Exxon Valdez Oil Spill
Restoration Project Annual Report

Community-Based Harbor Seal Management and Biological Sampling

Restoration Project 99245
Annual Report

This annual report has been prepared for peer review as part of the *Exxon Valdez* Oil Spill Trustee Council restoration program for the purpose of assessing project progress. Peer review comments have not been addressed in this annual report.

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Study History: This project continues the work of the five-year Restoration Project \245, which was initiated as "Harbor Seal and Sea Otter Cooperative Subsistence Harvest Assistance" under Restoration Project 94244 in the Fiscal Year 1994 Work Plan, and continued as Restoration Project 95244 in the FY 1995 Work Plan. An annual report summarized activities for these first two study years. A separate report was prepared by the Alaska Sea Otter Commission as part of a contract supported by this project, entitled "Status and Trends of Harbor Seal and Sea Otter Populations in Prince William Sound and Lower Cook Inlet" (1995). The project continued in FY 1996 as Restoration Project 96244 with a new title, "Community-Based Harbor Seal Management and Biological Sampling." The focus was narrowed to harbor seal restoration. A harbor seal biosampling program was initiated and continued in FY 1997 and 1998. An annual report for FY 1996 and a final report for FY 1997 and 1998 summarize the activities for this second phase of the initial project. This report summarizes the first year of a four-year continuation with similar objectives.

Abstract: The project's goal was to support collaboration between subsistence hunters of harbor seals, scientists, and resource management agencies to assess the factors that are affecting the recovery of the harbor seal population in the oil spill area and to identify ways to reduce these impacts. The Alaska Native Harbor Seal Commission was a full partner in the project. A community-based biosampling effort was continued. Workshops in which hunters and Youth Area Watch program participants were trained in biosampling techniques took place. By September 1999, samples from 182 subsistence-taken seals were distributed to participating laboratories for genetics, population, and dietary studies, and additional samples were archived for future analyses. A data management system allowing access by the Web through the University of Alaska Fairbanks Museum was being developed as of September 1999. Several workshops took place in which subsistence users, scientists, and resource managers discussed study goals and findings, and developed recommendations for future collaborations.

Key Words: Biosampling, co-management, Cook Inlet, *Exxon Valdez* oil spill, harbor seals, Kodiak Island, *Phoca vitulina*, Prince William Sound, subsistence uses.

Project Data: Results of interviews collected during initial Project \244 regarding traditional knowledge of harbor seals and other ethnographic information are contained in the Whiskers! database in the AskSam format, available through the Division of Subsistence of the Alaska Department of Fish and Game in Anchorage. Data aggregated at the harvest area level are available through the Division of Subsistence. The biosampling database is maintained using Microsoft Excel software at the Division of Subsistence, Kodiak in cooperation with the Alaska Native Harbor Seal Commission. As of September 1999, the University of Alaska Fairbanks was enhancing its database to serve the needs of the expanding biosampling program and allow access through the Internet.

Citation:

Vanek, V., and M. Riedel. 2000. Community-based harbor seal management and biological sampling, *Exxon Valdez* Oil Spill Restoration Project Annual Report (Restoration Project 99245), Alaska Department of Fish and Game, Division of Subsistence, Anchorage, Alaska.

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EXECUTIVE SUMMARY

Populations of harbor seals were injured as a result of the *Exxon Valdez* oil spill and, for unknown reasons, were in decline before the spill. The population has not recovered. Harbor seals are taken for subsistence uses by Alaska Native hunters in communities of the oil spill region. Under the terms of the federal Marine Mammal Protection Act, subsistence uses of harbor seals may be restricted only if the population is declared depleted. Although injured by the spill, the population has not been so classified. Consequently, any conservation actions on the part of Alaska Native hunters can only be undertaken voluntarily. The overall goals of this project were to work cooperatively with subsistence hunters to involve them in marine mammal management, and to develop on ongoing exchange of information (including traditional ecological knowledge) and consensus building between hunters, scientists, and agencies regarding appropriate actions to take to assist in the recovery of harbor seals. The Division of Subsistence of the Alaska Department of Fish and Game is the lead agency for this project. The Alaska Native Harbor Seal Commission (ANHSC) is a full partner in the project.

The project continues the work of Restoration Project \244 with similar objectives. In federal Fiscal Year 1999, the project had six objectives. These were: 1) Continue and expand a community-based program to collect biological samples and other information from harbor seals in Prince William Sound, lower Cook Inlet, and the Kodiak Island area; 2) Collect biological samples and other information from harbor seals harvested by subsistence hunters in nine communities: Tatitlek, Chenega Bay, Cordova, Valdez, Seldovia, Port Graham, Nanwalek, Old Harbor, and Akhiok; 3) Utilizing the services of the Alaska Native Harbor Seal Commission, communicate information about results of harbor seal studies to hunters and scientists on a regular basis; 4) Collaboratively produce recommendations for subsistence users of harbor seals; 5) Evaluate the program's effectiveness and develop a more long-term funding plan for ANHSC activities and the biological sampling program; and 6) Involve Youth Area Watch participants in the biosampling training.

Regarding Objectives 1 and 2, the biological sampling program, three training workshops took place in FY 99 training additional seal hunters and subsistence users as biosampling technicians. Participants in the Youth Area Watch program were also trained as biosamplers (Objective 6).

From October 1998 through September 1999, samples from 61 subsistence-taken harbor seals were preserved and distributed for analyses. This brings the total number of animals biosampled through this program for the oil spill area to 182. Most were provided by hunters from Prince William Sound. The quality of the samples was very high. Stomachs are being analyzed for prey identification, teeth for aging and growth history, whiskers for stable isotope analysis, brain and other tissue for stable isotope analysis, blubber for quality and fatty acid analyses, skin for genetic analysis, reproductive tracts for reproductive analysis, and skulls for morphometric examination. Additionally, heart, liver, kidney, blubber, and muscle tissues were archived for future analyses. A database using Microsoft Excel software of data collected by biosamplers is maintained. A data management system at the University of Alaska Fairbanks Museum with Internet access was being developed. The biosampling program proved viable because it involved a partnership between hunters and scientists who have the common goal to answer questions regarding the health of harbor seal population. The involvement of the ANHSC and the Youth Area Watch program were critical to this success. A focus of the

trainings and demonstrations was to encourage and re-enforce a concept of stewardship in the communities, especially among the youth, so that biosampling and other research efforts become long range goals.

Regarding Objectives 3, 4, and 5 (communications and development of recommendations), the ANHSC organized one workshop in FY 99, attended by community representatives, scientists, and resource management agency staff. These provided excellent forums for the exchange of information, including traditional knowledge. Additionally, community meetings took place which featured the goals of the biosampling program and the objectives of the ANHSC. Biosampling demonstrations and school presentations were also given. Presentations were made to other organizations and to the Alaska Congressional Delegation in Washington, D.C.

The ANHSC has made substantial progress in securing other funding sources. A number of possibilities for continued funding of the biosampling program have been identified, and partly secured.

The report concludes that the biosampling program has continued successfully and continues to expand. Enhanced communications between subsistence users and scientists, and the building of a commitment among subsistence users and scientists to work together towards the common goals of harbor seal restoration and conservation continues. The ANHSC signed a co-management agreement with NMFS becoming a partner in the management of harbor seals.

INTRODUCTION

This is the first year of a four-year project which continues the work of Project \244. The goal continues to be to support collaboration between subsistence hunters of harbor seals, scientists, and resource management agencies in assessing the factors which have affected the recovery of the harbor seal population of the oil spill area and to identify ways to reduce these impacts. The primary features are the continuation of the biosampling program and the communication of information and informational exchange.

The harbor seal populations of Prince William Sound and the northern Gulf of Alaska were in decline before the oil spill for unknown reasons. The oil spill compounded the decline. An estimated 300 seals died as a direct result of the spill (Exxon Valdez Oil Spill Trustee Council 1994a). Harbor seals continue to be considered as "not recovered" (EVOS TC 1999). Among the potential contributing factors of the pre-spill decline and current lack of recovery are reductions in number and quality of prey species, commercial harvests (ended in 1972), predator control and bounty programs (ended in 1972), incidental mortality in commercial fisheries, killer whale predation, as well as EVOS mortality. Alaska Native hunting of harbor seals is not viewed as a cause of this decline or the lack of recovery (Kelley et al. 1995)(Worthy and Abend 1997).

Harbor seals are a primary subsistence resource in the Alaska Native communities of the oil spill region (Wolfe and Mishler 1993 – 1998). Subsistence harvests of harbor seals have declined in many of the communities since the spill because of the reduced population size and voluntary efforts on the part of hunters to limit their harvests to aid in recovery. As of 1997, subsistence harvests remained well below pre-spill levels, especially among Prince William Sound communities (Fall et al. 1999). Under the terms of the federal Marine Mammal Protection Act, only Alaska Natives may hunt marine mammals, including harbor seals, for subsistence purposes and to create handicrafts. This must be done in a non-wasteful manner. The Act further specifies that authorized Native taking of marine mammals may not be restricted unless a marine mammal population has become depleted. Although injured by the oil spill, the harbor seal population of the Gulf of Alaska has not been declared depleted. Conservation efforts on the part of Alaska Native hunters are voluntary.

To assess and develop measures that would further facilitate harbor seal restoration, the Trustee Council provided funding in FY 94 and 95 (under the first phase of Project \244) to compile existing data, collect additional information, and to organize workshops and community meetings of scientists and subsistence users. The project design recognized that conservation measures would best be developed through a cooperative process involving hunters, biologists, and management agency personnel. Further, such a process would have to be based upon a shared understanding of the available data and conservation goals. Workshop participants strongly agreed recovery efforts would be enhanced by continuing dialogue between scientists and subsistence users, involving subsistence hunters in research efforts, involving traditional knowledge in scientific studies, and collaborating in the development of recommendations for subsistence hunters about how they can assist in harbor seal recovery. Thus, the overall goal of the

project became to work cooperatively with subsistence hunters to involve them in marine mammal management and to develop an ongoing exchange of information and consensus building.

Workshop participants concluded that the lack of a formal organization, which represents subsistence users of harbor seals, is a major impediment to maintaining communication between scientists and hunters and to the inclusion of subsistence hunters as full partners in harbor seal research and restoration. Also, it was unlikely a consensus on recommendations could be developed. To fill this gap, harbor seal hunters and users themselves formed the Alaska Native Harbor Seal Commission (ANHSC) in 1995. The ANHSC took on the task of participating in harbor seal conservation, recovery, and co-management on behalf of Alaska Native subsistence users of harbor seals. The ANHSC became a full partner in Project \244 in FY 96. In April 1999, the ANHSC signed a co-management agreement with National Marine Fisheries Service (NMFS).

A second consensus point reached at the workshops was that subsistence hunters are in an excellent position to assist in scientific studies through providing biological samples from subsistence-taken animals. Assessing parameters that affect marine mammal abundance and health requires access to and examination of animals or tissues. Marine mammals are inherently difficult to study and the collection and examination of tissues is further complicated by legal limitations imposed by federal protective measures and permitting procedures. Sacrificing animals for research purposes is either undesirable or illegal, and beachcast carcasses are often too decomposed to be of value. A potentially invaluable source of fresh specimens exists in Alaska, where coastal Alaska Natives still legally use marine mammals for subsistence or handicraft purposes. In the second phase of \244, the community-based biosampling program was successfully developed. In FY 96, the goal was to develop and test the practicality and effectiveness of a community-based harbor seal biological sampling program. It was designed and administered cooperatively between the Alaska Department of Fish and Game, the Alaska Native Harbor Seal Commission, and the University of Alaska. In FY 97, the program was expanded to collect samples from the Kodiak Island area and add Valdez to the sample communities in Prince William Sound. This program very successfully continued in FY 98 and is a prime objective of this project. As of September 1999, samples from a total of 182 harbor seals have been collected and distributed to researchers and the University of Alaska Museum for analysis and archiving.

OBJECTIVES

Project objectives in FY 99 for this project included:

1. Continue a community-based program to collect biological samples and other information from harbor seals in Prince William Sound and the northern Gulf of Alaska involving hunters from Cordova, Tatitlek, Chenega Bay, Valdez, Seldovia, Port Graham, Nanwalek, Akhiok, and Old Harbor. (See Figure 1 for map of community locations.)

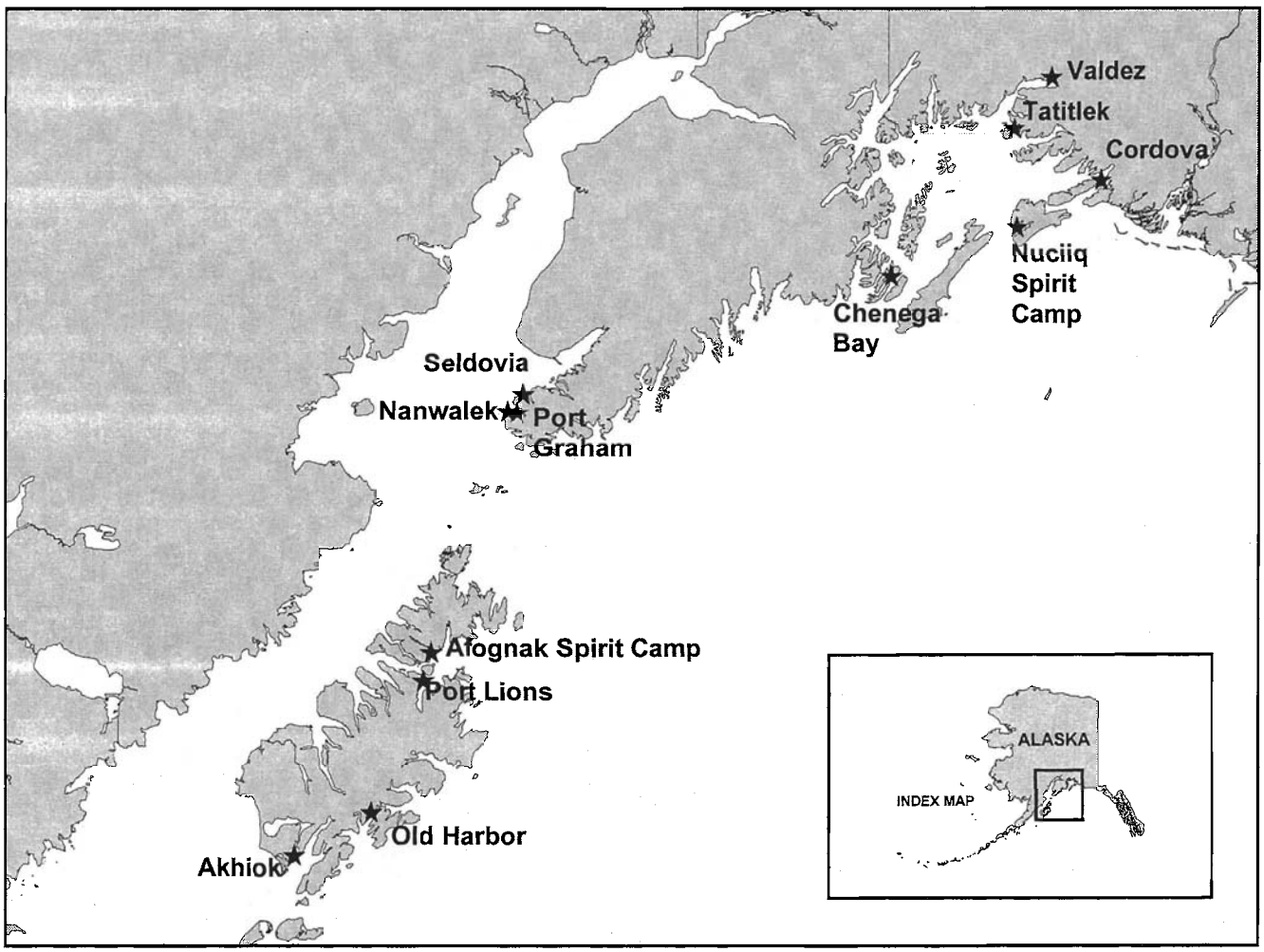

Figure 1. Map of communities from which harbor seal samples have been collected in FY 96-99

a. Train local technicians and hunters in biological sample collection procedures
b. Maximize sampling for efficiency and coordination with other harbor seal projects
c. Evaluate the program's effectiveness and develop a more long-term funding plan

2. Collect biological samples and other information from harbor seals harvested by subsistence hunters in 9 communities: Tatitlek, Chenega Bay, Valdez, Cordova, Seldovia, Port Graham, Nanwalek, Akhiok, and Old Harbor. Provide these samples to researchers for analysis.

a. Collect information about the number, sex, approximate age and place and date of harvest for harbor seals taken in each village
b. Collect biological samples to be analyzed in cooperation with other harbor seal projects, including blubber, whiskers, skin, female reproductive tracts, and stomachs (see Figure 2 and Table 3)
c. Store samples in a community freezer and periodically ship samples to Anchorage or Kodiak for further processing and distribution for analysis
d. Develop and maintain a procedure for tracking disposition of samples and results of analyses

3. In collaboration with the Alaska Native Harbor Seal Commission, communicate information about results of harbor seal studies to hunters and scientists on a regular basis through community meetings, a workshop, a newsletter, and the development of a database.

a. Conduct a two-day workshop, in conjunction with a meeting of the ANHSC, which includes hunters from oil spill communities, harbor seal biologists, and agency representatives, to review recent findings about harbor seals and discuss important issues
b. Conduct meetings in selected communities participating in the biological sampling program for hunters and project personnel to review and exchange scientific information and traditional knowledge
c. Produce an informational newsletter describing results of harbor seals studies, ongoing harbor seal research, and community involvement
d. Maintain a database of biosamples and results

4. Collaboratively produce recommendations for subsistence users of harbor seals which derive from study findings and the discussions at community meetings and workshops

a. These recommendations will be based on traditional knowledge, contemporary observations, and scientific findings
b. Recommendations will be developed at workshops and community meetings

5. Evaluate the program's effectiveness and explore options for a long-term funding plan for the biological sampling program.

6. Coordinate with the Youth Area Watch Program (Project \210) to involve participants in that program in biological sampling and workshops and to support a yearlong curriculum based on information gathered through the biosampling program.

METHODS

Objectives 1 and 2: Biological Sampling Program

The following procedures were followed:

1. Training

As part of Project 96244 (and revised as part of 97244 and 98244), a marine mammal biologist, Kate Wynne of the University of Alaska, and Vicki Vanek, a veterinarian with the Division of Subsistence (ADF&G) compiled protocols, synthesized these into useable formats, developed data forms, labels, sampling kits, and incorporated instructions for their use into a training program. In FY 99, as project 99245, Vanek assumed full responsibility to apply these materials and revise them as appropriate.

Instruction: Sampling requires instruction or training of community-based sampling technicians, who ideally are also subsistence seal hunters. New village-based technicians, biosamplers wanting a "refresher" course, and Youth Area Watch participants attended a full-day or two-day regional sampling training session in Seldovia, Cordova, or Valdez. Vanek (assisted at time by M. Riedel of the ANHSC and/or a highly experienced hunter biosampler) provided a detailed explanation of project goals, and the significance and use of data to be collected; explained and demonstrated sampling techniques and use of equipment; presented and explained research results to date; and distributed sampling kits, and written and graphic instructional materials to take to villages. The trainings include a classroom session with simulated lab exercises to practice measuring skills, sample collection, labeling, and filling out the data form and a field session with an actual animal when possible.

2. Training Materials

Manual: Vanek and Wynne produced this in FY 96 (Project 96244) and it has had small revisions where appropriate. (See Appendix A in Fall et al. 1997.) It includes step-by-step diagrams and visual guides. One was given to each training participant and is included in each sampling kit.

Examples: At the training sessions participants worked on an actual animal, taking tissue samples and examining the seal for abnormalities. Tissue samples were labeled and packaged and data forms filled out according to protocol by each person.

Video: A training video, incorporating footage shot during the first two training sessions was produced by ADF&G in FY 96. The video includes: project rationale and objectives; footage of current research and population declines; significance and use of data to be collected; demonstrations of how to fill in data forms and labels; demonstrations how to use sampling kit and supplies; demonstrations of where and how to remove tissues from animals; and demonstrations of how to sub-sample, bag, and label tissues. It was distributed to each new biosampler and school group to have as a reference to the training.

Resource notebook: In Sept 99, preliminary plans for compiling educational material and information on various subjects pertaining to harbor seals and biosampling was begun. This will be put into notebook form and distributed to all biosamplers, interested community members, and Youth Area watch students.

3. Sample Collection

Biosampling technicians: There is at least one village-based technician in each participating community, whose responsibilities are to take samples from seals harvested by themselves or participating hunters, record data as requested, assure access to freezer and sampling supplies, notify Vanek or Riedel when supplies are low or samples need to be shipped, and load and ship coolers with samples to Anchorage, Cordova, or Kodiak.

Key hunters: Ideally, at least two hunters per village provide subsistence taken seals from which the technicians take samples, and record data as requested. As the program has developed, in most cases the key hunters are the biosampling technicians.

Sample size and distribution: It is difficult to predict the number of samples that may be collected in this program annually or by community. An average of 10 animals per community for a total of 90 was estimated while designing the sampling strategy and project costs.

Tissues to be collected: Technicians in each village collected a minimal set of samples with relative ease and these were subsequently sub-sampled in Anchorage or Kodiak to provide the suite of tissue samples required. We have trained biosamplers to record information about harvest location, animals' sex, evidence of tags or markers, evidence of gross abnormalities, and standard measures of length and girth and blubber thickness. Technicians are trained to collect the whole head; stomach (after tying off both ends); samples of blubber, muscle, skin, liver, heart, and kidney; and female reproductive tract. Although collecting the reproductive tracts is highly desirable, it is realistic to assume they will be collected opportunistically by those biosamplers who have both gained the experience necessary for some individuals to identify sub-adult female tracts and are willing to dedicate the extra time required.

Sampling procedure:

Step 1. In the community: Technicians have a kit that includes supplies adequate for sampling of 5 animals. Among the items in each kit are 1) ziploc sampling bags for collection of the head, stomach, and tissues, 2) large garbage bags in which to place the sample bags collected from each animal, and 3) data forms and specimen labels. The village biosampling technician works on a seal harvested by themselves or another hunter. This may be in the field if the technician is the hunter or in the community if the animal was brought back for non-hunting technicians and Youth Area Watch students. The animal is examined, weighed, measured, information is recorded, and the samples are taken before and during the butchering process. The data form is filled out at the time the animal is worked on. The head, stomach, and each tissue type sample are individually bagged in their own ziploc bag. Each is identified on the outside with a marker and has a specimen label enclosed with the same information that uniquely identifies the animal in the field (this system uses the technician's name, village, harvest date and sequential number of animal sampled and is also recorded on the data form). All the individual sample bags from one animal and its data form are placed in one large bag. This animal specimen bag with its enclosed data form is placed in a freezer in the village without sub-sampling. The technician contacts Vicki Vanek or the ANHSC when a full shipment has accumulated, and then sends the samples to Kodiak or Anchorage or Cordova according to instructions. From Cordova, ANHSC staff forwards unopened to Anchorage.

Step 2. Processing of seals: Vicki Vanek receives samples in Anchorage and stores them at ADF&G or receives them in Kodiak and stores them at the Fisheries Technology Center. Periodic sub-sampling efforts occur as depicted in Figure 2. At this time, each animal is assigned a unique number from the University of Alaska Museum Archive numbering system, in order that researchers may instantly identify other tissue samples from this animal with other researchers and those archived at the museum. Each tissue sample is identified with this assigned number on the outside of the sample bag, on the specimen label inside, and on the data form. Subsamples from each seal are repackaged into individual bags and labeled. They are kept frozen and shipped to the appropriate laboratories.

4. Data Collection

Data are recorded on write-in-the-rain forms designed to allow for standardization of data with other harvest-sampling programs (Appendix A). Each animal receives a unique number that is from the UAF Museum Archive numbering system. The number is assigned and recorded on the original data form before any subsampling occurs so all parts are linked to the appropriate animal and can be easily tracked. Paper copies of the form are supplied to each researcher receiving a tissue sample. An objective has been the development of an electronic version of this form to be supplied

to researchers, as recommended during the EVOS scientific review committee's review of this project.

5. Sample Analysis

Figure 2 provides a summary of the research programs involved in the tissue analysis or archival. It is expected that participating scientists will acknowledge in any reports and publications the role of the ANHSC in facilitating the biological sampling program.

6. Data Management and Reporting

Biological data collected from this program are managed and maintained in a database using Microsoft Excel software (designed and instituted in FY 96 by Vanek and Wynne) that is easily translated or integrated with software used by other agencies and organizations. This database is centrally maintained by ADF&G in cooperation with the ANHSC and a summary of the samples collected and analyzed is included in this annual report to the Trustee Council, with copies to pertinent agencies, such as NMFS. Additionally, summaries, updates, and results of the sample collection and research was presented at trainings, the ANHSC workshop, community meetings, and in personal communication to hunters and biosamplers and will be collated into a readily understandable newsletter.

Steps are being taken to enhance this database, as recommended by the EVOS scientific review committee, and these initiatives continue in Project 99245. These include:

a. Development of an electronic data form (see above under Data collection). This will facilitate communication of information and incorporation of sample data into researchers' databases.
b. Enhance UAF Museum database for use as a backup, to include information on the biosampled seals, such as the names of researchers who received samples and identification of the sample with this program.
c. Development of an electronic form that summarizes who received which samples, contact information, research done, and publications from a particular animal.
d. Development of a biannual biosample research analysis status report. This will be an electronic form to be submitted every six months by each researcher who receives biosamples from this project to update on their progress and results.
e. Assisting the Youth Area Watch Program in developing a curriculum that incorporates biosample collection and study results. This will initially include developing a limited set of classroom lessons that illustrate the application of length, weight, sex, location, timing, and stomach content data.

Objectives 3, 4, and 5: Communications, Recommendations, and Evaluation

Communication of study findings, development of recommendations, project evaluation, and development of a long-term funding plan, were part of a collaborative effort met in part through a contract with the ANHSC.

1. The ANHSC organized one workshop held in conjunction with meetings of the ANHSC in 1999. Because the ANHSC is limited to one representative from each region which uses harbor seals (southeast Alaska, the Chugach Region, Cook Inlet, Kodiak, Bristol Bay, and Aleutian/Pribilofs), participation in the workshop will be expanded to include hunters from spill area communities. This workshop involved review of information by scientists and subsistence hunters. A goal of the workshop is discussion of potential recommendations for subsistence hunters concerning how they can support efforts to restore harbor seal populations. The workshop is a critical component of the collaborative approach upon which the biosampling program is based.
2. Community meetings were held in selected communities involved in the biological sampling project, during which subsistence hunters and project personnel review data and updates.
3. A poster and paper were presented at the 1999 EVOS Trustee Council symposium.

Objective 6: Involvement of Youth Area Watch

Youth Area Watch participants in Prince William Sound and the lower Cook Inlet (Project \210) attended biosampling training sessions and were trained as technicians. Technical support was given to teachers wanting to use harbor seal information in their classrooms. In addition, presentations were given to classes in Cordova, Seldovia, and Valdez to students not in the Youth Area Watch program. In August and September 1999, Vanek helped Kodiak Island Borough School District staff in the startup of a Youth Area Watch type program (Project \052A).

RESULTS

Biosampling Trainings

Three full-scale trainings took place lasting one to two days each. Youth Area Watch participants, other students, hunters, and subsistence users were newly trained as biosampling technicians. A few previously trained biosamplers also attended for a refresher class. Updates on research and sample status were presented and traditional

knowledge was also incorporated. Trainings were scheduled to coincide with a subsistence hunt and in each case the hunts were successful and participants worked on a freshly harvested harbor seal.

November 16 – 17 1998, 5 hunters and subsistence users from Nanwalek, Port Graham, and Homer were certified during a training session conducted by Dr. Vanek and Ms. Riedel in Seldovia. The session was coordinated with Youth Area Watch (YAW) and 14 students participated.

On December 2 1998, Dr. Vanek and Ms. Riedel conducted a training session in Cordova. Five hunters and 3 Youth Area Watch participants were trained. The high school biology class also attended and observed the classroom and necropsy sessions. The following day, YAW students and the Eyak Institute class learned to make seal oil from the blubber with Native Village of Eyak elders.

On January 12 1999, Dr. Vanek, assisted by hunter and biosampler John Boone and Ms. Riedel conducted a training session at the U.S. Fish & Wildlife Service's lab in Anchorage. Eight YAW students, one ANHSC board member, and staff from the U.S. Fish & Wildlife Service attended. Jody Seitz recorded portions for the Alaska Coastal Currents series which has been broadcast through Alaska Nation Radio Network numerous times by all the public radio stations in the oil spill area and others throughout the state.

Recruitment for new biosamplers in the Kodiak area took place in Old Harbor. A full training could not be scheduled until the fall of 1999.

Sample Collection, Distribution, and Analysis

In FY 99 (Oct 98 – Sept 99), samples from a total of 61 harbor seals had been collected for researchers. The total number of seals biosampled in the four years of the program (FY 96 – 99) is 182. Table 1 shows the number and sex of harbor seals biosampled in each fiscal year of the biosampling program. Table 2 shows the number of tissue types distributed in each fiscal year. The total number of a specific tissue sample or part collected may not equal the total number of animals biosampled. In certain circumstances, one or more specific tissue types may not be collected or received from the animal. Table 3 reports how the samples have been distributed and the total number of sample types from all four years of the Biosampling program, as of September 1999. Table 4 shows the community origin of samples from the start of the program, as of September 1999. Table 5 shows the geographic location of the subsistence harvest of the seals that were biosampled in FY 99.

Table 1. Summary of the number of harbor seals biosampled by fiscal year

		NUMBER of HARBOR SEALS BIOSAMPLED			
		Total	Male	Female	Unknown Sex
FY96	Oct 95 - Sept 96	27	18	8	1
FY97	Oct 96 - Sept 97	54	23	24	7
FY98	Oct 97 - Sept 98	40	18	21	1
FY99	Oct 98 - Sept 99	61	37	22	2

Table 2. Summary of the number of each tissue type collected.

	NUMBER COLLECTED IN			
TISSUE TYPE	FY96	FY97	FY98	FY99
Head	27	53	20	60
Whiskers	27	53	40	57
Stomach	26	54	35	59
Blubber	26	45	34	50
Skin / Muscle	27	54	40	60
Heart / Liver / Kidney	27	46	36	52
Female Reproductive Tract	1	17	8	17

Table 3. Distribution of Subsistence Harbor Seal Samples Collected under EVOS Restoration Projects 244 and 245 (as of 9/30/99)

Tissue	# Samples	Contact	Disposition, status, and analysis
Stomachs	174	L. Jemison, ADF&G	Sent to UBC for prey identification
Teeth	160	R. Small, ADF&G	Extracted at UAF Museum; age & growth history to be determined by NMFS
Whiskers	177	D. Schell, UAF	Used in stable isotopes analyses (EVOS Proj. /170)
Brain and collagen[1]	157	A. Hirons, UAF	Used in stable isotopes analyses (EVOS Proj. /170)
Blubber	155	M. Castellini, UAF	Blubber composition studies completed and continuing (EVOS Proj. /117)
		K. Frost, ADF&G	Sent to Dalhousie University for fatty acid analysis (EVOS Proj. /064)
Skin/muscle	181	R. Westlake, NMFS	Sent to NMFS La Jolla for genetic analysis
Reproductive tracts	43	K. Pitcher, ADF&G & H. Harmon, UAF	Stored for future reproductive analysis
Skulls	160	G. Jarrell, UAF	UAF Museum staff is cleaning skulls for archive and morphometric examination
Archived tissue heart liver kidney blubber skeletal muscle	161	A. Runck, UAF	Tissues subsampled and archived in -70C freezer at UAF Museum; available for future analyses.

[1] Collagen from ligaments or tendons; also using muscle, blubber, skin, heart, liver, and kidney

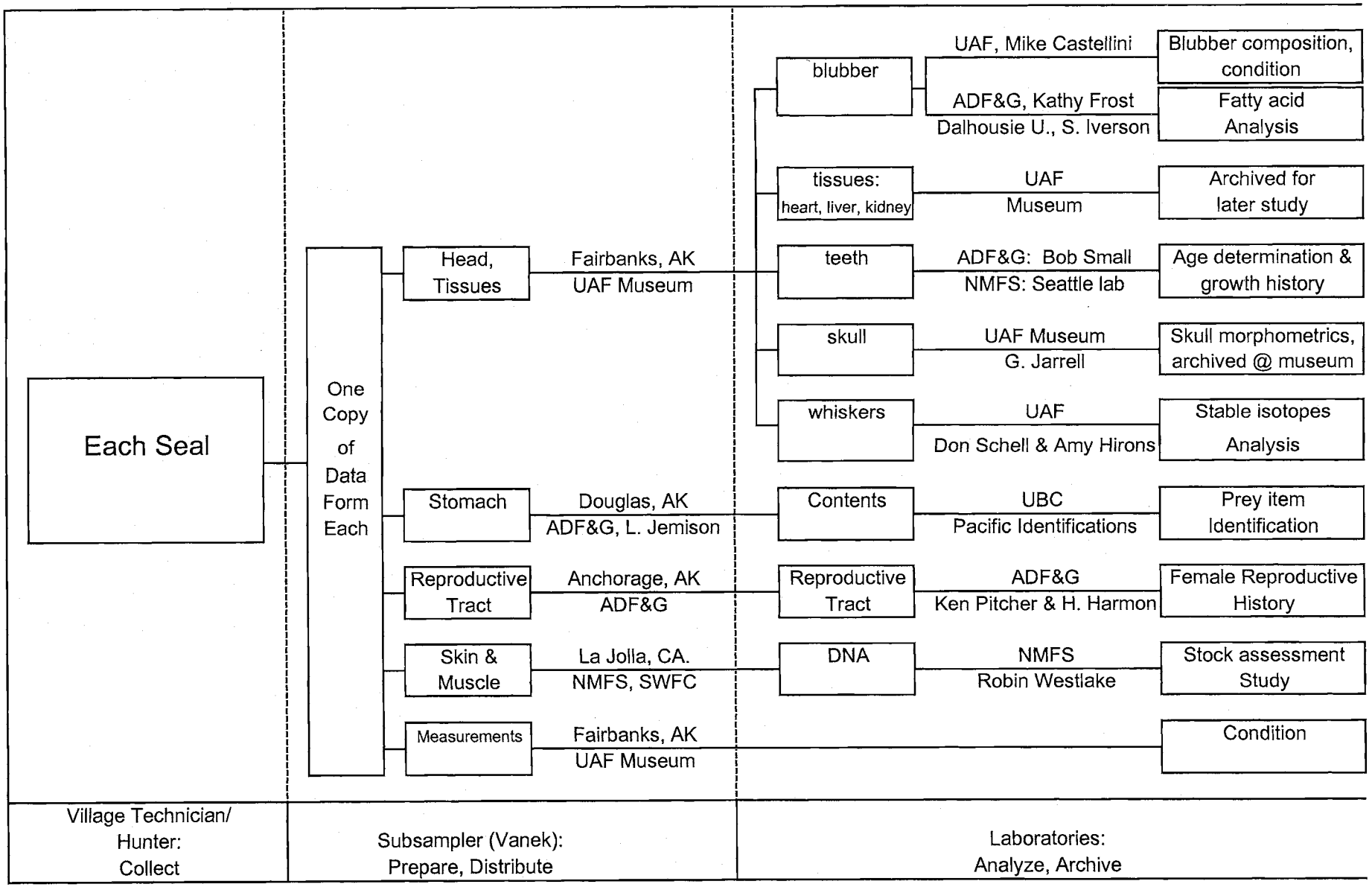

Figure 2. EVOS Project 245: Sample Distribution and Chain of Responsibility (As of 9/99)

Table 4. Number of Harbor Seal Biosamples Collected, as of 9/30/99

Community	Number of Seals Biosampled	
	Full Set of Samples	Partial Set of Samples
Chenega Bay	4	3
Nuciiq	2	0
Cordova	30	4
Tatitlek	64	37
Valdez	15	0
Nanwalek	6	1
Port Graham	0	0
Seldovia	2	3
Afognak Island	1	1
Akhiok	5	0
Old Harbor	1	1
Port Lions	1	1
GRAND TOTAL	131	51

FULL SET = Head, whiskers, stomach, muscle, skin, blubber, liver, heart, kidney, female reproductive tract
PARTIAL SET = A portion of the above list.

Table 5. Subsistence Harvest Location of Harbor Seals Biosampled in FY 99

Community	Subsistence Harvest Location	Number
CORDOVA	Orca Inlet	2
	Shipyard Bay - Hawkins Island	2
	Sheep Point	1
	Simpson Bay	6
	North Island	1
TATITLEK	Port Fidalgo	1
	Goose Island	1
	Gravina Island	6
	Sheep Bay	1
	Simpson Bay	2
	Fairmont Island	3
	Unakwik Inlet	4
	Glacier Island	2
	Seal Island	2
	Green Island	4
	Icy Bay	1
	Crafton Island	4
VALDEZ	Port Valdez	2
	Shoup's Bay	4
	Jack's Bay	2
	Heather Bay	2
SELDOVIA	Jakolof Bay	3
NANWALEK	Nanwalek Bay	1
AKHIOK	Olga Bay	2
	Cape Alitak	1
PORT LIONS	Kizhuyak Bay	1

Data Management

The biological data collected from this program has been maintained in a database since FY 96 using Microsoft Excel software. It includes all the information on each data form in a standard spreadsheet format. Researchers can receive copies of this by request. The development of an electronic version of the data form that would be integrated with the Microsoft Excel database and could be routinely sent with samples instead of a paper copy of the original form was started by L. Brown, an Analyst/programmer with ADF&G Subsistence Division. The goal was to have a form that appears on screen and prints looking as similar as possible to the original data form and that can also be used to import the data fields into researchers' and the University of Alaska Museum's databases. (all of which now receive a paper copy). This would eliminate the duplicate efforts of entering data into these separate databases. However, the development of this became problematic due to software limitations and in trying to maximize integration between systems. Because there were no funds budgeted for a programmer's time for the PC software and the University of Alaska's Museum database was evolving and changing, the development of all electronic forms (as described under the methods section) has been temporarily put on hold until the museum's system is completed. Efforts continue to help develop the museum's system, which will have Web access, to also be a source of the information outlined in these forms.

The University of Alaska Fairbanks Museum's database upgrading began in October 1998. This evolved into changing to a new cutting edge data management system developed and coordinated with the University of California at Berkeley's museum database. Various unforeseen steps in the building of a new information structure and developing the various layers concept have delayed the actual startup. At this writing, the museum is in the final stage of getting all screens and interfaces working. They are starting the data import from the current system. The Harbor seal projects will be the first sets of data to be transferred over into this new system. This new system is expected to be running and allowing access from the Web by December 2000. The screens from a Microsoft Power Point presentation given by Gordan Jarrell, the Mammal Collection Manager of the University of Alaska Museum, about this new system appear as Appendix D.

The following information was supplied by Jarrell:
An effort to develop database structures at the University of Alaska Museum (UAM) that will relate projects that provide specimens, such as the Alaska Native Harbor Seal Commission's Biosampling Program, to projects that use specimens has been substantially upgraded prior to implementation. UAM has developed a shared data model with the Museum of Vertebrate Zoology at the University of California at Berkeley. Their model, now including the "projects layer," has been implemented in Oracle on a new Sun server at UAM. (Berkeley's website incorporating this new model is up and running at http://elib.cs.berkeley.edu/mvz/) We are in the process of moving Mammal Collection data into the new structure and we expect to complete the task this fall or early winter 2000. This data model was central to a successful proposal to the National Science Foundation (NSF) to form an "Arctic Archival Observatory" (AAO) at

UAM. Funding from NSF includes support for a full-time programmer/analyst to bring all of the Museum's scientific collections into the system over next three years. This recruitment was successful and will be filled beginning September 2000.

For further information on the museum database structure, see the final report for FY 97 and 98 (Fall et al. 1999).

Community Meetings

In December 1998, Ms. Riedel presented data on biosampling to the Yakutat Tribal Community in an effort to initiate a similar program for comparison purposes. On February 2 1999, Ms. Riedel presented an update on the project to the Native Village of Eyak's council and tribal members at a Tribal council meeting. On February 9, Riedel traveled to Tatitlek to give a community report to the Tatitlek Tribal Council. At the trainings, updates on biosampling and sample research are included; and at the Seldovia and Cordova trainings, interested community members and hunters attended to observe.

In August 1999, Vanek accompanied Chugach Regional Resources Commission and ADF&G Wildlife Conservation staff to present the biosampling program and research data in Chignik Lake at a area meeting on harbor seal restoration arranged through Project 99052, Community Involvement and Traditional Knowledge. The meeting was canceled due to severe weather and an aborted attempt to land in the community.

Workshop and Presentations to Organizations

During the statewide ANHSC meeting held in Anchorage January 14-15 1999, an extensive workshop took place regarding further developments with the biosampling project. Dr. Vanek and Ms. Riedel were key presenters among colleagues from ADF&G Wildlife Conservation and Subsistence Divisions, the University of Alaska Sea Grant Program, and National Marine Fisheries Service. In addition, updates on harbor seal stocks, population studies, fatty acid and blubber analyses, harbor seal subsistence harvest data, and other research were presented by various agency and university staff. Attending community representatives gave community reports. At the statewide ANHSC meeting in April 1999 in Yakutat, similar updates and community reports were given.

In March 1999, Ms. Riedel and Dr. Vanek presented a poster during the 1999 EVOS Trustee Council Symposium. Riedel also presented a paper titled "Proactive Resource Management by Alaska Native Organizations". This paper is included as Appendix E.

On October 12 1998, Ms. Riedel presented ANHSC program data including biosampling to the Rural Governance Commission in Anchorage.

During the last week in June 1999, Ms. Riedel and the ANHSC Executive Committee presented harbor seal data, including the success of the biosampling program to the

Alaska Congressional Delegation and the National Marine Fisheries Service in Washington D.C.

During a September 1999 meeting of the statewide organization, Indigenous People's Council for Marine Mammals (IPCoMM), Ms. Riedel presented data and distributed brochures to participants.

Newsletter and Brochure

In October 1998, the ANHSC compiled information from scientists, native leaders, and students to develop a newsletter about harbor seals. There were approximately 250 copies distributed during the October 98 Alaska Federation of Natives Convention. A total of 1000 newsletters were subsequently distributed throughout the following winter to village technicians, to Tribes, to community members and participants during training sessions, and at other related meetings. The newsletter appears as Appendix B.

In addition to a newsletter, a three panel fold professional brochure was published in June 99 with extensive information describing ANHSC, the biosampling program, other activities, harvest data, the Marine Mammal Protection Act, and co-management. To date 2,000 copies have been printed and distributed. A slight revision to update it occurred in October 99. One of the current October 99 brochures appears as Appendix C.

Biosampling Demonstrations and Educational Presentations

In October 1998, Ms. Riedel presented harbor seal information and data to the two Cordova fifth grade classes (approximately 50 students) and to two high school biology classes (approximately 30 students).

On January 8 1999, John Boone, a certified bio-technician and hunter demonstrated biosampling a seal and talked about scientific protocols for data collection to 22 eighth grade students and 4 Youth Area Watch participants in Valdez. He coordinated his seal hunt with High School science teacher Bill Taylor.

On January 28 1999, Ms. Riedel conducted a biosampling demonstration for the Eyak Institute class at Cordova High School. Four Native Village of Eyak hunters and approximately 12 students attended. Anchorage's Channel 11 News filmed the session to be used in their television broadcast on the 10-year anniversary of the *Exxon Valdez* Oil Spill.

On May 5 1999, Dr. Vanek and Ms. Riedel presented harbor seal biology and data; and ANHSC information to the participants attending Tatitlek Cultural Heritage Week. This was a multi-community event with students and adults from Valdez, Cordova, Chenega Bay, and Tetlin. Vanek conducted a biosampling demonstration assisted by two Youth Area watch students. This was filmed by Anchorage's Channel 2 News and was aired in

May 99. During the week, Youth Area Watch students also biosampled a second seal on their own that was harvested for the community potlatch. Riedel also taught skin sewing classes.

Development of Other Funding Sources

In April 1999, ANHSC Executive Director, Riedel, combined efforts with Cook and Jarrell of the University of Alaska Frozen Tissue Archival Project to propose expansion of the EVOS Biosampling project with the North Pacific Marine Research Initiative funds. In June, funds were awarded specifically to expand the existing biosampling model to the Bering Sea Communities.

In January 1999 additional funds were requested from Congress to expand the ANHSC Harbor Seal Research, Monitoring, and Management Project through a grant from the National Marine Fisheries Service. The FY 00 request was awarded. This program will support the Executive Director's position for ANHSC as well as a Biologist Consultant, and administrative support. In addition, biosampling in Southeast Alaska will continue to be supported.

In FY 98 and 99, the ANHSC received support funds from the ADF&G Subsistence Division to facilitate Harvest Data Workshops in conjunction with ANHSC meetings. Also in FY 99, an Information Development Project was conducted with ADF&G Subsistence Division. Other funding ideas relating to contaminant studies, self-governance, and the expansion of the Youth Area Watch project have been discussed. At this time, no proposals are completed nor submitted.

DISCUSSION

Sample Collection and Quality

The majority of samples were collected in the Prince William Sound area. Many of these came from biosamplers and hunters living in Tatitlek, though it should be noted that the animals sampled were harvested from across the entire Prince William Sound area and were not concentrated heavily in any one location. In general, sampled animals covered a wide spatial range. The total number of samples that will be collected in one community varies and is influenced by many factors including the number of active biosamplers, community size, individual sampling efforts, weather influences, the number and levels of interest and availability of Youth Area Watch students, harbor seal population numbers and spatial distribution, and the degree and success of subsistence hunting activities. Specific researcher's requests may not be met in a particular year. The ANHSC very strongly discourages additional hunting for the taking of samples. They promote the policy of taking samples from normal hunting activity.

Chenega Bay lost its biosampler, and efforts were undertaken to recruit a replacement. Additional biosamplers in lower Cook Inlet were trained and additional hunters in the Kodiak region were identified to be trained. Though Port Lions on Kodiak Island was not proposed as one of the project communities, one interested resident hunter has become involved collecting samples in order to demonstrate biosampling to students in the community.

In the summer of 99, the ANHSC worked with Randall Davis to very successfully integrate subsistence harvesting activities, the Biosampling program, and the field work portion of Project 99441, Effects of Diet on Lipid Metabolism and Health. Samples from nine animals (included in the number of animals biosampled for Tatitlek) were collected for distribution to researchers through the biosampling program in addition to the specific tissues collected for the analyses of this project.

The quality of samples and data collection continues to be high, as described in the past annual and final reports.

Sample Analysis

Seal samples were sent frozen from remote communities to Kodiak or Anchorage for assignment of individual animal specimen numbers (University of Alaska Museum AF numbers), intermediate sorting, and subsequent reshipment to various researchers. (See Figure 2 and Table 3.) DNA samples, stomachs, blubber samples, and reproductive tracts were sent directly to the researchers. The rest were shipped to the UAF Museum where they were archived and/or made available to a variety of Fairbanks-based UAF researchers. In FY 99, blubber samples were sent directly to researcher Mike Castellini instead of to the UAF Museum as in the past, because Castellini's lab was moved from Fairbanks to the Seward Sealife Center for this year.

Genetic studies at NMFS to determine harbor seal stock distributions in Alaska continue (Westlake and O'Corry-Crowe). Analysis of stomach contents for prey item identification continues through ADF&G's harbor seal diet studies. The development and testing on teeth of new techniques for determining age, and possibly growth and reproductive histories were worked out; and the processing of teeth has begun at the Seattle NMFS lab in cooperation with ADF&G. Analysis of morphological features on the female reproductive tracts is in progress.

The initial research on blubber composition, quality, and condition and the relations to harbor seal health through Project \001, Recovery of harbor seals from EVOS: condition and health status (Fadely and Castellini 1997, 1998), was completed. This work is also presented in a Ph.D. thesis (Fadely 1997). Castellini continues to receive blubber samples for use in the next phase of his research which may include the role of lipids in the diets of Alaska Natives and eventual comparisons to current blubber studies on Antarctic seals and bowhead whales. Results of fatty acid signature analyses using blubber samples to look at food habits and foraging patterns have been published in the

annual reports of Project \064, Monitoring, habitat use, and trophic interactions of harbor seals in PWS, (Frost et al. 1997, 1998, 1999) and in a peer reviewed journal (Iverson et al. 1997). Frost and Iverson are preparing papers on further results and they continue their work on fatty acid signatures to monitor diet. Stable isotope ratio analyses using various tissue samples to examine aspects of diet are presented in the annual reports for Project \170, Isotope ratio studies of marine mammals in PWS, (Schell and Hirons 1997, 1998). Schell and colleagues continue research on amino acid tracers in harbor seals and to develop methods of using biomarkers in tissue samples as tracers of habitat usage.

The archiving of liver, heart, and kidney soft tissue samples, the skull, and whiskers continues at the UAF Museum. Some of these have been provided to investigations by researchers worldwide since 1995 according to the museum's accession policies. Most are ongoing projects and the museum expects continuing updates. Summaries of researcher's work are posted on the museum's website (www.uaf.edu/museum/mammal/).

Studies accessing harbor seal samples include: genetic variation in North Atlantic and Baltic true seals (Vainola, Finnish Museum of Natural History, Helsinki), stable-isotope analysis of changing pinniped distributions (Koch and Burton, University of California at Santa Cruz), and a molecular view of pinniped relationships and phylogenetic analyses of cytochrome-b genes (Arnason and Ledje, University of Lund, Sweden). Harbor seal skulls were examined at the museum for work on an identification key for North Pacific pinnipeds (Gifford-Gonzales and Snodgrass, University of California at Santa Cruz).

Participation with Other Management Groups

The Alaska Native Harbor Seal Commission (ANHSC) is a statewide Tribally Authorized Organization. The Tribal Representatives of six Alaska Native Claims Settlement Act Regions and a Marine Mammal Council direct it. The National Marine Fisheries Service (NMFS) is the federal agency authorized to regulate and manage harbor seals in Alaska. Both entities share common interest in the conservation and sustainable subsistence use of harbor seals, therefore in April 1999, the ANHSC and NMFS signed a Co-management Agreement for Harbor Seals in Alaska. This in included as Appendix F.

The significance of this historical document is far reaching and is a positive step toward building a partnership based on equal representation between Tribes and federal agencies. It will serve as a guide to address long-term conservation of harbor seals, which is an important Alaska Native subsistence resource.

In addition to building a management partnership with NMFS, the ANHSC continues to enter into cooperative agreements with the State of Alaska Dept of Fish & Game Subsistence Division in research areas such as harvest data collection, biosampling, and information development. In June 2000, a contractual arrangement was made between ANHSC, ADF&G Wildlife Conservation Division and NMFS to combine efforts to support a statewide field coordinator for the biosampling program.

The ANHSC is a member of the Indigenous People's Council for Marine Mammals (IPCoMM), a statewide organization that exchanges marine mammal data among it members and combines efforts in research, legislative, and funding issues.

CONCLUSIONS

Program Involvement and Integration

The harbor seal biosampling program has proven to be successful and continues to be viable largely because it involves a powerful partnership between a diverse and dispersed group of people seeking answers to common questions about the health of the seal population. Its design has served as the model for similar tissue collecting efforts on Steller sea lion and is being looked at as a model to apply to bowhead whales. The biosampling program in the oil spill area was designed concurrently and fully coordinated in FY 96 with a one year test pilot effort with funding from National Marine Fisheries Service in southeast Alaska, Bristol Bay, and Aleutians with the vision of a statewide biosampling effort that would be completely integrated. A scaled back biosampling effort was continued in Southeast. Statewide efforts will resume in FY 00 with NMFS and other funding sources.

The project provides information to researchers working on harbor seal restoration projects and facilitates their work with Alaska Native hunters. The project provides hard-to-obtain biological samples from subsistence-taken harbor seals to address potential health and nutritional problems that may be impeding harbor seal recovery.

The cooperative involvement of Youth Area Watch students in the program allowed them to gain cultural and subsistence knowledge of seals from hunters while gaining a first-hand introduction to scientific methodologies and co-management efforts. Programs like the Youth Area Watch (Projects \210 and \052A) have been requested by community members in other areas of the state at ANHSC meetings and workshops to involve their youth in harbor seal biosampling.

Also, the ANHSC has stressed that the concept of stewardship needs to be encouraged, or at least reinforced, in the communities, especially among the youth, so that the sampling and other research efforts become long-range goals. The concept of preserving traditions and values needs to be emphasized in the processing of the meat, pelts, and oil as well as scientific goals and biosampling efforts. The biosampling program has fostered stewardship by involving local people in research and through the resulting exchange of information.

General Conclusions

In conclusion, during the first year of this four-year project continuing the work of Project \244 the project goals continue to be met. These included:

- Additional biological samples of subsistence-taken harbor seals were collected and samples were provided to researchers.
- Communication between subsistence users and hunters of harbor seals, researchers, and resource managers continues to be enhanced.
- The enhancement of electronic transfer of information continued.
- An effective voice for subsistence users of harbor seals, the Alaska Native Harbor Seal Commission, formed following workshops organized during Project \244, signed a co-management agreement with National Marine Fisheries Service.
- Youth Area Watch participants became more involved in the biosampling program.

It is hoped that the growing commitment on the part of hunters and youth to resource stewardship, as well as the growing openness on the part of scientists towards the full involvement of subsistence users in research and management, will continue to contribute to the restoration and conservation of Alaska's harbor seal population.

ACKNOWLEDGMENTS

First of all, the important and invaluable contributions of all of the participants in the biosampling program are very gratefully acknowledged. The expertise and assistance at the trainings of John Boone (Valdez), Dean Kramer (Native Village of Eyak), and Alfred Quijance (Seldovia) and their sharing with students skinning and meat cutting methods are gratefully acknowledged. The elders who taught students to make seal oil are honored. Joshua Hall, Jennifer Childress, and the teachers of the Youth Area Watch Program were especially supportive. We also thank the many people who participated in the Harbor Seal Commission workshops. We thank the ANHSC Board of Directors for their work. The authors also acknowledge the contributions from other Division of Subsistence staff members, including Jim Fall, Louis Brown, and Charles Utermohle. We also acknowledge the important contributions of Gordon Jarrell and Amy Runck at the UAF Museum.

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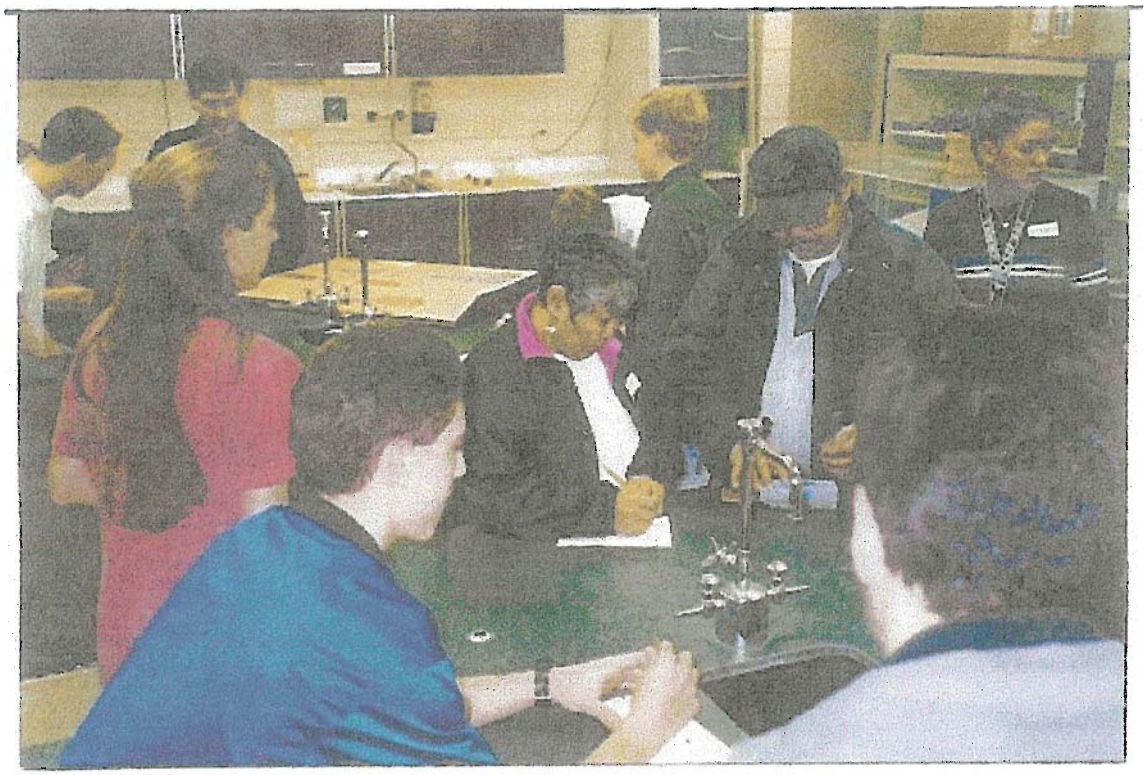
Jennie Tanape (Homer) and Nick Tanape (Nanwalek) practice measuring blubber thickness during the classroom session.

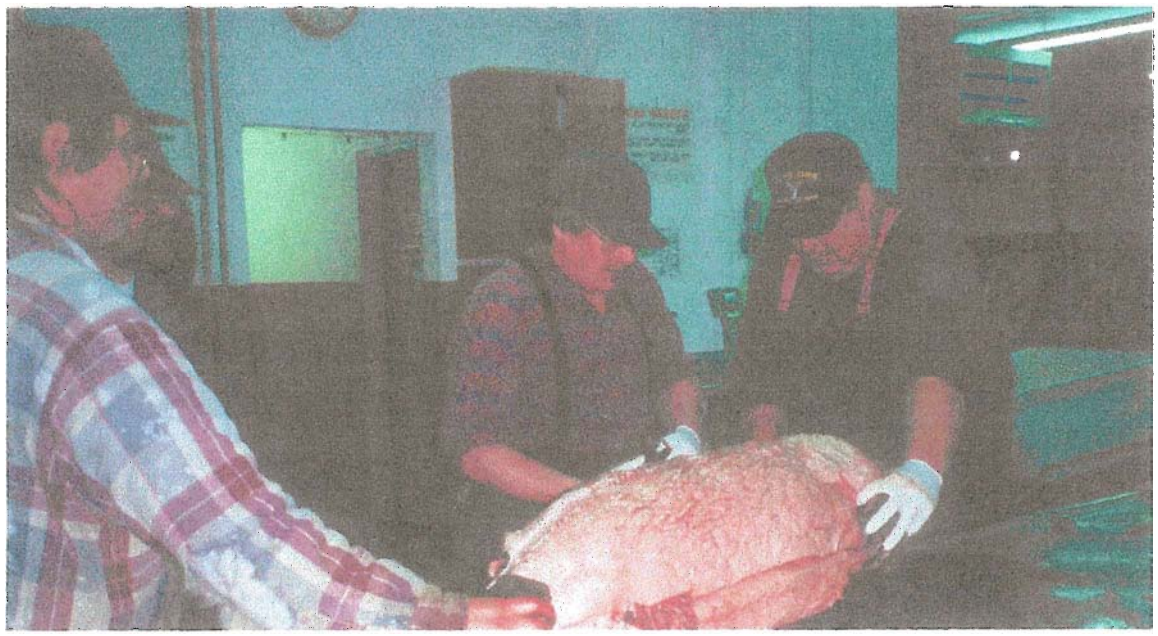
Richard Moonin (Port Graham) and Elmer Anahonak (Nanwalek) take one of the length measurements collected from the harbor seal.



Dr. Vanek teaches Youth Area Watch students and hunters during a classroom simulation of collecting blubber thickness measurements.

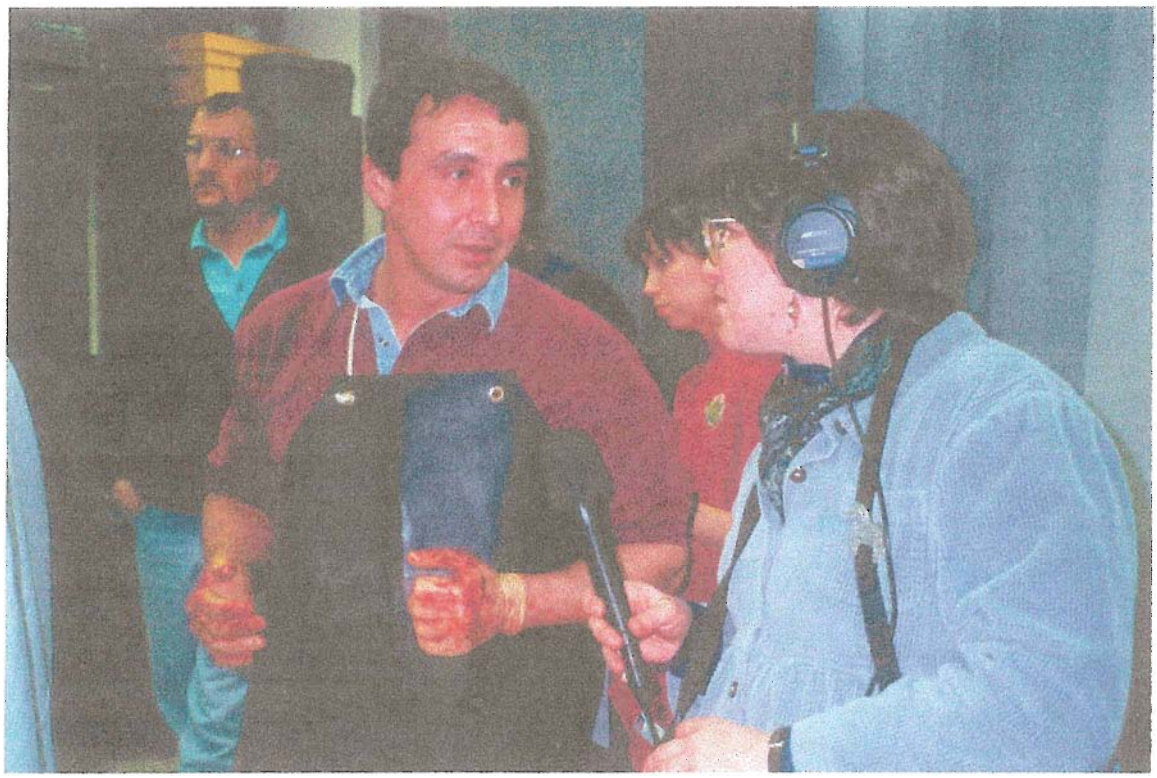
Youth Area Watch students Nicole Giosvold and Kieira Abrams measure one of the curvilinear lengths recorded from the harbor seal.

CORDOVA TRAINING December 2, 1998



Native Village of Eyak hunters Dean Kramer, Mark King, and Bud Janson work on skinning the harbor seal being biosampled.

ANCHORAGE TRAINING January 12, 1999



Jody Seitz interviews hunter and biosampler John Boone from Valdez for Alaska Coastal Currents heard on the Alaska Public Radio Network.

APPENDIX A

Harbor Seal Subsistence Harvest Data Form

Used in FY 99

Harbor Seal Subsistence Harvest Data Form

Rev 1/99

Supported by the Alaska Native Harbor Seal Commission

Office Use Only

Specimen ID: Sps | Date | # | Vill. — AF Number

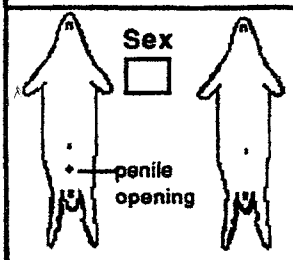
Latitude ° ° Initials

Longitude Date

SAMPLING INFORMATION

Village | Date Shot (month / day / year) | Seal # (shot this date) | Hunter's Name

Sampler's Name | Location of harvest



Male(M) Female(F)

Sex ☐

If it is a female,
Was she pregnant? ☐
lactating? ☐
Was the fetus collected? ☐ Y or N
sex of fetus ☐ M or F

Was a tag or brand present? ☐ Y or N
If Yes, please describe it

Coat Color :
pattern on back looked most like (circle one)

BODY MEASUREMENTS

Blubber thickness (not including skin) ☐ mm ☐ mm

Weight : ☐ pounds

Seal was weighed ☐ before ☐ after it was bled

* Measure these in centimeters ! *

Straight Length	seal on belly (A)	☐ cm	
	seal on back (B) (standard length)	☐ cm	
Curved Length	seal on belly (C)	☐ cm	
	seal on back (D) (curvilinear length)	☐ cm	
Axillary girth	(E)	☐ cm	


(A) on belly


(B) on back


(C) on belly


(D) on back


(E) (at armpits)

SAMPLES What samples did you collect ?

- ☐ whole head
- ☐ whiskers
- ☐ skin
- ☐ blubber
- ☐ muscle
- ☐ stomach
- ☐ kidney tissue
- ☐ heart tissue
- ☐ liver tissue
- ☐ female repro tract
- ☐ other _____

When :

	DATE	TIME	
Seal shot			☐ am ☐ pm
Seal sampled			☐ am ☐ pm
Samples frozen			☐ am ☐ pm

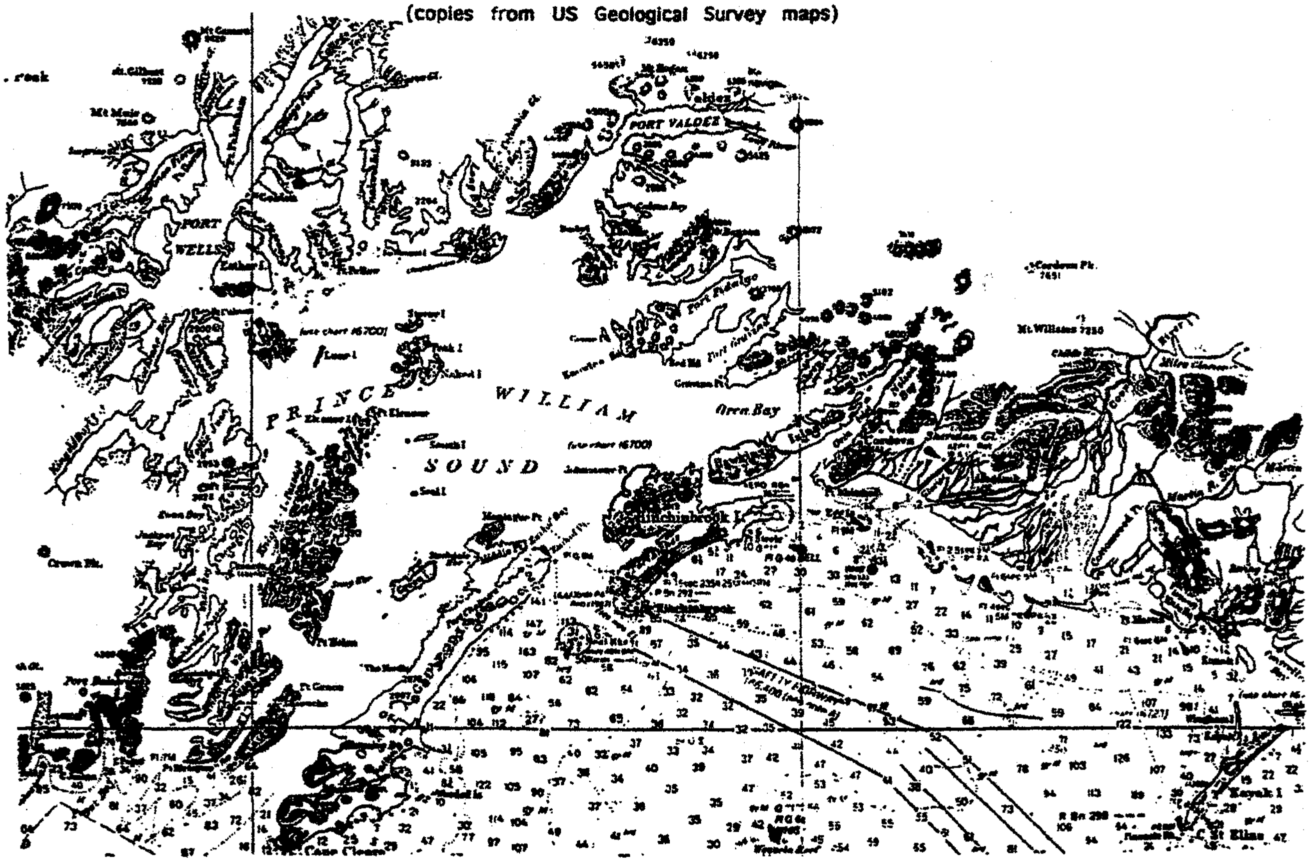
Comments: Please draw or describe anything unusual you noticed about this animal or did different than the manual described :

When you shot the seal, it was :

swimming ☐ hauled out on land ☐ hauled out on ice ☐

Please make an **X** on the map approximately where you got this animal

(copies from US Geological Survey maps)



APPENDIX B

Newsletter

Fall/ Winter 1998

Tsaa-aani (Tlingit for: Seal Country)

Volume 1, Issue 2 **Alaska Native Harbor Seal Commission Newsletter** **Fall/Winter 1998**

What is the ANHSC?

By Monica Riedel, Executive Director, ANHSC

The Alaska Native Harbor Seal Commission (ANHSC) is a tribal consortium comprised of native communities and tribal governments within the range of the harbor seal off the coast of Alaska.

The overall goal of the ANHSC is to strengthen and increase the role of Alaska Natives in resource policy and decisions affecting harbor seals and their uses. The objectives of the ANHSC include:

1) Educating and informing the public and western scientists on the traditional and contemporary relationship between harbor seals and Alaska Natives;

2) Informing western scientists about the type and extent of knowledge held by the local people about the harbor seal;

3) Involving Alaska Natives directly in the research process; and

4) Involving Alaska Natives in the regulatory and management process.

The Native Community has always been concerned about the health of the harbor seal population, and it was concerned about the potential consequences of a strategic listing to the subsistence use of harbor seals.

Continued on page 2

ANHSC welcomes two new members!

By Monica Riedel

At the June 28th Board Meeting, the harbor seal commission accepted and welcomed Dan Alex and Wendy Nielsen to the board of directors. Their participation will improve and enhance the abilities of the commission. Dan is the Cook Inlet Marine Mammal Council Project Coordinator. He has had extensive experience in governmental affairs, he has worked as a geophysicist for the Navy and sat on the Presidents Commission for Indian Reservation Economies. Dan is currently working closely with the Beluga Whale hunters in the Cook Inlet Area.

Wendy is the Bristol Bay Marine Mammal acting Executive Director. Wendy Nielsen is the Marine Mammal Coordinator for the Bristol Bay Native Association in Dillingham. She received her Bachelor of Science Degree in Fisheries and Wildlife from the University of Nebraska in 1996. Wendy has attended two board meetings since becoming a member. She represents the Bristol Bay Native Association and the Bristol Bay Marine Mammal Council.•

New Members: Dan Alex and Wendy Nielsen

Inside This Issue

continued from page 1

After extensive meetings to address the Gulf of Alaska harbor seal stock, the Native community formed the ANHSC in 1995. The Native Community then asked the ANHSC to address the strategic listing and to implement section 119 of the Marine Mammal Protection Act (MMPA) by entering into a co-management agreement with the National Marine Fisheries Service (NMFS). Subsequently, the NMFS deferred classification of the Gulf of Alaska harbor seal stock pending a co-management agreement with Alaska Natives.

The structure of the organization is based after that of the Alaska Sea Otter Commission, encompassing six coastal areas represented by Alaska Native Claims Settlement Act regional corporations including Southeast Alaska, Chugach, Cook Inlet, Kodiak, Bristol Bay and Aleut. There are 19 Tribes that are current members of the commission. Commissioners currently serving:

Harold Martin, Chairman, is from Juneau and is the Subsistence Director of the Central Council of Tlingit and Haida Indian Tribes of Alaska. He is the President of the Southeast Native Subsistence Commission.

Speridon M. Simeonoff, Vice Chair, is from the Village of Akhiok on Kodiak Island. He represents the Kodiak Area Native Association and the Akhiok Tribal Council.

Lillian Elvsaas, Secretary, is from the Seldovia Village Tribe and represents the Cook Inlet Region.

Norman Vlasoff, Commissioner, is from the Village of Tatitlek located in Prince William Sound. He represents the Chugach Region.

Mark Snigaroff, Commissioner, is from the Native Village of Atka and represents the Aleutain Pribilof Islands Association.

Wendy Nielsen, Commissioner, is the marine mammal coordinator for BBNA in Dillingham and she represents the Bristol Bay Marine Mammal Council.

Daniel Alex, Commissioner, is from the Native Village of Eklutna and represents the Cook Inlet Marine Mammal Council.•

Biologist Report

Dr. Brendan Kelly, Juneau Center, School of Fisheries and Ocean Sciences, University of Alaska Fairbanks is our biological consultant. He has studied harbor seals and other marine mammals, primarily in Alaska, for over 25 years. Brendan has advised the ANHSC director and board on scientific matters and is a member of the drafting committee for a co-management agreement. With his students, including an ANHSC intern, Brendan continues to study the population dynamics of harbor seals in the Gulf of Alaska.

The intern, Raychelle Daniel and University of Alaska Southeast student, Shannon Crowley, recently returned from Tugidak Island where they report a contunued growth in the harbor seal population.•

Pictured below from left to right: Speridon M. Simeonoff, Lillian Elvsaas, Harold Martin Norman Vlasoff,Monica Riedel & Dan Alex (not pictured- Mark Snigaroff, Aleutian Is. Commissioner)

MESSAGE FROM THE CHAIRMAN

By Harold Martin, chairman, ANHSC

"Working with a knowledgeable and well informed Commission does have its rewards. We have enjoyed a very successful year in meeting the goals and objectives of the Alaska Native Harbor Seal Commission. We are in the final stages of negotiating a Co-management Agreement with the National Marine Fisheries Service, we have expanded the Biological Sampling Program, we have reviewed the Harvest Data Assessment Program and our Outreach and Education Program is progressing well plus our membership continues to grow. Our success did not come easy. It took a lot of hard work and cooperation by our Board of Commissioners, our Executive Director Monica Riedel, our contract biologist Brendan Kelly, Legal Counsel Carol Daniel, RurAL CAP staff Carl Jack as well as various Federal and State agencies and other Marine Mammal Commissions and resource personnel who provided technical assistance. My appreciation and well wishes to all who contributed to making this year a memorable one. God Bless you all".•

Meeting notice:

The next ANHSC meeting is scheduled for November 18-20 in Anchorage in conjunction with the Alaska Region Scientific Review Group (SRG). During the same time, there will be a harbor seal biosampling training session conducted by Vicki Vanek, DVM, as part of the *EVOS* Project.

Commissioner Profile

Harold P. Martin

Subsistence Director. CCTHITA President. SENSC

Tribe: Tlingit

Moiety: Raven

Clan: T'akdeintaan

House: Yeil-Kudee-Hit

Father: Yanyeidi

Maternal Grand father: Kaagwaantaan

Paternal Grand father: Gaanax. Adi

Born and raised in Kake, Alaska.

Traditional homeland, Hoonah

EDUCATION

1976, AAA. Aquaculture. Whatcom Community College, Bellingham, Wa.

1976, AAA. Management, Whatcom Community College, Bellingham, Wa.

1980, BA, Bus. Ad. Western Washington University, Bellingham, Wa.

1980-82, Masters Program, Public Administration, University of Alaska Southeast,[24 of 36 credit hours]

EMPLOYMENT

1982-1992 Tribal Operations Officer, CCTHITA

1993- present, Subsistence Director, CCTHITA

OCCUPATIONAL AFFILIATIONS

1 .Subsistence Director- CCTHITA

2.Southeast Native Subsistence Commission, President.[co-founder]

3. Indigenous Peoples Council for Marine Mammals President. [co-founder]

4. Alaska Native Harbor Seal Commission, President [co-founder]

5. Alaska Native Halibut Working Group, President.[co-founder]

6. AFN Subsistence Advisory Committee, CCTHITA Rep.

7. Rural Alaska Resources Association, CCTHITA Rep.

8. Alaska Sea Otter Commission, Alternate, CCTHITA Rep.[co-founder]

9. Migratory Bird Working Group, SENSC & CCTHITA Rep. [co-founder]

10. Indigenous Survival International, Treasurer.•

Youth Corner:

Former Youth Area Watch Student and harbor seal biosampler, **Michelle Vlasoff** of Tatitlek is attending the University of Alaska in Fairbanks. Michelle is pursing a degree in Marine Biology. Michelle received scholarships from the Copper Mountain Foundation and Chugachmiut. We just wanted to wish her good luck in her first year at UAF!

Youth Area Watch is a program designed to involve youth in the spill-impacted area in the research process. The project is funded by the *Exxon Valdez Trustee Council(EVOS).*

Nanwalek students **Jolene Kvasnikoff, Anastasia Kvasnikoff and Teresa Evans** will be joining the Youth Area Watch Project this year. All three girls have done a great job with the harbor seal biosampling project. All three stood up and gave a great presentation at the Katchemak Bay Conference this spring. They explained why seals are important to their culture and why being involved in scientific research will lead to better stewardship and conservation practices. Keep up the good work you are the future voices of your community!•

Recipe Corner
Cajun Spiced Seal
By Sylvia Allen
Remove meat from rib area of seal. Pound meat, then cut up like cube steaks. Sprinkle Cajun seasoning on meat. (Sylvia makes her own combination of Cajun seasonings). Roll in Flour. Fry in Peanut Oil at Med Hi or Med with electric frying pan or on the stove until done.

Sylvia Allen is originally from Tatitlek in Prince William Sound. She lives in Cordova with her husband George who is also from Tatitlek. Thank you Sylvia for sharing your wonderful recipe and for showing us how to cook it.•

Fact: 3 oz of seal meat provides 100% of your daily iron requirement *(from the Alaska Native Health Board).*

HARBOR SEAL HARVESTS 1997

By Robert Wolf, Research Director, Alaska Dept. of Fish & Game, Subsistence Division

A preliminary count of the harbor seal harvest in 1997 is available. The harvest numbers are provided by the Alaska Native hunters in 1,649 households in 62 communities. Hunters are surveyed by local researchers hired within each community. Funding comes from the National Marine Fisheries Service. The Alaska Native Harbor Seal Commission provides technical oversight of the program. The tribal governments in each community approved the program, which began in 1992.

During 1997, the estimated subsistence take of harbor seal by Alaska Native was 2,546. There are no apparent trends either up or down in subsistence take at the state level. The 1997 takes of harbor seal came from the following stocks: Southeast Alaska stock (1,567), Gulf of Alaska (784), and Bering Sea stock (195). We would like to thank all hunters who have participated in the program. Without their help, this program would not be possible.

BIOSAMPLING UPDATE

Vicki Vanek, Dr of Veterinary Medicine, contributed to this article

The *Exxon Valdez Oil Spill (EVOS)* Trustee Council has again funded the ANHSC to conduct the collection of seal samples for scientific research. These samples are being sent out to several researchers involved in the FY99 *EVOS* workplan. Major parts of their multi-level research is being enhanced by subsistence taken seals samples that they are not able to get by their field work. Dr. Castellini, Science Director for the SeaLife Center and Professor at UAF, originally was looking at the health of seals, now he is adding the health of people eating seals to his studies. Hunter contributions have definitely speeded along the research and they supply samples during the winter months. Without their samples, it would have taken a lot longer. Most of the research is multi-year, you need hundreds of samples to look at over time. That data is starting to be very significant because of the large numbers of samples. **Reminder:** Please call our toll free number when you are ready to send samples. Thank you, hunters!•

ANHSC Toll free # 1-888-424-5882

Alaska Native Harbor Seal Commission
P.O. Box 2229
Cordova, Alaska 99574
Phone 907-424-5882
Fax 907-424-5883
Email: aksealmr@ptialaska.net

ADDRESS CORRECTION REQUESTED

Mailing Address
Street Number and Name
City, State 98765-4321

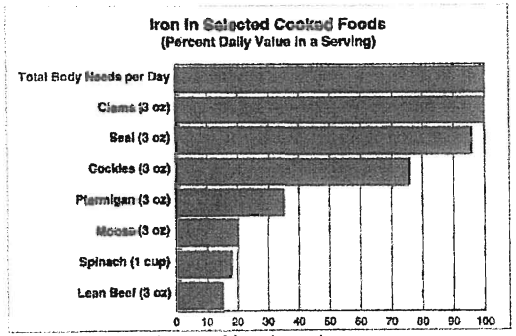
APPENDIX C

Alaska Native Harbor Seal Commission

Brochure

Harbor Seal Harvest Information

Harbor seals play a crucial role in the culture of the Alaska Native. The seals are a very important part of the native diet, providing high amounts of iron and other important nutrients. According to current research, the seal's blubber contains elements that act as antibiotics in the human body.



Percent Daily Value of iron based on a 2000 calorie per day diet.

Alaska Natives are believed to have harvested approximately 2,597 of the state's estimated 80,000 harbor seals in 1998. These harvests came from Southeast Alaska (1,616 seals), the Gulf of Alaska (842), and the Bering Sea (138). *(Information from the Alaska Department of Fish & Game Subsistence Division.)* The Alaska Native's subsistence use of harbor seals uses virtually all of the animal.

It is important that the harbor seal is protected. It is equally important to protect the rights of Alaska Natives to harvest harbor seals so these indigenous peoples can continue *"conserving and sustaining the harbor seal for their cultural well-being."*

Front row, left to right: Carol Daniel (ANHSC Attorney), Ron Berg (NMFS), Harold Martin (ANHSC Chair), Monica Riedel (Exec.Director), Kaja Brix (NMFS). Middle row: Mitch Simeonoff (Vice Chair), Lillian Elvsaas (Secretary/Treasurer), Wendy Gruber, Flore Lekanof, Ray Sensmeier. Back row: Walter Meganack, Dan Alex. Photo taken at the co-management agreement signing ceremony in Yakutat, AK, April 1999.

Alaska Native Harbor Seal Commission
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Email: TheOuterRm@aol.com
Published October, 1999

Alaska Native Harbor Seal Commission

Conserving and sustaining the harbor seal for our cultural well-being

What is the Commission About?

The Alaska Native Harbor Seal Commission (ANHSC) was organized in May of 1995. It is a tribal consortium comprised of native communities within the habitat range of the harbor seal off the coast of Alaska.

Map showing regional representation in the ANHSC.

The overall goal of the commission is to strengthen and increase the role of Alaska Natives in resource policy and decisions affecting harbor seals and their uses. Alaska Natives are concerned with nurturing their wildlife resources as well as preserving their culture. The Alaska Native Harbor Seal Commission helps foster both goals by collaborating on data analysis, population monitoring, harvest assessment, and biological sampling. The Commission also educates the public on traditional use of marine mammals, including non-wasteful hunting practices.

The Marine Mammal Protection Act

Native Exemption

The Marine Mammal Protection Act (MMPA) was passed to prevent the depletion of marine mammals. Section 101(B) of the act says Alaska Natives are currently free of the take prohibition provided that their taking of marine mammals:

1. Is for subsistence purposes, or
2. Is done for purposes of creating and selling authentic and native handicrafts and clothing.
3. In each case is done in a non-wasteful manner.

Co-Management

Section 119 of the MMPA authorized the Secretaries of the Interior and Commerce to enter into agreements with Alaska Native Organizations that would conserve marine mammals. This co-management process features shared decision making about subsistence use between government authorities and Alaska Native Organizations.

Alaska Natives and the National Marine Fisheries Service (NMFS) share the common goals of conserving and maintaining a sustainable subsistance harvest of harbor seals. On April 29, 1999, the ANHSC and NMFS signed an historical agreement that established a co-management partnership between the two groups. This partnership will insure that the seal populations are conserved and that subsistence harvest needs are met for Alaska Natives. Local resource users, in this case Alaska Natives, bring unique knowledge and historical perspective to marine mammal management. Co-management provides a more effective means of conservation without diminishing the ultimate authority or responsibility of the Secretary of the Interior or the Secretary of Commerce.

Biosampling

Since October of 1996 the ANHSC has conducted a harbor seal biosampling program in cooperation with the Alaska Department of Fish and Game. To date, more than 55 Native Alaskan hunters have been certified to collect tissue samples from harvested seals. Over 183 sample sets have been placed in archives at the University of Alaska museum in Fairbanks for future studies. So far the data collected in this program, which is funded by the *Exxon Valdez* Oil Spill (EVOS) Trustee Council, shows that the seals are healthy, with no apparent diseases or nutritional deficiencies.

Youth Area Watch

It is crucial to the culture of Alaska Natives that youth learn valuable knowledge from their elders. The Youth Area Watch, which is also funded by the EVOS Trustee Council, pairs young people with hunters who are trained in the biosampling program. The hunters show the youth how to hunt seals and take the biosamples. The tribal elders are also involved with the program, overseeing parts of the process, and sharing in the food that results from the hunts. In addition to learning how to hunt and take samples, the young people learn the important values of sharing a harvest, and of taking care of the seals so that very little, if any, is wasted.

Trainer Teacon Simeonoff shows campers at Afognak Spirit Camp how to give respect to the seal, releasing its spirit before taking a biosample and processing the meat. Over 300 kids have been exposed to training protocols in the Youth Area Watch program.

APPENDIX D

Alaska Frozen Tissue Collection

University of Alaska Museum

Fairbanks, Alaska

Screens from a Microsoft Power Point presentation given by

Gordan Jarrell, Mammal Collection Manager

At the ANHSC meeting in Angoon

April 2000

The Alaska Frozen Tissue Collection

Principal Investigators:
Joseph A. Cook & Gordon H. Jarrell

Amy Runck, AFTC Coordinator
John Chythlook, Subsistence Coordinator

University of Alaska Museum

Alaska Frozen Tissue Collection
What is it?

- **Two 27-cubic foot ultra-cold (-70C) freezers.**
- **Racks and boxes for 60,000 small (2 cc) tubes per freezer.**
- **Local and remote alarm systems.**
- **Carbon-dioxide back-up system.**

Alaska Frozen Tissue Collection
Why is it?

Studies of change require measurement of baseline ("before") conditions.

We cannot predict what methods will be available to future scientists.

Freezing tissue preserves the broadest possible set of chemical characteristics.

The Alaska Frozen Tissue Collection

A mechanism with established protocols for sharing and preserving data from faunal investigations in Alaska.

Ultimate Objectives of the AFTC

1 - Provide specimens relevant to suspected long-term changes in the environment.

2 - Integrate across projects. Specimens provide a direct physical link between projects.

3 - Develop an information system that links scientists to each other and science to the public.

Specific short-term objectives...

- **Expand the AFTC to include broader samples of mammals, birds, fishes, and invertebrates.**
- **Further develop methods of tracking specimen usage and the scientific results of this usage.**
- **Secure the Subsistence Coordinator as a state-funded position.**

Specimen Uses

- **DNA analyses to establish genetic relationships**
  - **among individuals**
  - **among populations**
  - **among species**

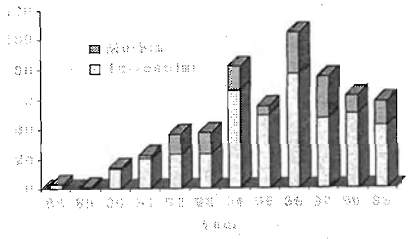
Specimen Uses

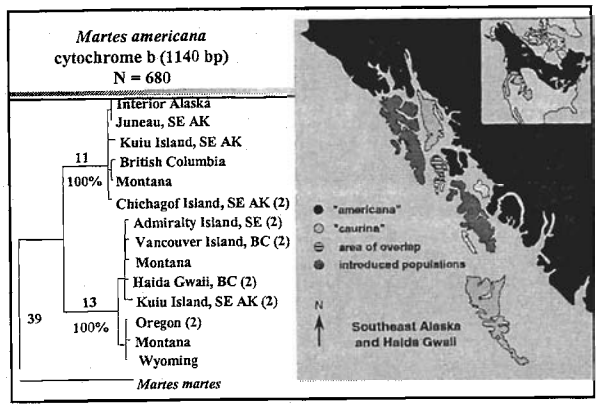
- **Stable-isotope ratios as indicators of ecological relationships**
  - **predator/prey**
  - **seasonal shifts (whiskers, baleen)**

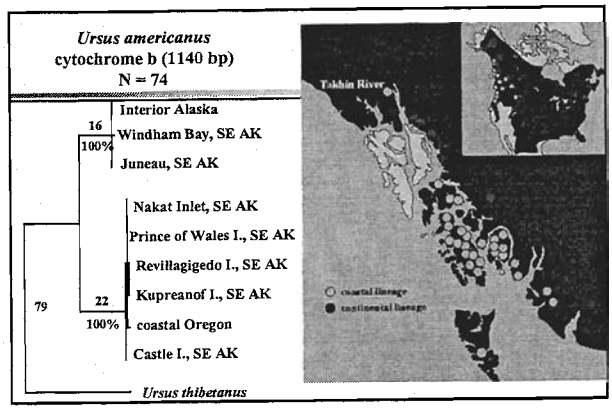
Specimen Uses

- **Parasite and disease screening**
  - **historical/baseline infection rates**
  - **surveying for undescribed pathogens**
  - **surveying for new hosts**

Loans from the UAM Mammal Collection



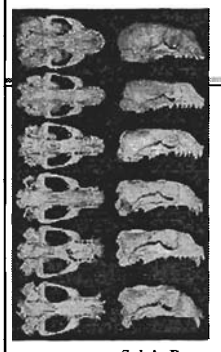




Mercury Trends Using Dated Baleen Samples

"...we have seen little evidence of any Hg increase in either the Pacific or Arctic in the sense of long-term trend. What we do see... is a remarkable coincidence in Hg and dC13 cycle.
...baleen reflects diet at the time of growth both in a carbon sense and a Hg sense. ...by inference, it would also record a [long-term] trend if there were one."

Robie Macdonald, Institute of Ocean Sciences, Sidney, BC



Taxonomic Revision of Fur Seals and Sea Lions

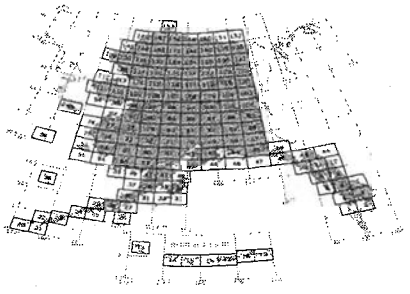
"... using morphometric techniques, including hybridisation, and sexual dimorphism."

"Subfamily distinction between fur seals and sea lions is not supported."

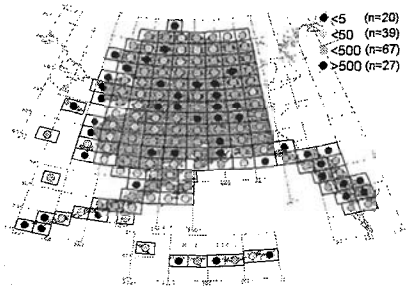
"Geographic variation in most species, including Steller's sea lion."

Sylvia Brunner, Veterinary Anatomy & Pathology, University of Sydney and UAF

USGS 1 : 250,000 Map Quadrangles



Mammal Specimens per USGS quad



UAM is the 14th largest mammal collection in the Western Hemisphere

Some notable big ones:

1) U.S. National Museum of Natural History	585,000
2) American Museum of Natural History	277,480
4) University of California at Berkeley (MVZ)	187,500
5) University of Kansas Museum of Natural History	156,000
14) University of Alaska Museum	65,000
16) Canadian Museum of Nature	53,000
18) University of Washington Burke Museum	40,000

Data modified from Hafner et al. 1997, Mammal Collections in the Western Hemisphere.

UAM is the third largest frozen tissue collection for wild mammals worldwide.

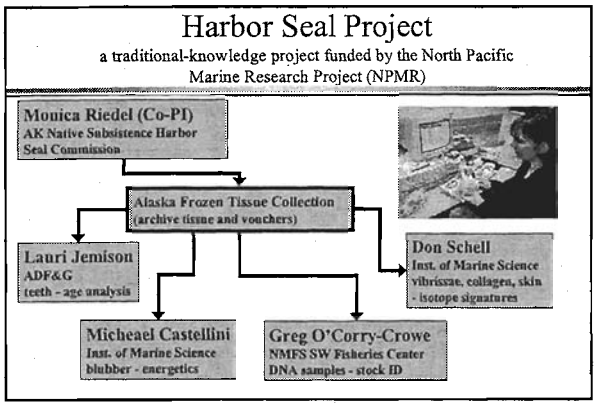
Some notable big ones:

1) Museum of Southwestern Biology	85,000
2) Texas Tech University	35,000
3) University of Alaska Museum	30,000
4) Carnegie Museum	14,000
5) University of California at Berkeley (MVZ)	10,000
University of Washington Burke Museum	2,000

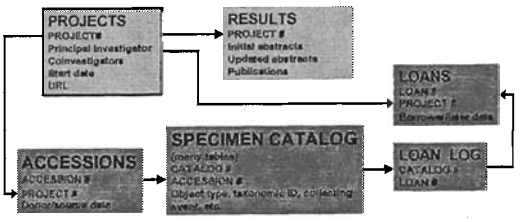
Data modified from Hafner et al. 1997, Mammal Collections in the Western Hemisphere and Hillis et al 1996, Molecular Systematics.

Harbor Seal Project

a traditional-knowledge project funded by the North Pacific Marine Research Project (NPMR)



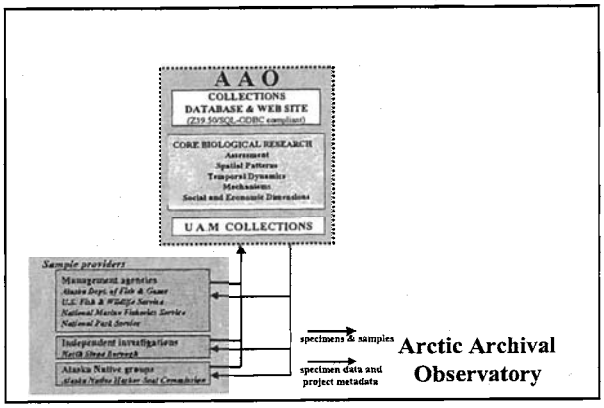
Projects Layer - UAM database

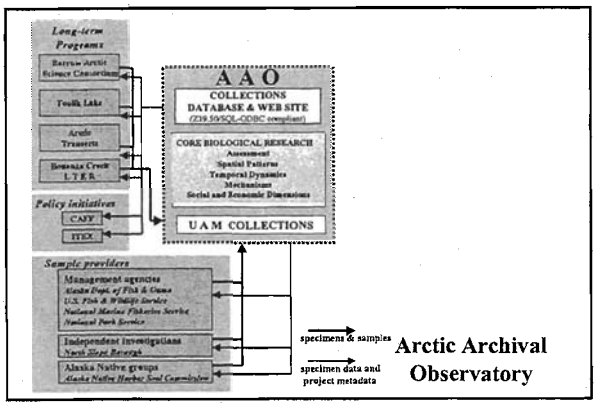


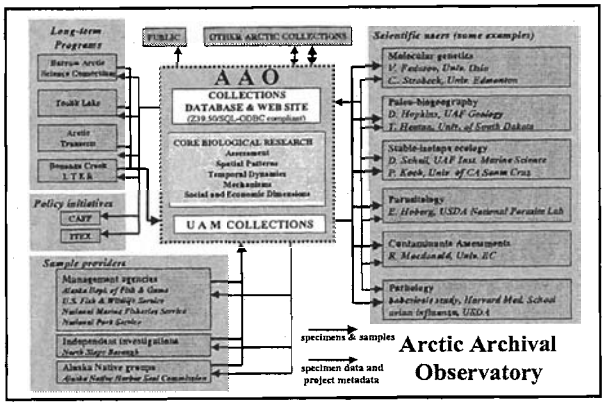
Denali - Probable small mammals versus UAM holdings

Sorex cinereus - 107	*Marmota caligata* - 0	*Microtus longicaudus* - ?
S. hoyi - 0	*M. monax* - ?	*M. miurus* - 44
S. tundrensis - 3	*Spermophilus parryii* - 12	*M. oeconomus* - 110
S. monticolus - 55	*Tamiasciurus hudsonicus* - 7	*M. pennsylvanicus* - 1
S. palustris - 0	*Glaucomys sabrinus* - 1	*M. xanthognathus* - 0
S. yukonicus - 0	*Castor canadensis* - 0	*Ondatra zibethicus* - 0
Myotis lucifugus - 0	*Zapus hudsonius* - 0	*Synaptomys borealis* - 1
Mustela erminea - 2	*Clethrionomys rutilus* - 218	*Erethizon dorsatum* - 0
M. nivalis - 1	*Lemmus trimucronatus* - 5	*Ochotona collaris* - 0
M. vison - 0		*Lepus americanus* - 0

48% of probable species not represented







National Ecological Observatory Network (NEON)

"NEON will consist of 10 observatories nationwide that will serve as national research platforms for integrated, cutting-edge research in field biology."

$100 million over the period FY 2001-2006

Museum Addition

Total cost = $31m
Raised = $12.5m
FY01 Capital Budget Request = $15.5m
Needed = $3m

Projected completion: 2004

Square footage:
40,000 + 38,000 = 78,000

Objectives of the AFTC

Objective 1 - Provide specimens relevant to suspected long-term changes in Alaska's marine and terrestrial environments.

The Collection has become one the largest such collections in the world. Activity has increased substantially.

Objectives of the AFTC

Objective 2 - Integrate across projects. Specimens provide a direct physical link between projects.

- **Investigators are eager to share samples and avoid duplicate sampling.**
- **New projects have been initiated on the basis of Collection holdings.**

Objectives of the AFTC

Objective 3 - Develop an information system linking scientists to each other and science to the public.

- **A engineered database is implemented using enterprise software and hardware.**
- **User interfaces are under development and data migration is underway.**

APPENDIX E

"Proactive Resource Management by Alaska Natives
in the Aftermath of the Exxon Valdez Oil Spill"

Paper presented by Monica Riedel
At the 1999 EVOS Trustee Council Symposium

"Proactive Resource Management by Alaska Natives in the Aftermath of the *Exxon Valdez* Oil Spill"

Paper delivered to the *Exxon Valdez Oil Spill* Trustee Council 1999 Symposium, "Legacy of an Oil Spill: 10 years after Exxon Valdez"

By Monica Riedel, Executive Director,
Alaska Native Harbor Seal Commission [1]

[1] Monica Riedel is a skilled Alaska Native parka maker. She has been involved in marine mammal issues since 1986 when she was called to testify on behalf of Alaska Natives utilizing sea otter fur. The testimony was in reaction to a proposed rulemaking by the U.S. Fish and Wildlife Service that would stop the sale of garments traditionally made from sea otter. She is currently employed as the Executive Director of the Alaska Native Harbor Seal Commission (ANHSC). She serves as secretary for the Indigenous People's Council for Marine Mammals (IPCoMM) and she is on its MMPA reauthorization committee.

Alaska Natives have occupied Prince William Sound for over 6,000 years (1984 Chugach Alaska Corporation). We have a long history of living with what the land and seas were willing to provide us, often in extreme weather conditions. In order to insure healthy populations of animals, we have practiced conservation methods that have been handed down through many generations. Alaska Natives have a strong spiritual connection to the animals that give themselves up for food. We possess an in-depth body of expert environmental knowledge. We believe that if you treat an animal with respect, share the catch within the community, and do not waste any, you will be fortunate in future hunting trips. There is an understanding that man is not in control of the animals or the environment, but human beings themselves must adapt their own behavior in favor of conditions beyond their control.

This paper will document how Alaska Native resource users took proactive steps to become involved in the *Exxon Valdez Oil Spill (EVOS)* restoration process in the aftermath of the Spill. I will describe existing co-management regimes in Alaska and how the Alaska Native Harbor Seal Commission (ANHSC) was organized specifically to address issues related to the *EVOS* restoration process. I will report on the ANHSC's biosampling project, and I will attempt to describe the in-depth environmental expertise held by Alaska Natives and how it strengthens co-management partnerships.

There are several Comanagement Regimes that have worked very well. They serve as examples of how strong partnerships between resource users and managers can benefit management decisions.

The Alaska Beluga Whale Committee (ABWC) was formed in 1988. The organization is primarily made up of Native hunting captains and representatives of government agencies. Hunters conduct their own research program, which involves harvest surveys and biosampling.

(1997 Alaska Beluga Whale, Management Plan). The ABWC is recognized by the International Whaling Commission and the Federal National Oceanic & Atmospheric Administration (NOAA). It also has State representatives on its board. ABWC has drafted a comanagement agreement with the National Marine Fisheries Service for the purpose of protecting both the beluga whale and the Alaska Native subsistence hunting traditions and culture.

The Alaska Eskimo Whaling Commission (AEWC) is also internationally recognized. It has a strong scientific department. The AEWC established its own quota levels when it adopted a Management Plan in 1981. It then entered into an agreement with NOAA for the subsistence management of bowhead whales in 1989. (1989 Cooperative agreement between NOAA and AEWC).

The Alaska Nanuuq Commission (ANC) was organized by Alaskan villages within the habitat range of the Polar Bear. The commission has been working on several levels of government to government relationships. Because Alaska polar bears share a large habitat range from Canada to Russia, the ANC is working internationally with the other countries involved in polar bear research and management. They are negotiating a Native to Native Agreement, as well as "The proposed Treaty for US/Russia Bilateral Agreement for the Conservation of Polar Bears in the Chukchi/Bering Seas." The strength of those documents is the direct involvement of Native resource users in research, population monitoring, biosampling, and habitat protection. Most important, Native resource users have an equal seat at the decision making table. The bureaucratic obstacles that the ANC has had to address have been extremely challenging. The ANC's success in meeting those challenges serves as a role model for other organizations involved in co-management.

Alaska Native walrus hunters formed the Eskimo Walrus Commission (EWC) in 1973. Its purpose is to provide resource users with the tools necessary to conduct their own research and to formalize a system of self-regulation for a sustainable walrus harvest. The Eskimo Walrus Commission developed a 'cooperative management' agreement with the U.S. Fish And Wildlife Service in 1986, which was changed to a 'comanagement agreement' in 1996.

In 1988 The Alaska Sea Otter Commission (ASOC) was formed to address issues related to the subsistence harvest of sea otters. The organizational structure was based on Regional boundaries established for the Alaska Native Land Claims Settlement Act. Representatives from the entire habitat range of the northern sea otter participate in this commission. Since its formation, the ASOC has been successful in developing regional management plans, and conducting both a bio-monitoring program and small boat survey training. They too have entered into a comanagement agreement with the U.S.Fish And Wildlife Service for research projects pertaining to sea otters.

Comanagement regimes have many strengths. Some of them include:

a) Development of trust between the two cultures

b) Coordination of research projects

c) Inclusion of local traditional knowledge

    i) Continuity of historical perspective

    ii) Depth of understanding of environment

    iii) Intimate observation of environment

d) Access to harvest data by resource managers

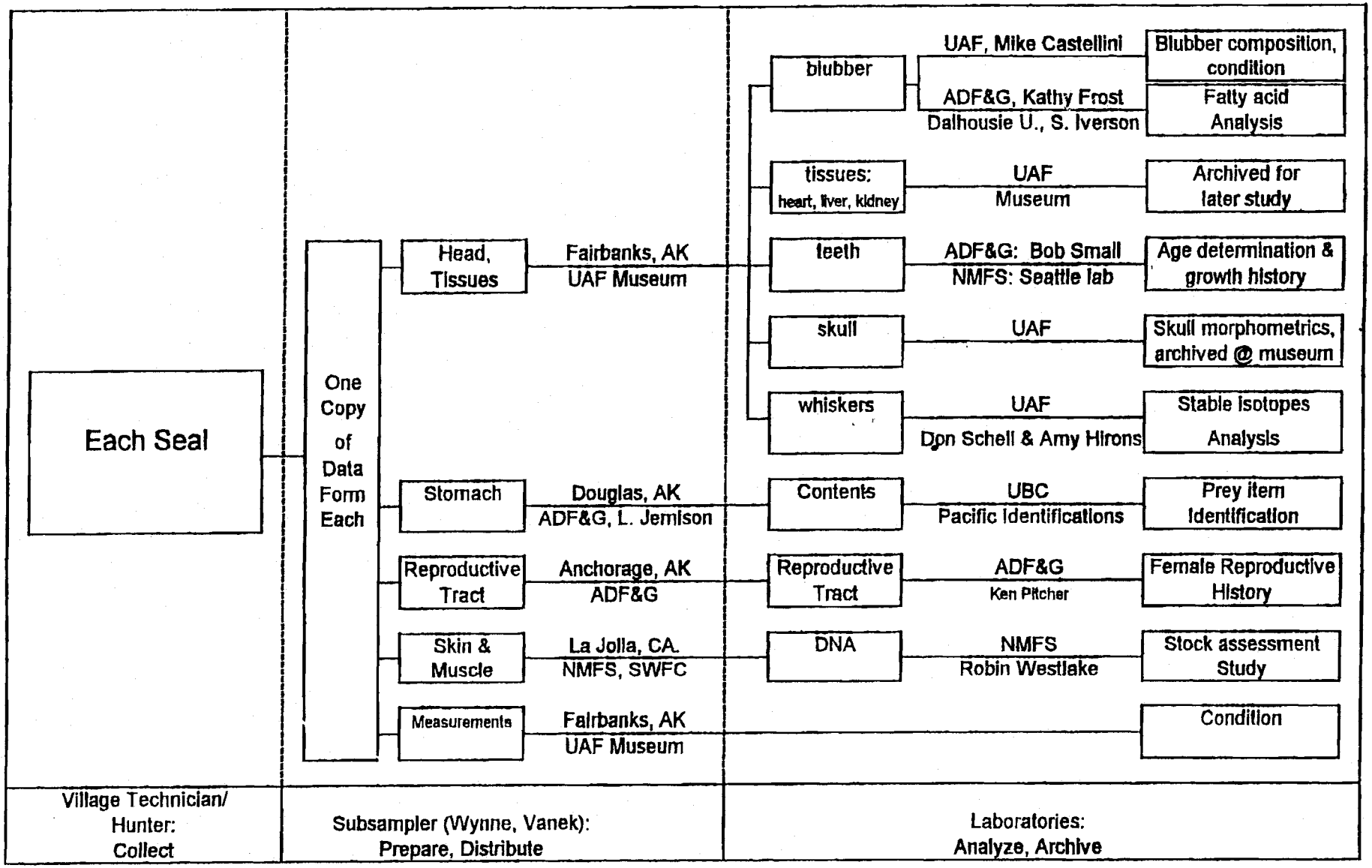
e) Access to bio-sampling data by resource managers

f) Equal decision making based on consensus between state, federal and tribal entities

g) Promotion of long-term stewardship of resources by those most dependent on them

Combining the environmental expertise of Native resource users with sound scientific data will result in a superior management regime. As major stakeholders, Alaska Natives want the resources to be here for future generations. The most equitable way for us to be part of that conservation and management regime is through comanagement.

Alaska Native Harbor Seal Commission (ANHSC) was organized by Tribal authorization in May of 1995. Its purpose is to provide a formal body to address issues that affect hunters and to encourage equal participation in management decisions. The organization was formed following a meeting funded by the *EVOS* Trustee Council. The purpose of the meeting was to bring scientists and hunters together to address the continuing decline of harbor seals in the area impacted by the *Exxon Valdez Oil Spill* of 1989. Recommendations from that meeting brought support from the Trustee Council for the "Community Based Harbor Seal Management and Biosampling Project," which is now in its fourth year. This project has been a "cutting edge" example of developing partnerships with resource users in the oil spill area. The participants are hunters who took part in organizing the commission and who were interested in becoming "part of the solution rather than part of the problem" of a declining seal population. Before this project began, scientists had to rely on beachcast samples for research. There was no central location for hunters to access information and have their voices heard. Now, as part of their normal hunting activities, hunters provide fresh biosamples taken from subsistence harvested seals that contribute to many *EVOS* funded projects (Figure 1 Flowchart). Most importantly, through the Alaska Native Harbor Seal Commission, hunters and Tribal leaders have an important role in the research and management of the resource.



EVOS Project 244: Sample Distribution and Chain of Responsibility (As of 3/99)

Other advantages of the collection are the wide geographic area covered under this project and the large sample size (Figure 2 Map)(Table 1 Samples, Table 2 parts).

In an email dated March 18, 1999, Bob Small, biologist from the Alaska Department of Fish & Game (ADF&G), Wildlife and Conservation said, "Samples collected from the biosampling program have been used in studies of seal food habits, genetics, and life history. The ADF&G harbor seal research program plans to continue working with the ANHSC to support the biosampling program in the years ahead."

Dr. Castellini, Science Director of the Alaska SeaLife Center has reported that the seals he has been observing show no indications of having any disease. He reports that the blood samples are good, the blubber thickness is healthy and that the seals' overall condition is healthy.

Through this program Veterinarian Vicki Vanek and I have developed a draft curriculum. This curriculum combines the scientific protocols of data collection combined with sensitive cultural practices related to harbor seals. The draft is currently under review by the University of Alaska, Sea Grant Program.

One of the main components of the draft curriculum is an extensive scientific protocol for data collection. These include: measuring, weighing, collecting tissues of the seal, recording overall condition of the animal, location and time of harvest, and the time the sample was frozen (Appendix 1, Data Form). Another component of the curriculum covers those parts the Marine Mammal Protection Act that pertains to the Native Exemption (Section 101(b) and Comanagement (Section 119) The draft curriculum has been increasingly requested in Native Spirit Camps, Cultural Heritage Gatherings, and Youth Area Watch training sessions.

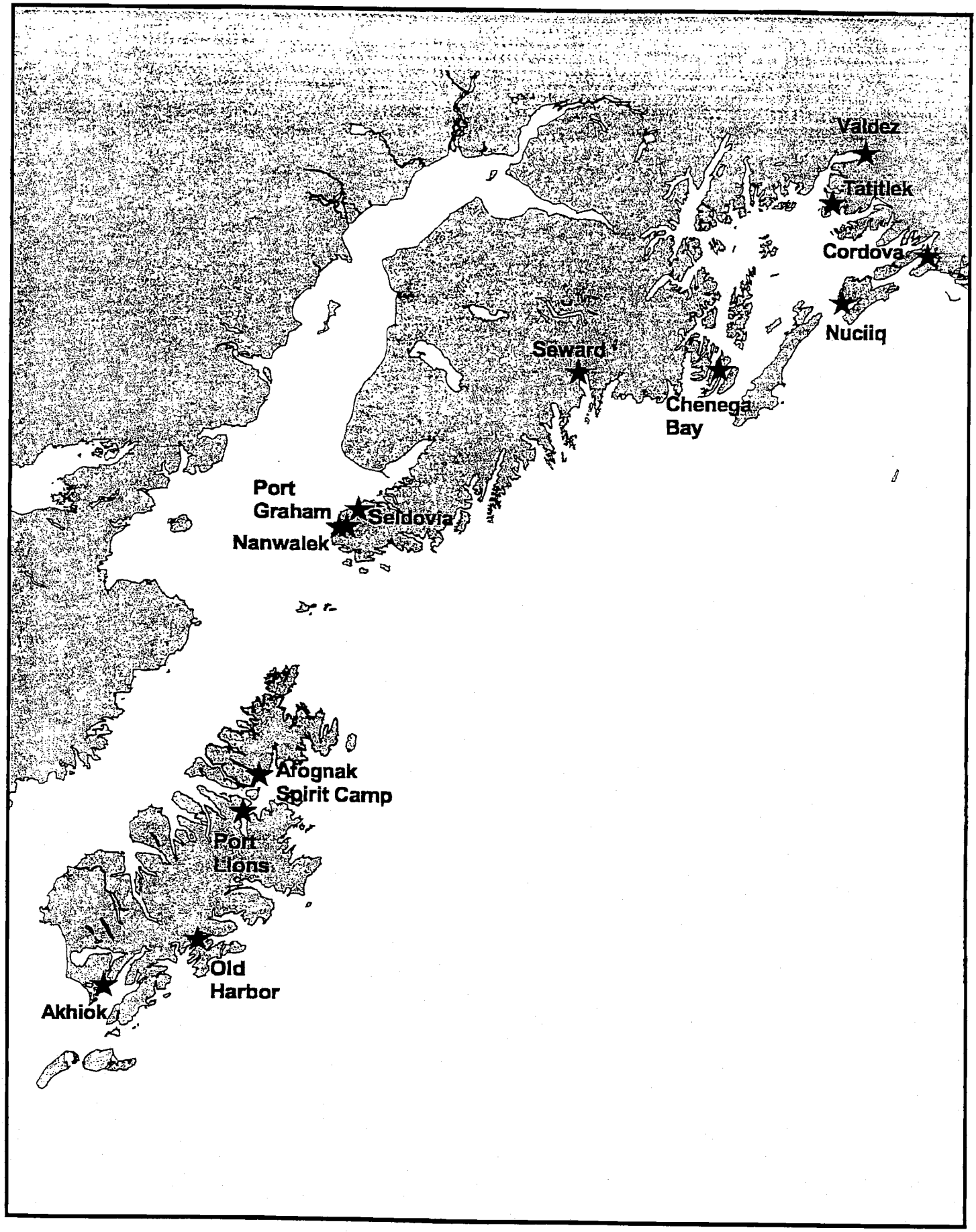

Valdez
Tatitlek
Cordova
Nuciiq
Seward
Chenega
Bay
Port
Graham
Seldovia
Nanwalek
Afognak
Spirit Camp
Port
Lions
Old
Harbor
Akhiok

Table 1. Summary of Harbor Seal Biosamples Collected (3/99)

Community	Number of Seals Sampled	
	Full Set of Samples	Partial Set of Samples
Chenega Bay	4	3
Nuciiq	2	0
Cordova	31	3
Tatitlek	41	29
Valdez	14	0
Seward	0	0
Nanwalek	5	1
Port Graham	0	0
Seldovia	2	3
Afognak Island	1	1
Akhiok	5	0
Old Harbor	1	1
Port Lions	1	0
GRAND TOTAL	107	41

Table 2. Distribution of Subsistence Harbor Seal Samples Collected under EVOS Restoration Projects 244 and 245 (as of 3/18/99)

Tissue	# Samples	Contact	Disposition, status, and analysis
Stomachs	142	L. Jemison, ADF&G	Sent to UBC for prey identification
Teeth	128	R. Small, ADF&G	Extracted at UAF Museum; age & growth history to be determined by NMFS in 1998
Whiskers	148	D. Schell, UAF	Used in stable isotopes analyses (EVOS # 97170)
Brain and collagen[1]	128	A. Hirons, UAF	Used in stable isotopes analyses (EVOS # 97170)
Blubber	129	B. Fadely, et al., UAF & M. Castellini, UAF	Blubber composition studies completed and continuing (EVOS Proj. 95117)
		K. Frost, ADF&G	Sent to Dalhousie University for fatty acid analysis (EVOS Proj. 95064)
Skin/muscle	148	R. Westlake, NMFS	Sent to NMFS La Jolla for genetic analysis
Reproductive tracts	31	K. Pitcher, ADF&G & H. Harmon, UAF	Stored for future reproductive analysis
Skulls	128	G. Jarrell, UAF	UAF Museum staff is cleaning skulls for archive and morphometric examination
Archived tissue heart liver kidney blubber skeletal muscle	131	A. Runck, UAF	Tissues subsampled and archived in -70C freezer at UAF Museum; available for future contaminant analyses.

[1] Collagen from ligaments or tendons; also using muscle, blubber, skin, heart, liver, and kidney

Harbor Seal Subsistence Harvest Data Form

Rev 1/98

Supported by the Alaska Native Harbor Seal Commission

Office Use Only

Specimen ID: Sps | Date | # | VIII. | AF Number

Latitude ° ° Initials

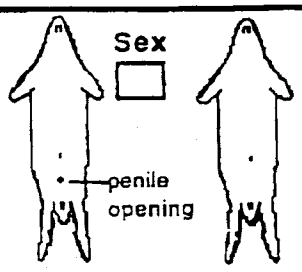
Longitude Date

SAMPLING INFORMATION

Village | Date Shot (month / day / year) | Seal # (shot this date) | Hunter's Name

Sampler's Name | Location of harvest

Sex



Male(M) Female(F)

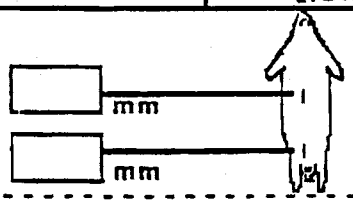
If it is a female,
Was she pregnant? ☐
lactating? ☐
Was the fetus collected? ☐ Y or N
sex of fetus ☐ M or F

Was a tag or brand present? ☐ Y or N
If Yes, please describe it

Coat Color :
pattern on back looked most like (circle one)

BODY MEASUREMENTS

Blubber thickness (not including skin) ☐ mm ☐ mm



Weight : ☐ pounds

Seal was weighed ☐ before ☐ after it was bled

* Measure these in centimeters ! *

Straight Length
- seal on belly (A) ☐ cm
- seal on back (B) (standard length) ☐ cm

Curved Length
- seal on belly (C) ☐ cm
- seal on back (D) (curvilinear length) ☐ cm

Axillary girth
- (E) ☐ cm

(A) on belly

(B) on back

(C) on belly

(D) on back

(E) (at armpits)

SAMPLES What samples did you collect ?

- ☐ whole head
- ☐ whiskers
- ☐ skin
- ☐ blubber
- ☐ muscle
- ☐ stomach
- ☐ kidney tissue
- ☐ heart tissue
- ☐ liver tissue
- ☐ female repro tract
- ☐ other _____

When :

	DATE	TIME	
Seal shot			☐ am ☐ pm
Seal sampled			☐ am ☐ pm
Samples frozen			☐ am ☐ pm

The scientific and cultural way of teaching youth in this project has also been accepted by teachers in both elementary and high school. (Table 3 Meetings and Training Sessions)

Through the biosampling project, hunters and children both learn about the importance of doing our own research. We place value on the fact that if Alaska Natives conduct their own research, they can continue to self regulate and play a major role in managing the resource. By doing research, we can also contribute to conservation efforts while maintaining a sustainable harvest for our cultural preservation.

Because the oil spill interrupted subsistence activities and caused a disruption in passing on traditional knowledge, the biosampling training with the hunters and youth is a way to restore subsistence activities and revitalize our culture. Hunters use the seals they harvest to teach children, then share with elders. The interactive component of the seal biosampling truly enhances stewardship values. The biosampling program enables Alaska Natives to contribute to the restoration of the resources instead of relying on others to do it for them. To that end, recovery of subsistence practices is being addressed through this project.

Through the biosampling program, the ANHSC has gained important and essential research experience. This knowledge and experience led to the negotiation of a comanagement agreement with the National Marine Fisheries Service (NMFS), the Federal agency that has jurisdiction over the management of harbor seals in Alaska. The agreement is authorized under Section 119 of the Marine Mammal Protection Act. The purpose of the agreement is to conserve the harbor seal and to maintain a sustainable subsistence harvest by Alaska Natives.

Table 3. Biosamping Training Workshops and Demonstrations

Date	Location	Project Personnel	Number of Participants	Notes
11/28/95	Cordova	Wynne, Riedel	15	Video taped for inclusion in the biosampling training video
12/1/95	Homer	Wynne, Riedel	4	
11/18/96	Kodiak	Wynne, Riedel	8	
1/13-14/1997	Cordova	Wynne, Vanek, Riedel	12	Conducted in association with the Youth Area Watch program.
5/7-9/1997	Nanwalek	Vanek, Riedel	8	Conducted as part of "Nanwalek Seaweek"
6/26-28/1997	Afognak Island*	Riedel	22	Conducted as part of Kodiak Area Native Association's (KANA) "Dig Afognak" spirit camp
7/11-13/1997	Afognak Island*	Vanek	25	Conducted as part of KANA's "Dig Afognak" spirit camp
10/8-10/1998	Seward	Vanek, Riedel	13	Conducted as part of Youth Area Watch Program; about 12 students and 1 hunter participated
10/13-14/1998	Valdez	Vanek	12	Conducted as part of Youth Area Watch Program
2/1/98	Cordova	Riedel	12	Youth from the Eyak Institute were trained; Cordova hunter Jim Totemoff assisted Riedel in the training
4/24-25/1998	Homer*	Riedel, Boyd Porter (ADF&G)	9	Held in conjunction with the Kachemak Bay Conference; the Pratt Museum hosted the training session.
7/16-18/1998	Sitkalidak Island*	Vanek, Riedel	40	Conducted as part of KANA's spirit camp
7/22/98	Kodiak	Vanek	1	
8/1/98	Cordova	Riedel	9	Photgraphed by National Geographic Magazine

This agreement shares many of the same strengths as comanagement regimes discussed earlier, and more:

1) Equal decision making by both parties in regards to harbor seal management
2) Creation of a structural framework for a co-management committee
3) Decisions that are based on consensus
4) Formation of a scientific technical advisory committee which includes the knowledge of elders and hunters
5) Consultations between the parties prior to implementing enforcement and prior to addressing matters that involve the media
6) Cross cultural education by both parties
7) Development of action plans for the management of harbor seals

Progress on the ANHSC/NMFS agreement has been fully discussed at ANHSC board meetings and some community marine mammal workshops. The document is currently under review within the NMFS agency in Washington D.C.

Comanagement partnerships between Federal Agencies and Tribal bodies create a more balanced management regime, which benefits all concerned. Alaska Natives must be at the table on an equal decision making basis when addressing resource issues that affect us. We are major stakeholders of the resources. We possess expert knowledge of the environment that western scientists cannot get any other way. This knowledge has been "accumulated and shared from one generation to the next." This system of "sustainable use of living resources" can be a large

scientific contribution to the management of the resources (1995, J.L.Bailey et al). The convergence of these two systems of knowledge will better serve the resources. We are no longer willing to accept a top down management system that leaves us out.

Section 119 of the Marine Mammal Protection Act provides for co-management of marine mammals between Federal agencies and Alaska Native Organizations. The Federal agencies that are involved in the *EVOS* process need to be motivated to develop management plans with Alaska Native Organizations.

Alaska State agencies also need to be encouraged to aggressively pursue contracts and agreements with Native organizations that provide for direct involvement in the *EVOS* recovery process. An excellent example of a partnership is the one that exists between the Chugach Regional Resources Commission and The Subsistence Division of the Alaska Dept. of Fish & Game to facilitate the Community Involvement Project. This project provides direct access through the community wide coordinator, to all of the meetings, workshops, and public hearings sponsored by the *EVOS* Trustee Council.

Recognition of Tribal Status by the State of Alaska needs to take place. The Rural Governance Commission is seeking ways to "assure that Native institutions have a place in the state"... "Commission members say they want the state to do more contracting with the tribes and involve tribes more in managing natural resources, for example" (ADN Tuesday March 9, 1999).

Another example is the Youth Area Watch project, which is facilitated through the Chugach School District. This project was designed to involve youth from the spill-impacted communities in ongoing EVOS research programs. It includes only some of the spill-impacted

communities. If the Trustee Council wish to leave a legacy, Youth Area Watch should be initiated in all spill-impacted communities.

Local boats and research assistants should be utilized when conducting EVOS research in and around spill-impacted communities. This will have a positive economic impact in communities still suffering from the effects of the spill.

Finally, The Trustee Council can be commended for sponsoring the biosampling project and others that directly involve Native Communities in meaningful research and management. The Trustee Council recently took action to utilize the Restoration Reserve Fund for Research that includes more community based projects. By taking this step, the Trustee Council will ensure that local communities are not left out and local people will have the resources to develop long term monitoring and stewardship programs. Comanagement Regimes made up of government agencies and Native Organizations, is an important step in the right direction.

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APPENDIX F

Co-management Agreement

between

Alaska Native Harbor Seal Commission

and

National Marine Fisheries Service

AGREEMENT BETWEEN
THE ALASKA NATIVE HARBOR SEAL COMMISSION
AND
THE NATIONAL MARINE FISHERIES SERVICE

I. PURPOSES

A. The primary purpose of this agreement is to set forth an operational structure for the conservation and management of harbor seals in Alaska between the Alaska Native Harbor Seal Commission (ANHSC) and the National Marine Fisheries Service (NMFS) (otherwise referred to as the Parties) in order to achieve the following goals:

1. To develop an Annual Action Plan for the conservation of Alaska harbor seal populations and the co-management of subsistence uses of harbor seals in Alaska;
2. To promote the sustained health of harbor seals in order to protect the culture and way of life of Alaska Natives who rely on the harvest of harbor seals for subsistence uses;
3. To promote scientific research and the collection of data, including the traditional knowledge of Alaska Natives, in order to facilitate management decisions concerning harbor seals in Alaska;
4. To identify and resolve, as early as possible, through a consultative process, any management conflicts that may arise associated with Alaska harbor seals; and
5. To provide information to subsistence hunters and the public at large, as a means of increasing the understanding of the sustainable use, management and conservation of harbor seals.

II. GUIDING PRINCIPLES

A. As the primary consumptive users of Alaska harbor seals, Alaska Natives are committed to a long-term, sustainable harvest of harbor seals for food and handicrafts. Their long history of self-regulation coupled with their rich oral tradition and day-to-day contact with Alaska harbor seals gives them special insights into and knowledge of this important marine mammal.

B. The National Marine Fisheries Service has expertise in biological, ecological and resource management science. Under the Marine Mammal Protection Act, as amended, NMFS is mandated to prevent marine mammal stocks from diminishing beyond the point at which they cease to be a significant functioning element in the ecosystem, and to maintain population levels that will allow sustainable subsistence harvests by Alaska Natives.

C. The best way to conserve and provide stewardship of marine mammal populations that are critical to the subsistence lifestyle of Alaska Natives is through a partnership between the federal agency with management authority and the Alaska Natives using that resource, and by providing for full and equal participation by Alaska Native tribes in decisions affecting the subsistence management of marine mammals to the maximum extent allowed by law.

D. A key to the success of this partnership is to incorporate the spirit and intent of co-management by building trust and by establishing close cooperation and communication between the two Parties and their constituents. Shared decision-making shall be through consensus, based on mutual respect and understanding of each Party's cultural perspective.

III. AUTHORITIES

A. The National Marine Fisheries Service has the authority to enter into this Agreement with the Alaska Native Harbor Seal Commission under Section 119 (16 U.S.C. § 1388) of the Marine Mammal Protection Act of 1972, as amended (MMPA), the Endangered Species Act of 1973, as amended (ESA) (16 U.S.C. § 1531 *et seq.*), and the Department of Commerce Joint Project Authority (15 U.S.C. § 1525). Guidance is provided by Executive Order #13084 of May 14, 1998 ("Consultation and Coordination with Indian Tribal Governments," 63 FR 27655), Presidential Memorandum of April 29, 1994 ("Government-to-Government Relations with Native American Tribal Governments," 59 FR No. 85). U.S. Department of Commerce Memorandum "American Indian and Alaska Native Policy of the U.S. Department of Commerce" of March 30, 1995, and the Memorandum of Agreement for Negotiation of Marine Mammal Protection Act, Section 119 Agreements" of August, 1997.

   This agreement implements the goals of the Memorandum of Agreement for Negotiation of Marine Mammal Protection Act, Section 119 Agreements of August, 1997.

B. The Alaska Native Harbor Seal Commission has the authority to enter into this Agreement under authorizing resolutions from those tribes and tribally-authorized organizations listed in Appendix A.

IV. SCOPE

A. This Agreement is intended to cover the species *Phoca vitulina*, referred to as the harbor seal (English), x□ut (Haida), tsaa (Tlingit), ge'lta'k (Eyak), Quiqyaq (Alutiiq-Chugach), Taquka'aq (Alutiiq-Koniag), Isux or Isugix (Aleutian Aleut), and arnat (Yu'pik) throughout its range in Alaska.

B. The Alaska Native Harbor Seal Commission represents the conservation and co-management interests of harbor seal hunters and subsistence users in a geographic area that extends along the Pacific coast from southeast Alaska to the western tip of the Aleutian Island Chain, and north to Cape Newenham, which encompasses six distinct coastal areas: Southeast Alaska, Chugach, Cook Inlet, Kodiak, the Aleutian Islands, and Bristol Bay.

C. This Agreement encompasses the entire region as described above. However, specific actions taken or recommendations made pursuant to this Agreement may be limited to certain regions or sub-areas, as deemed appropriate.

V. OPERATIONAL STRUCTURE

A. Harbor Seal Co-Management Committee. Recognizing the need for a joint effort to conserve the harbor seal population in Alaska and to maintain a sustainable harvest for subsistence uses, the Parties agree to establish a Harbor Seal Co-Management Committee. The Co-Management Committee will develop a management action plan for harbor seals as set out in Section VI (Annual Action Plan).

1. Composition. The ANHSC and NMFS shall each appoint 3 members to the Co-Management Committee upon the signing of this Agreement. The Committee shall be comprised solely of Federal and Tribal government representatives. The members of the Committee shall serve at the pleasure of the Party by which they were appointed. The Committee shall select its Chair(s) by consensus.

2. Meetings. The Co-management Committee shall hold an annual meeting and may hold other meetings, as necessary, at the request of either Party. The Chair(s) shall circulate a draft agenda for comment in advance of each meeting. A quorum of four members is required for a meeting to be held. Decisions of the Committee shall be through consensus, based on mutual respect. Meetings of the Co-management Committee shall be open to the public. The Committee may also hold executive sessions.

3. Actions. The Co-management Committee shall develop an Annual

Action Plan for harbor seals in Alaska. The Annual Action Plan will be the guiding document for joint and separate management actions by the ANHSC and NMFS related to the conservation and management of subsistence uses of harbor seals. In developing and revising the Annual Action Plan, the Committee shall consider technical information, and such non-technical information including cultural, ethical, policy and legal concerns, as it deems appropriate. The Committee will evaluate the success of its Annual Action Plan and will update it annually.

VI. ANNUAL ACTION PLAN

A. The Co-management Committee shall prepare and/or update an Annual Action Plan describing relevant information, specifying mutually agreed upon actions to be implemented by NMFS and the ANHSC, and setting forth recommendations for additional activities that would promote harbor seal conservation. Annual Action Plans will be comprised of the following five sections:

1. Population monitoring;
2. Harvest management;
3. Education;
4. Research recommendations; and
5. Other recommendations.

B. Under each of these sections, the Annual Action Plan will summarize past activities and describe anticipated activities, including the following:

1. Summary of recent progress and new information; and
2. Outline of future goals and activities.

C. The Annual Action Plan will be developed in a step-wise fashion along the following lines:

1. Recent progress and new information pertaining to population monitoring, harvest management, and education activities will be reviewed;

2. The Co-management Committee, through an integrative discussion of the aforementioned three items will identify information and conservation needs (e.g., information gaps, threats to healthy populations, and potential conservation measures);

3. Identified needs will be prioritized and considered on a case-by-case basis for sharing responsibility between NMFS and the ANHSC by

implementing them as action items; and

4. These needs can be transformed to action items in one of three ways as part of the Annual Action Plan:

    a) If either Party is prepared to voluntarily commit its resources to implement an action item (e.g., conduct a survey, develop a monitoring plan, initiate an educational program), then the Parties will agree on who is to be responsible for undertaking that work during the forthcoming year (and the action item will be incorporated into the population monitoring, harvest management, and education sections of the Annual Action Plan);

    b) If the action item pertains to gathering information, and neither Party is in a position to commit sufficient resources at that time to undertake the needed research, then the action item will be incorporated into the Annual Action Plan under "Research Recommendations;" and

    c) If the action item pertains to something other than gathering information, and neither Party is in a position to commit sufficient resources to it, then the action item will be incorporated into the Annual Action Plan under "Other Recommendations."

.D. Population Monitoring

1. To achieve its conservation goals, it is fundamentally important that the Co-management Committee have access to accurate information on harbor seal populations throughout Alaska. There are several sources for such information, including scientific information as well as local and traditional knowledge.

2. Effective population monitoring involves evaluating the best available information on the following topics:

    a) Population abundance and trends by stock and, as possible, by sub-areas within those stocks;
    b) Habitat use and seasonal movements (including information on preferred haul-out sites, foraging areas, and prey composition);
    c) Sources of mortality to harbor seals (including the nature, extent, timing, and location of such mortality); and
    d) Population status by stock and, as possible, by sub-areas within those stocks (including aspects such as age structure, vital

rates, and indices of physical condition).

E. Harvest Management

1. To ensure that harbor seals are conserved for subsistence and other uses, the Annual Action Plan will include means for accurately monitoring the number of harbor seals harvested each year, the age and sex composition of those harvests, and the condition of animals taken in the harvest. The Annual Action Plan also will include an assessment of local and/or regional take levels, composition of take, and harvest practices and their influence on population health.

2. The Annual Action Plan shall also make provisions for a biosampling program.

3. Effective harvest management will also include measures to encourage the development of local and/or regional harvest management plans that incorporate local harvest practices and to ensure that harbor seals are used for subsistence in a sustainable and non-wasteful manner.

F. Education

1. NMFS and the ANHSC will mutually develop ways to educate and promote understanding about harbor seal issues among users, resource managers, and other groups. This effort will include:

   a) providing education on ways to improve hunting and harvest methods, resource utilization and harvest reporting;
   b) developing a training and internship program to directly involve local people in harvest monitoring, sample collecting, and research;
   c) involving hunters and subsistence users in planning, prioritizing, and conducting research, and in making regulations and management decisions;
   d) improving public understanding of Native cultural uses of harbor seals and MMPA provisions regarding subsistence harvest and conservation of harbor seals; and
   e) serving as a contact for exchange of information about harbor seals.

G. Training: cross-cultural/technical

1. The Annual Action Plan shall include provisions for orientation workshops and other programs for the exchange of cross-cultural information and perspectives. The perspectives may include Alaska

Native ways of life, traditional ways of knowing, local concerns, and issues regarding harbor seals and their use by Alaska Natives (i.e., medicinal, handicraft and spiritual uses) as well as agency policies, legal and administrative constraints, and scientific approaches.

2. Research Ethics. The Parties agree to encourage all scientists who plan to conduct research that will occur in Alaska Native villages to advise Native People who are to be affected by the study of the purpose, goals, and time-frame of the research, the data gathering techniques, and possible impacts of the research, and to obtain the informed consent of the appropriate governing body. The Co-management Committee shall assist researchers in identifying appropriate governing bodies.

H. Research Recommendations

1. For conservation and management efforts to succeed, it is vitally important that accurate, reliable, and timely information about harbor seals be available for consideration. Having access to such information is central to whether or not the Parties will succeed or fail in meeting this Agreement's objectives. Therefore, under this Agreement, the term "research" is used in reference to all relevant forms of information gathering, and includes both conducting scientific studies as well as making local and traditional knowledge available for consideration.

2. The Annual Action Plan will identify relevant information gaps that need to be filled to help achieve the Agreement's goals. These information gaps will consequently describe research needs that the Co-management Committee recommends be addressed as a matter of priority. The purpose of outlining research recommendations in the Annual Action Plan is to help raise the profile of particular information gaps, and thereby to assist researchers in securing and allocating the funds necessary to undertake such work.

I. Other recommendations

1. Under the Annual Action Plan's sections on population monitoring, harvest management, and education, it is expected that the Parties to this Agreement will identify a variety of future activities that they can commit to implementing uni- or bi-laterally (i.e., by NMFS and/or the ANHSC). However, given the wide range of environmental features and human activities that may impact harbor seal conservation, it is likely that the Co-management Committee may identify additional actions that could be helpful to harbor seals, but that are outside the

scope of this Agreement.

2. Therefore, a list of "other recommendations" will be included in the Annual Action Plan. The purpose of these recommendations will be to highlight various conservation and management needs, and to encourage the appropriate persons or entities to take action as recommended in order to assist in the long-term conservation of harbor seals and to promote the sustainability of the harbor seal subsistence harvest by Alaska Natives.

VII. CONSULTATIONS

A. Routine communications. NMFS and the ANHSC shall consult on a routine basis as set forth in this Agreement. In addition, the ANHSC Executive Director and the NMFS Harbor Seal Program Coordinator shall communicate on an as-needed basis concerning matters related to Alaska harbor seals which either Party believes are suitable for such consultation.

B. Regulation and enforcement. NMFS recognizes the existing tribal authority to regulate their members during the conduct of the subsistence harvest of harbor seals. The ANHSC recognizes the Secretary of Commerce's authority to enforce the existing provisions of the MMPA applicable to the Native harvest of harbor seals.

C. As concern about any Alaska harbor seal stock arises (i.e., prior to listing as strategic or depleted under the MMPA and/or as threatened or endangered under the ESA) the Parties agree that the co-management committee shall:

1. Consult and recommend about a possible need to list;

2. Consult and recommend about management strategies to avoid a possible listing;

3. After listing, consult and recommend about possible regulations; and

4. After listing, consult and recommend about possible arrangements for ensuring compliance and enforcement.

D. Media contacts. Both Parties shall strive to support a policy of "no surprises" concerning contact with the media on potentially sensitive issues pertaining to harbor seals in Alaska. Each Party shall endeavor to consult with the other prior to initiating contact with the media on topics contained within this Agreement. Under circumstances in which the media initiate contact with one Party, the contacted Party shall inform the other Party and provide details on the nature of the information communicated. In addition, when a Party is

contacted by the media concerning issues relevant to this Agreement, that Party shall provide the other Party's contact information to the media representative, and encourage them to contact the other Party.

VIII. FUNDING

A. Both Parties agree that long-term funding for sustained co-management and conservation programs is important for the health of harbor seals in Alaska. No financial commitment on the part of any Party is authorized or required by this Agreement.

B. This Agreement does not replace the need for a financial assistance award in accordance with 16 U.S.C. [] 1388. Until those funds become available, each Party shall bear its own costs in participating in this Agreement (e.g., for travel, consultations, training sessions, and population and harvest monitoring).

C. This agreement is subject to the availability of funds.

IX. OTHER PROVISIONS

A. Nothing in this Agreement is intended or shall be construed to authorize any expansion or change in the respective jurisdiction of Federal, State, or Tribal Governments over fish and wildlife resources, or alter in any respect the existing political or legal status of Alaska Native entities.

B. Nothing herein is intended to conflict with current NOAA or NMFS directives. If the terms of this Agreement are inconsistent with existing laws, regulations, or directives of either of the Parties entering into this Agreement, then those portions of this Agreement which are determined to be inconsistent shall be invalid, but the remaining terms and conditions not affected by the inconsistency shall remain in full force and effect. At the first opportunity for review of the Agreement, all necessary changes will be accomplished by either an amendment to this Agreement or by a new Agreement, whichever is deemed expedient to the interest of both Parties.

C. Should disagreements arise over the provisions of this Agreement, or amendments and/or revisions thereto, that cannot be resolved at the operating level, the area(s) of disagreement shall be stated in writing by each Party and presented to the other Party for consideration. If agreement on interpretation is not reached within thirty days, the disagreement will be referred to the Co-management Committee for appropriate resolution.

X. ADOPTION, DURATION, AND MODIFICATION

A. This Agreement shall take effect upon the date of signature of the respective Parties and shall remain in effect until terminated by either of the Parties in accordance with the termination provisions of this Agreement.

B. Modifications of this agreement may be proposed at any time by either Party and shall become effective upon approval by both Parties.

C. Termination clause: This Agreement may be terminated by either Party by giving 45 days prior written Notice of Termination to the other Party. Such Notice shall be addressed to the principal contact for the receiving Party.

XI. SIGNATORIES

In Witness Thereof, the Parties hereto have executed this Agreement as of the last written date below:

Harold P. Martin Date	Steven Pennoyer Date
Chairman Alaska Native Harbor Seal Commission	Administrator, Alaska Region National Marine Fisheries Service
320 West Willoughby Ave., Suite 300 Juneau, Alaska 99801	U.S. Department of Commerce P.O. Box 21668 Juneau, Alaska 99801

Agreement between the Alaska Native Harbor Seal Commission and the National Marine Fisheries Service Entered into Pursuant to Section 119 of the Marine Mammal Protection Act of 1972, As Amended

Appendix A

List of Tribes and Tribally-authorized Organizations Providing Authorized Resolutions to the Alaska Native Harbor Seal Commission.

Tribe	Resolution Date
Akhiok Tribal Council	10-19-95
Akutan Traditional Council	10-29-96
Aleknagik Traditional Council	05-21-95
Aleutian Pribilof Islands Association	07-09-97
Bristol Bay Native Association	05-01-98
Chenega Bay IRA Council	04-24-98
Cook Inlet Marine Mammal Council	06-19-98
Kenaitze Indian Tribe, IRA	05-05-95
Native Village of Atka	01-17-97
Native Village of Chignik Lake	01-26-96
Native Village of Eyak	04-25-95
Native Village of Nanwalek	05-09-96
Native Village of Old Harbor	03-20-98
Native Village of Ouzinkie	04-20-95
Native Village of Port Graham	04-24-96
Tribe of Unalaska	11-26-96
Qutekcak Native Tribe	10-27-97
Seldovia Village Tribe	10-19-95
Tatitlek Village IRA Council	04-11-95
Unga Tribal Council	11-07-96
Valdez Native Tribe	10-26-95
Yakutat Tlingit Tribe	04-29-98