NOT SAFE _____DON'T KNOW

IF NOT SAFE, WHY?

RECORD	RES.	EAT	SAFE	REAS 1	REAS 2	REAS 3
94	500400000					

DO YOU THINK SEALS FROM YOUR TRADITIONAL HARVEST AREAS ARE SAFE FOR YOUR FAMILY TO EAT? ______SAFE _____NOT SAFE _____DON'T KNOW

IF NOT SAFE, WHY?

RECORD	RES.	EAT	SAFE	REAS 1	REAS 2	REAS 3
94	300800000					

DO YOU THINK HERRING FROM YOUR TRADITIONAL HARVEST AREAS ARE SAFE FOR YOUR FAMILY TO EAT? ______SAFE _____NOT SAFE _____DON'T KNOW

IF NOT SAFE, WHY?

RECORD	RES.	EAT	SAFE	REAS 1	REAS 2	REAS 3
94	120200000					

ARE THERE OTHER SUBSISTENCE FOODS FROM YOUR TRADITIONAL AREAS THAT YOUR ARE CONCERNED ABOUT EATING? _____YES _____NO
IF YES, WHAT ARE THE SPECIES AND WHY ARE YOU CONCERNED?

RECORD	RES.	REAS 1	REAS 2	REAS 3
95				
95				
95				

HABITAT CHANGES.
HAVE YOU OBSERVED CHANGES IN THE HABITAT OR ENVIRONMENT OF SUBSISTENCE RESOURCES? _____YES _____NO
IF YES, WHAT ARE THE CHANGES AND HOW HAVE THEY AFFECTED SUBSISTENCE?

RECORD	HABITAT	CHANGE1	CHANGE2	CHANGE3
96				

TRUSTEE COUNCIL AND GEM PROGRAMS

481

DO YOU FEEL THAT YOUR ARE ADEQUATELY INFORMED ABOUT THE ACTIVITIES OF THE TRUSTEE COUNCIL'S GULF ECOSYSTEMS MONITORING (GEM) PROGRAM?

_____YES _____NO _____ DON'T KNOW

IF NOT, HOW WOULD YOU SUGGEST IMPROVING COMMUNICATION?

RECORD	INFORMED	SUGGEST 1	SUGGEST 2	SUGGEST 3
101				

DO YOU FEEL THAT YOUR TRIBAL COUNCIL IS ADEQUATELY INVOLVED IN RESEARCH AND MONITORING IN THE GEM PROGRAM?

_____YES _____NO _____ DON'T KNOW

IF NOT, HOW WOULD YOU SUGGEST IMPROVING YOUR TRIBE'S INVOLVEMENT?

RECORD	INFORMED	SUGGEST 1	SUGGEST 2	SUGGEST 3
102				

DO YOU HAVE ANY OTHER QUESTIONS, COMMENTS, OR CONCERNS?

BE SURE TO FILL IN THE STOP TIME ON THE FIRST PAGE!!!!

INTERVIEW SUMMARY:

APPENDIX D: CONVERSION FACTORS

Appendix Table D-1. Conversion Factors, EVOS 2004

Resource	Units	Study Regions			
		Prince William Sound	Cook Inlet	Kodiak	Alaska Peninsula
Chum Salmon	Ind	4.72	5.33	5.3	5.19
Coho Salmon	Ind	6.29	5.1	5.75	6.2
Chinook Salmon	Ind	16.41	9.07	7.36	10.37
Pink Salmon	Ind	2.66	2.34	2.59	2.84
Sockeye Salmon	Ind	4.51	3.77	3.97	4.83
Landlocked Salmon	Ind	1.5	1.5	1.5	1.5
Spawning coho	Ind	2.92	2.37	2.67375	2.883
Spawning sockeye	Ind	2.1	1.75	1.84605	2.24595
Herring	Gal	6	6	6	6
Herring Roe/Unspecified	Gal	7	7	7	7
Herring Sac Roe	Gal	7	7	7	7
Herring Spawn on Kelp	Gal	7	7	7	7
Eulachon (hooligan, candlefish)	Gal	3.25	3.25	3.25	3.25
Eulachon (hooligan, candlefish)	Ind	0.13	0.13	0.13	0.13
Rainbow Smelt	Gal	3.25	3.25	3.25	3.25
Unknown Smelt	Gal	3.25	3.25	3.25	3.25
Sea Bass	Ind	1	1	1	1
Pacific Cod (gray)	Ind	3.2	3.2	3.2	3.2
Pacific Tom Cod	Ind	0.5	0.5	0.5	0.5
Pacific Tom Cod	Gal	10	10	10	10
Walleye Pollock (whiting)	Ind	1.4	1.4	1.4	1.4
Eel	Ind	3.6	3.6	3.6	3.6
Flounder	Ind	3	3	3	3
Starry Flounder	Ind	3	3	3	3
Unknown Flounder	Ind	3	3	3	3
Lingcod	Ind	4	4	4	4
Unknown Greenling	Ind	1	1	1	1
Halibut	Lbs	1	1	1	1
Halibut	Ind	22.725	22.725	22.725	22.725
Black Rockfish	Ind	1.5	1.5	1.5	1.5
Red Rockfish	Ind	4	4	4	4
Unknown Rockfish	Ind	0	0	0	0
Sablefish (black cod)	Ind	3.1	3.1	3.1	3.1
Unknown Irish Lord	Ind	0.5	0.5	0.5	0.5
Unknown Sculpin	Ind	0.5	0.5	0.5	0.5
Shark	Ind	9	9	9	9
Unknown Shark	Ind	9	9	9	9
Skates	Ind	5	5	5	5
Unknown Sole	Ind	1	1	1	1
Wolffish	Ind	0.5	0.5	0.5	0.5
Dolly Varden	Ind	1.4	1.4	1.4	1.4
Lake Trout	Ind	1.4	1.4	1.4	1.4
Grayling	Ind	0.7	0.7	0.7	0.7
Unknown Sturgeon	Ind	34	34	34	34
Cutthroat Trout	Ind	1.4	1.4	1.4	1.4
Rainbow Trout	Ind	1.4	1.4	1.4	1.4
Steelhead	Ind	1.4	1.4	5.53	1.4
Unknown Trout	Ind	1.4	1.4	1.4	1.4
Unknown Whitefish	Ind	1.75	1.75	1.75	1.75
Bison	Ind	450	450	450	450
Black Bear	Ind	58	58	58	58
Brown Bear	Ind	150	150	150	340
Caribou	Ind	150	150	150	150

Appendix Table D-1. Conversion Factors, EVOS 2004 [continued]

Resource	Units	Study Regions			
		Prince William Sound	Cook Inlet	Kodiak	Alaska Peninsula
Deer	Ind	43.2	43.2	43.2	43.2
Elk	Ind	225	225	225	225
Goat	Ind	72.5	72.5	72.5	72.5
Moose	Ind	540	540	540	540
Dall Sheep	Ind	104	104	104	104
Beaver	Ind	8.75	8.75	8.75	8.75
Snowshoe Hare	Ind	2	2	2	2
Lynx	Ind	4	4	4	4
Muskrat	Ind	0.75	0.75	0.75	0.75
Porcupine	Ind	8	8	8	8
Tree Squirrel	Ind	0.5	0.5	0.5	0.5
Porpoise	Ind	60	60	60	60
Harbor Seal (saltwater)	Ind	56	56	56	56
Steller Sea Lion	Ind	200	200	200	200
Bufflehead	Ind	0.4	0.4	0.4	0.4
Canvasback	Ind	1.1	1.1	1.1	1.1
Common Eider	Ind	2.21	2.21	2.21	2.21
King Eider	Ind	1.43	1.43	1.43	1.43
Gadwall	Ind	0.8	0.8	0.8	0.8
Unknown Goldeneye	Ind	0.8	0.8	0.8	0.8
Harlequin	Ind	0.5	0.5	0.5	0.5
Mallard	Ind	0.9	0.9	0.9	0.9
Common Merganser	Ind	0.9	0.9	0.9	0.9
Red-Breasted Merganser	Ind	0.9	0.9	0.9	0.9
Long-tailed Duck (oldsquaw)	Ind	0.8	0.8	0.8	0.8
Northern Pintail	Ind	0.8	0.8	0.8	0.8
Unknown Scaup	Ind	0.9	0.9	0.9	0.9
Black Scoter	Ind	0.9	0.9	0.9	0.9
Surf Scoter	Ind	0.9	0.9	0.9	0.9
White-winged Scoter	Ind	0.9	0.9	0.9	0.9
Unknown Scoter	Ind	0.9	0.9	0.9	0.9
Northern Shoveler	Ind	0.6	0.6	0.6	0.6
Green Winged Teal	Ind	0.3	0.3	0.3	0.3
American Wigeon	Ind	0.7	0.7	0.7	0.7
Unknown Ducks	Ind	0	0	0	0
Brant	Ind	1.2	1.2	1.2	1.2
Unknown Canada Geese	Ind	1.2	1.2	1.2	1.2
Emperor Geese	Ind	2.5	2.5	2.5	2.5
White-fronted Geese	Ind	2.4	2.4	2.4	2.4
Unknown Geese	Ind	1.64	1.64	1.64	1.64
Sandhill Crane	Ind	8.4	8.4	8.4	8.4
Common Snipe	Ind	0.1	0.1	0.1	0.1
Parakeet Auklet	Ind	0.3	0.3	0.3	0.3
Unknown Gull	Ind	1	1	1	1
Unknown Loon	Ind	3	3	3	3
Tufted Puffin	Ind	0.5	0.5	0.5	0.5
Grouse	Ind	0.7	0.7	0.7	0.7
Ptarmigan	Ind	0.7	0.7	0.7	0.7
Unknown Duck Eggs	Ind	0.15	0.15	0.15	0.15
Unknown Geese Eggs	Ind	0.3	0.3	0.3	0.3
Glaucous Winged Gull Eggs	Ind	0.3	0.3	0.3	0.3
Herring Gull Eggs	Ind	0.3	0.3	0.3	0.3
Herring Gull Eggs	Gal	3	3	3	3

Appendix Table D-1. Conversion Factors, EVOS 2004 [continued]

Resource	Units	Study Regions			
		Prince William Sound	Cook Inlet	Kodiak	Alaska Peninsula
Unknown Gull Eggs	Ind	0.3	0.3	0.3	0.3
Unknown Gull Eggs	Gal	3	3	3	3
Unknown Gull Eggs	Dozen	3.6	3.6	3.6	3.6
Puffin Eggs	Ind	0.3	0.3	0.3	0.3
Tern Eggs	Ind	0.05	0.05	0.05	0.05
Tern Eggs	Dozen	0.6	0.6	0.6	0.6
Tern Eggs	Gal	3	3	3	3
Unknown Seabird Eggs	Ind	0	0	0	0
Red (large) Chitons	Gal	3	3	3	3
Red (large) Chitons	Ind	0.5	0.5	0.5	0.5
Black (small) Chitons	Gal	4	4	4	4
Butter Clams	Gal	3	3	3	3
Butter Clams	Ind	0.12	0.12	0.12	0.12
Horse Clams (Gaper)	Gal	3	3	3	3
Pacific Littleneck Clams (Steamers)	Gal	3	3	3	3
Pinkneck Clams	Gal	3	3	3	3
Razor Clams	Gal	3	3	3	3
Razor Clams	Ind	0.25	0.25	0.25	0.25
Softshell Clams	Gal	3	3	3	3
Unknown Clams	Gal	3	3	3	3
Unknown Cockles	Gal	3	3	3	3
Dungeness Crab	Ind	0.7	0.7	0.7	0.7
King Crab	Ind	2.3	2.3	2.3	2.3
Unknown King Crab	Ind	2.3	2.3	2.3	2.3
Tanner Crab, Bairdi	Ind	1.6	1.6	1.6	1.6
Unknown Tanner Crab	Ind	1.6	1.6	1.6	1.6
Unknown Crab	Ind	0	0	0	0
Geoducks	Gal	3	3	3	3
Limpets	Ind	0.01	0.01	0.01	0.01
Limpets	Dozen	0.12	0.12	0.12	0.12
Limpets	Gal	1.5	1.5	1.5	1.5
Unknown Mussels	Gal	1.5	1.5	1.5	1.5
Octopus	Ind	4	4	4	4
Oyster	Gal	3	3	3	3
Weathervane Scallops	Gal	1	1	1	1
Sea Cucumber	Gal	2	2	2	2
Sea Urchin	Gal	0.5	0.5	0.5	0.5
Unknown Sea Urchin	Gal	0.5	0.5	0.5	0.5
Shrimp	Lbs	1	1	1	1
Snails	Gal	1.5	1.5	1.5	1.5
Whelk	Gal	1.5	1.5	1.5	1.5
Berries	Gal	4	4	4	4
Plants/Greens/Mushrooms	Gal	4	4	4	4
Goose Tongue	Gal	4	4	4	4
Unknown Seaweed	Gal	4	4	4	4

Note: All conversions are to pounds usable weight.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys, 2004.

APPENDIX E: DATA REVIEW WORKSHOP AGENDA

AGENDA: DATA REVIEW WORKSHOP
PROJECT 040471: UPDATE OF THE STATUS OF SUBSISTENCE USES IN EXXON VALDEZ OIL SPILL AREA COMMUNITIES

Homewood Suites
140 W Tudor Road
(east side of C Street, between Tudor and International Airport Road)
Anchorage, AK
October 12 & 13, 2004

Sponsored by:

Exxon Valdez Oil Spill Trustee Council
Bristol Bay Native Association
Chugach Regional Resources Commission
Kodiak Area Native Association
Division of Subsistence, Alaska Department of Fish and Game

Purpose: Review preliminary findings of household survey about subsistence uses in the EVOS area, discuss how the research went in each study community, compare preliminary findings with those from other years, and develop ideas about what points and observations should appear in the final report. Also discuss schedule for review and completion of final report and presentation of findings at January 2005 GEM workshop.

DAY ONE (Tuesday, October 12 2004)

8:15	Greetings, Introductions, Agenda	Jim Fall, ADF&G Patty Brown-Schwalenberg, CRRC Ralph Andersen, BBNA Alex Panamaroff III, KANA
8:45	Discussion of Administration of Household Surveys, including Reports from Community Representatives	All participants
10:00	Break	
10:15	Report on Preliminary Findings: Harvests and Uses	Division of Subsistence staff

Lunch Break: 12 Noon - 1:30

1:30	Report on Preliminary Findings: Assessment Questions	Division of Subsistence staff
3:00	Break	
3:15	Small Group Discussions (CRRC, KANA, BBNA)	
4:30	Recess for the day	

DAY TWO (Wednesday, October 13, 2004)

8:00	Continue Small Group Discussions	
9:00	Small Group Reports	Group chairs and/or reporters
10:00	Break	
10:15	Full Group Discussion of Observations, Themes, and Recommendations	Jim Fall will facilitate this
11:30	Wrap Up & What's Next?	Fall, Brown-Schwalenberg, Andersen, and Panamaroff
12 noon	Adjourn	

Note: if there is interest or need, we can continue discussions in the afternoon among those who do not have to leave early.

APPENDIX F: STUDY FINDINGS SYNOPSIS

Update of the Status of Subsistence Uses in *Exxon Valdez* Oil Spill Area Communities: Overview of Study Findings of *Exxon Valdez* Oil Spill Restoration Project No. 040471

Alaska Department of Fish and Game,
Division of Subsistence
July 2006

Background

Subsistence uses are a vital natural resource service that was injured by the *Exxon Valdez* Oil Spill (EVOS). In 1989, subsistence harvests declined, the diversity of uses shrank, participation in subsistence activities dropped, and transmission of skills and values to young people was disrupted. There was less use of wild foods because of concerns about oil-contamination and declines in resource populations. In later years, harvests rebounded, but this varied by household and community. In some cases people resumed subsistence uses despite misgivings about food safety, for cultural and economic reasons. Others reported increased costs for subsistence activities due to resource scarcity. In 1998, two-thirds of respondents stated that the traditional way of life of their communities had not recovered from the effects of the spill.

The restoration plan adopted by the EVOS Trustee Council lists subsistence as an injured natural resource service that has not yet recovered, with the following restoration objective:

> Subsistence will have recovered when [1] injured resources used for subsistence are healthy and productive and exist at pre-spill levels. In addition, [2] there is recognition that people must be confident that the resources are safe to eat and [3] that the cultural values provided by gathering, preparing, and sharing food need to be reintegrated into community life.

The goal of this project was to update data on subsistence uses in 15 communities in the area affected by the *Exxon Valdez* oil spill, including Prince William Sound (Chenega Bay, Cordova, Tatitlek), lower Cook Inlet (Nanwalek, Port Graham), the Kodiak Island Borough (Akhiok, Karluk, Larsen Bay, Old Harbor, Ouzinkie, Port Lions), and a portion of the Alaska Peninsula (Chignik, Chignik Lagoon, Chignik Lake, Perryville) (Fig. 1). Project partners were the Division of Subsistence of the Alaska Department of Fish and Game, the Chugach Regional Resources Commission, Bristol Bay Native Association, and Kodiak Area Native Association.

The goals of the research were to collect, analyze, and report information about current subsistence uses that is comparable with previous research (Restoration Project No. 99471) and that can be used to evaluate subsistence uses in light of the recovery objective, and to conduct the research as a collaborative effort. The goals were addressed through six objectives:

Objective One: Collaboratively Develop the Survey Instrument.
Objective Two: Hire and Train Local Research Assistants.
Objective Three: Collect Information on Subsistence Uses with Systematic Household Surveys
Objective Four: Conduct Data Entry and Analysis.

Objective Five: Collaboratively Review Findings at a Data Review Workshop.
Objective Six: Prepare a Final Report and Make Findings Available.

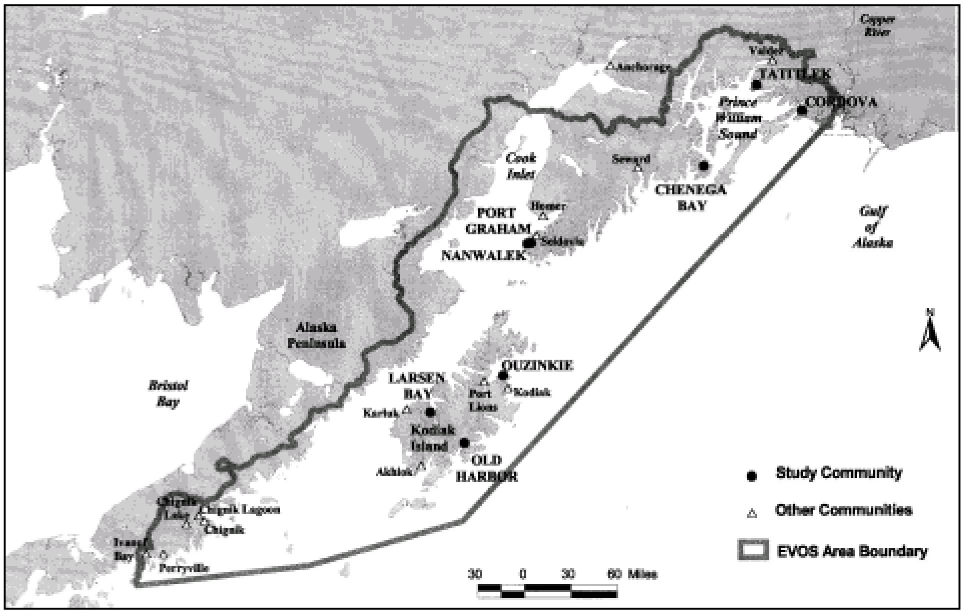


Figure 1. Location of Study Communities and EVOS Area Boundary

Study Methods

A project planning workshop attended by 30 people, including representatives of the study communities and the project partners, took place in early February 2004. Participants reviewed previous study findings along with the survey form used in the last round of research. The survey instrument was revised based on input during the workshop.

A total of 544 household interviews were conducted, mostly in February and March 2004, an achievement of 77.2% of sampling goals. Of all contacted households, 13.2% declined to be interviewed, a low refusal rate consistent with previous rounds of surveys. Through subcontracts with the project partners, local residents were hired and trained to conduct interviews. A data review workshop, attended by 23 people, occurred in October 2004 in Anchorage.

The final report includes 15 chapters with study findings for each community (see “For more information,” below). They include descriptions of harvests and uses in 2003 compared to other years, and discussions of factors shaping patterns of subsistence use, including resource conditions, food safety, the role of elders, the teaching of youth, and the status of the traditional way of life. The final chapter summarizes study findings in light of the Trustee Council’s recovery objectives. Assessing the recovery of subsistence uses requires the difficult task of separating the lingering effects of the oil spill from other factors that are concurrently occurring. These factors include environmental, economic, social, and cultural changes resulting from other processes active in the communities. Further, the EVOS was a chronic technological disaster: one that persists, is difficult to interpret, and which results in a changed natural and social environment.

Demography

The population of the 14 villages of the EVOS area dropped 12.2% from 1990 to 2003, while the state's population grew by 18.0%. Many villages have aging populations that are heavily skewed towards males. These demographic trends must be considered in any assessment of subsistence uses and the values and practices they support, and affect local residents' perceptions of the future of their communities and the status of oil spill recovery.

Findings for Recovery Objective One: Healthy and Productive Subsistence Resources

Evidence that subsistence uses are recovering that is related to the recovery objective that natural resource populations are healthy and exist at pre-spill levels includes the following:

- Subsistence harvests in 2003 were close to or exceeded available pre-spill estimates. Harvests ranged from 176 pounds per person in Cordova to 518 pounds per person in Perryville. For the 14 villages, the average was 346.3 pounds per person, compared to a pre-spill estimate of 352.0 pounds per person (Fig. 2). These are substantial harvests and approximate average subsistence harvests in rural Alaska overall.
- The diversity of species used for subsistence purposes in 2003 matched or exceeded levels documented in pre-spill studies (Fig. 3). In the 14 villages, the average household used 18.6 kinds of wild resources in 2003, compared to an average of 16.9 kinds before the spill. In Cordova, the average was 12.6 kinds in 2003, and 12.4 kinds before the spill.
- Most residents of the 15 study communities used wild foods and most participated in harvest activities.

However, evidence that subsistence uses are not fully recovered that is related to this recovery objective for subsistence includes the following:

- In 2003, the Trustee Council listed only 7 injured resources as "recovered." Eight were "recovering," 6 had not recovered, and the recovery status of 5 resources was unknown. Key subsistence resources that had not recovered include herring, harbor seals, clams, and intertidal communities.
- Harvests of key and culturally significant resources such as clams and harbor seals were lower in 2003 in most Prince William Sound, Cook Inlet, and Kodiak Island study communities compared to pre-spill levels.
- Almost half the interviewed households (46.5%) and a majority in 8 communities said that their overall subsistence uses were lower in 2003 than before the spill.
- Almost all the interviewed households (83.1%) said that their use of at least one kind of subsistence resource was lower in 2003 than before the spill, and 39.0% cited oil spill-related reasons for this decline (Fig. 4).
- Many harvesters reported investing more harvest effort in 2003 than in earlier years, due to reduced resource populations but also due to competition with other users.
- Most survey respondents (78%) reported that in their view, injured subsistence resources have not recovered to pre-spill levels.

Figure 2. Subsistence Harvests Before and After the *Exxon Valdez* Oil Spill by Subregion

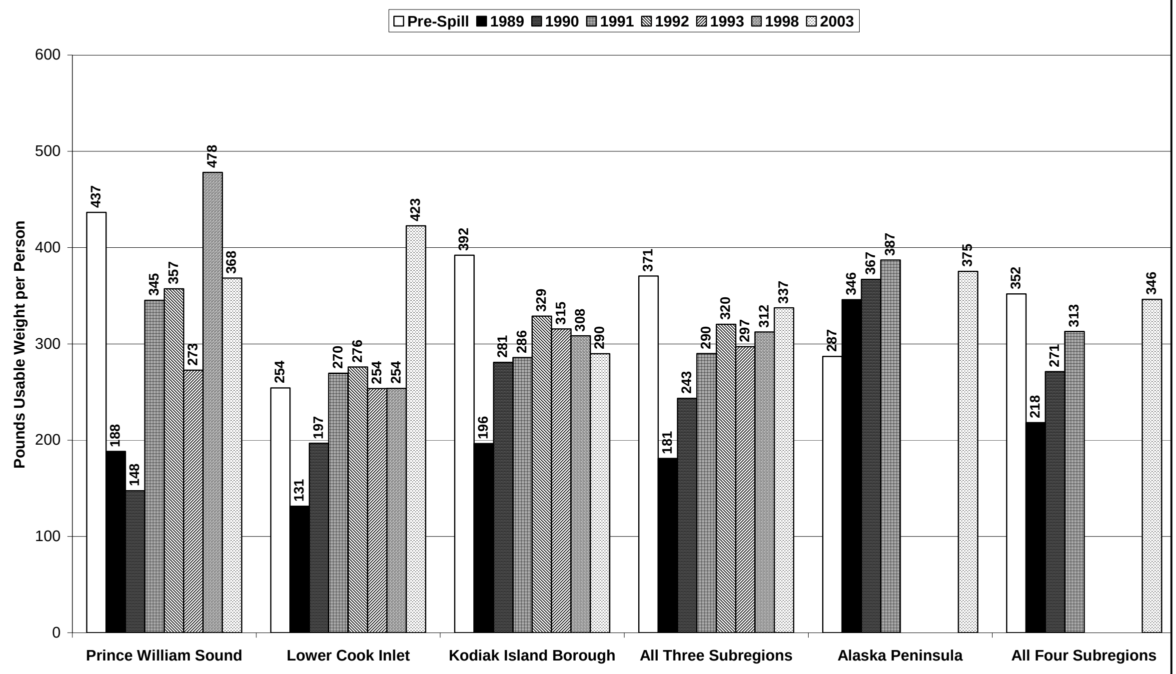


Figure 3. Average Number of Kinds of Resources Used per Household Before and After the EVOS by Subregion

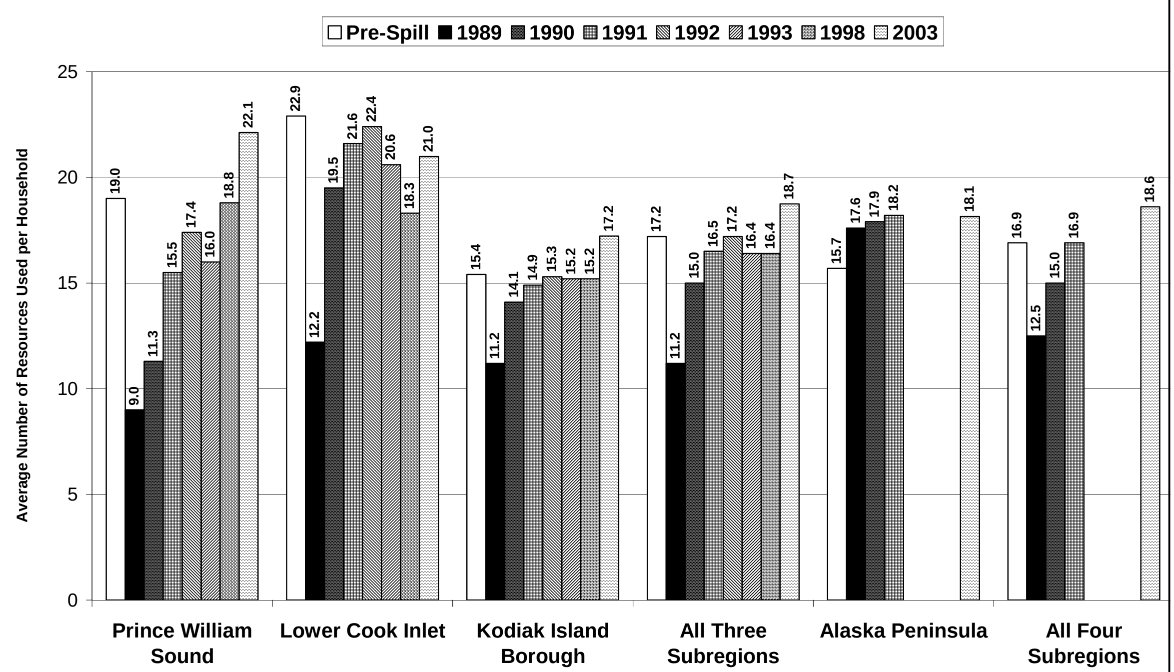


Figure 4. Reasons for Lower Subsistence Use of Any Resource Category in 2003 Compared to 1988, the Year Before the EVOS

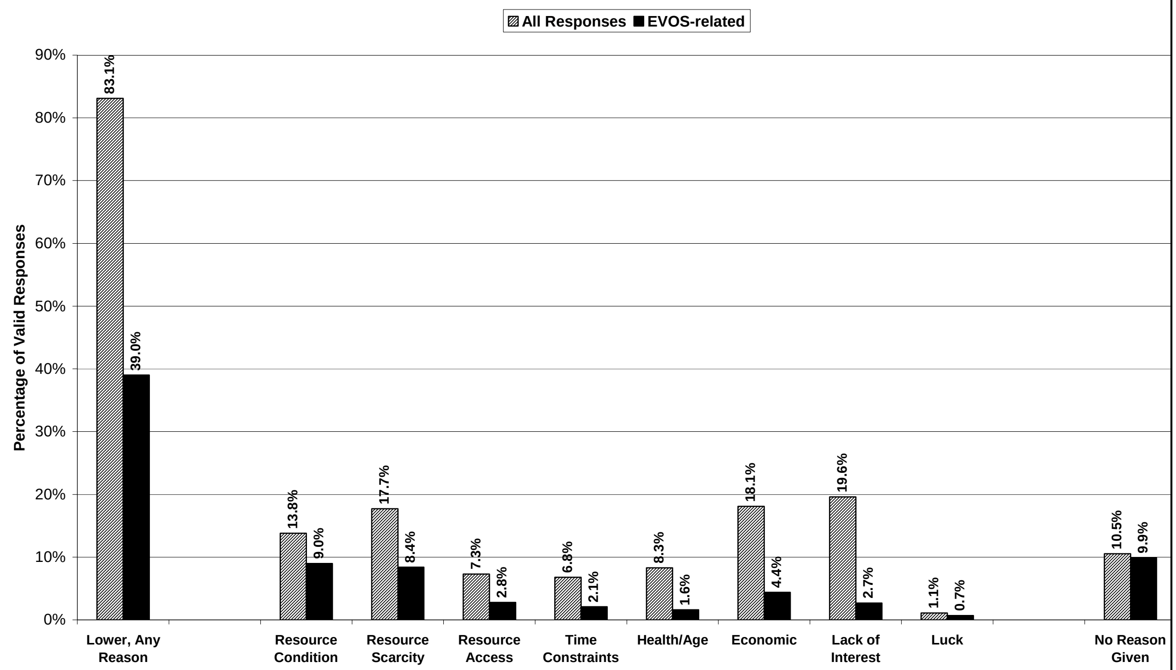
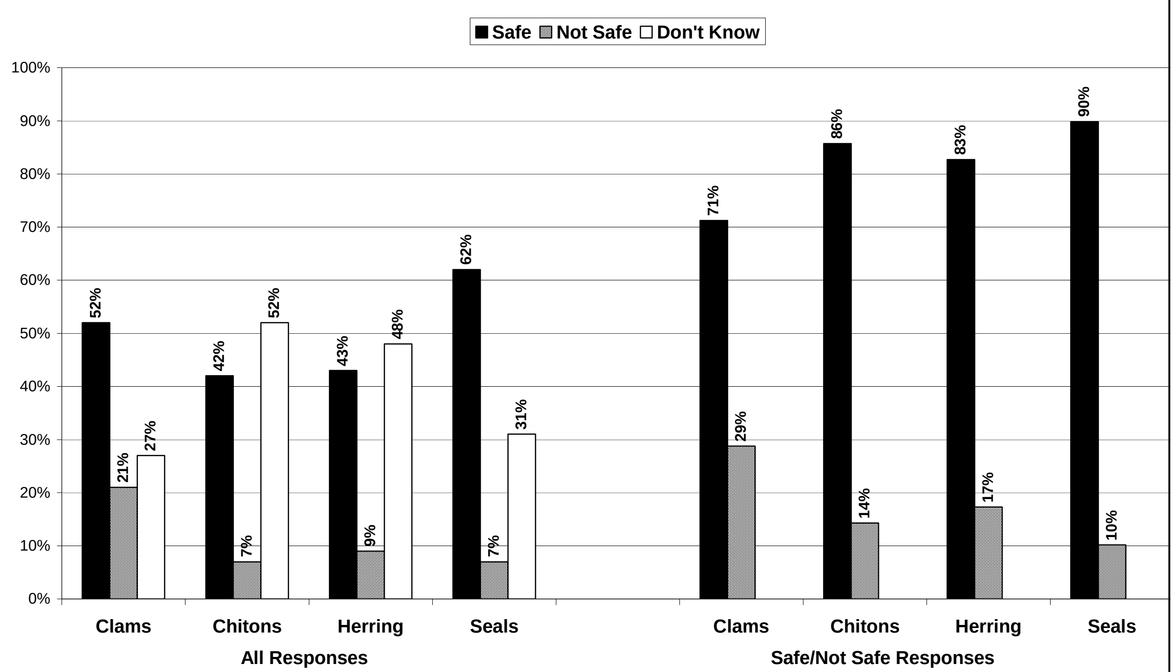


Figure 5. Assessments of Subsistence Food Safety, All Study Communities Combined, 2003



Findings for Recovery Objective Two: Subsistence Food Safety

Evidence that subsistence uses are recovering that is related to the recovery objective that people view resources as safe to eat includes the following:

- Most respondents who offered an opinion (as opposed to saying "don't know" or "not certain") said that chitons, herring, and harbor seals are safe to eat (Fig. 5).

However, evidence that subsistence uses are not fully recovered that is related to the recovery objective that people view resources as safe to eat includes the following:

- Confidence in the safety of eating clams is low in some communities (such as Karluk, Ouzinkie, Port Lions, Larsen Bay, Port Graham, and Nanwalek) and eroding in these and some other communities (Cordova, Tatitlek). Reports of residual oil and its effects undermine confidence in eating marine invertebrates from the spill area.
- While paralytic shellfish poisoning (PSP) is a primary concern for people who do not believe clams are safe to eat, many link what they perceive to be increasing PSP incidents to conditions created by the EVOS.

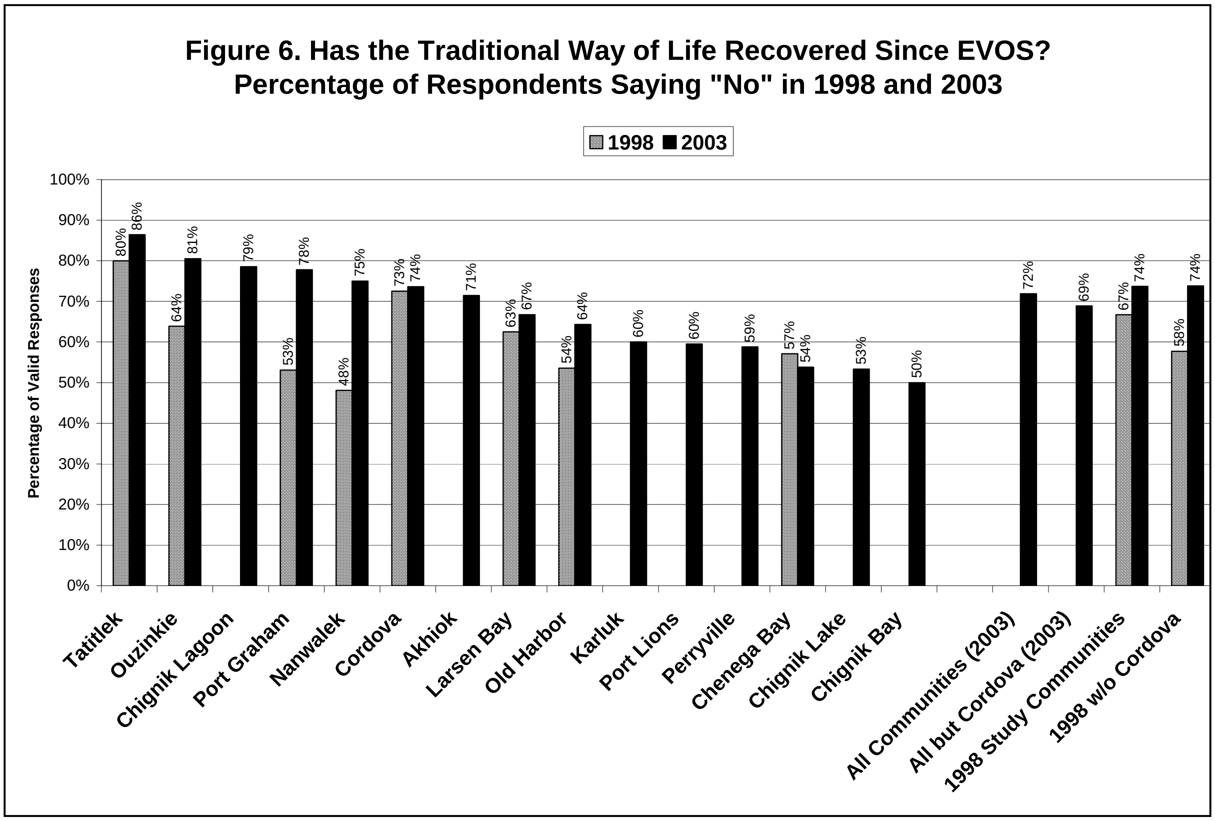
Findings for Recovery Objective Three: Reintegration of Cultural Values

Evidence that subsistence uses are recovering that is related to the recovery objective that the cultural values connected to subsistence uses be reintegrated into community life includes the following:

- Sharing of subsistence foods is frequent and involves most households. Most survey respondents report that sharing is the same or higher than in previous years.
- In some study communities (for example Ouzinkie, Larsen Bay, Chenega Bay, Old Harbor, Port Lions, Chignik Bay, and Cordova), a majority of respondents reported that young people are learning adequate subsistence skills.

However, evidence that subsistence uses are not fully recovered that is related to the recovery objective that the cultural values connected to subsistence uses be reintegrated into community life includes the following:

- Many survey respondents (47.2%) reported that youth are not learning enough about subsistence skills, primarily because of disinterest.
- Many respondents (34%) said that elders' influence is declining.
- Most survey respondents are not aware of the Gulf Ecosystems Monitoring (GEM) program (36.2%) or feel inadequately informed about it (42.2%).
- Most survey respondents (72.0%) said that the traditional way of life has not recovered from the effects of the spill. For the eight communities included in both the 1998 and 2003 studies, a higher percentage of respondents in 2003 said the traditional way of life has not recovered (74%) than in 1998 (67%) (Fig. 6).



Conclusions

In sum, the study findings for 2003 are ambiguous regarding the status and trends in subsistence uses and the values and traditions they support. These study results support continuing the Trustee Council's assessment that, as a natural resource service, subsistence uses are "recovering but not recovered" from the effects of the EVOS.

Technological disasters are different from natural disasters in that, for their human victims, technological disasters appear to have no end. For biologists, recovery from the spill can be measured in terms of natural resource population characteristics. For local residents, a "return" to pre-spill conditions is impossible, and if this is the criterion by which "recovery" for subsistence uses is gauged, there will be no complete recovery. From the local perspective, biological considerations are not the only factor in recovery. A key finding of this research is that the oil spill is not viewed by local residents as an isolated event, but is seen as part of a complex set of factors that in combination have changed the way they live. For example, respondents report more competition for resources and in part point to post-spill publicity about recreational hunting and fishing or sightseeing opportunities as a cause. Commercial fishing has declined, due to injured herring and salmon populations and declining prices, resulting in lost livelihoods, sale of boats and equipment, and a loss of access to subsistence harvest areas. During the first years after the spill, families stopped or limited their subsistence activities, disrupting transmission of skills and values to their children. Now, many survey respondents say, children are not interested in subsistence hunting or fishing, due at least in part to the curtailment of these activities due to food safety concerns or scarcities. In 1989, for the first time in their lives, people in the study communities began to question the wholesomeness of subsistence resources. Since then, they have learned from multiple sources about other sources of contamination. Before the spill, wild foods provided a sense of security and optimism, because they were viewed as safe to eat and available to harvest. The oil spill ended that general confidence. In 1998, it appeared that concerns about oil contamination were diminishing, but the uncertainty had increased by 2003 due to the unexpected volume of residual oil and reports from restoration studies that natural resource populations continue to be affected by it.

The report concludes that conditions in the natural, economic, and social environments have changed significantly for the communities of the area affected by the EVOS since 1989. Some of these changes are direct consequences of the spill, while the link for others is less certain. Despite these changes, subsistence uses of natural resources remain key to the health and well-being of these communities. Since the first years after the spill, subsistence uses and the values they support have made progress towards recovery, but this recovery is incomplete and the future direction of change is uncertain. As this and previous research has shown, residents of the EVOS area see the future of their communities as tied directly to the strength of subsistence uses and their attendant skills and values. This human dimension of the injuries caused by the technological disaster that was the *Exxon Valdez* oil spill had economic, social, cultural, and spiritual components that changed these communities forever. Nothing will erase the memory of the EVOS, nor should this be the ultimate sign of recovery. Recovery will have occurred when the people of these communities believe their communities have a strong and viable future that builds upon their past, a future that they themselves must help to shape.

For more information, see the final report for the project: Fall, J.A., editor. 2006. Update of the Status of Subsistence Uses in *Exxon Valdez* Oil Spill Area Communities: Restoration Project 040471 Final Report. Alaska Department of Fish and Game, Division of Subsistence, Anchorage, Alaska. You may contact the Division of Subsistence at 333 Raspberry Road, Anchorage, Alaska, 99518; (voice) 907-267-2353; (fax) 907-267-2450. Selected study findings appear in the Community Profile Database, which is accessed through the division's web page at http://www.subsistence.adfg.state.ak.us.