EVALUATING THE FEASIBLITY OF DEVELOPING A COMMUNITY-BASED FORAGE FISH SAMPLING PROJECT FOR THE EVOS GEM PROGRAM

Project Number:

Restoration Category:	Monitoring
Proposer:	DOI-FWS
Lead Trustee Agency:	USFWS
Cooperating Agencies:	ADF&G
Duration:	1.5 years (FY 02 - FY 03)
Cost FY 01:	$54.3K
Cost FY 02:	$11.6K
Cost FY 03:	$0.0K
Geographic Area:	Kachemak Bay – lower Cook Inlet, Resurrection Bay, Kodiak Island, and Prince William Sound regions
Injured Resource/Service:	Common murres and other seabirds, and marine mammals injured by the T/V Exxon Valdez oil spill

ABSTRACT

This proposed transition project is based on recently completed APEX Projects 95163K, 97163K, 98163K, and 99163K, a successful 5-year pilot study that used stomach contents from sport-caught halibut to sample forage fish populations in Kachemak Bay – lower Cook Inlet. The project is designed to evaluate the feasibility of developing similar community-based studies to help monitor long-term trends in forage fish populations in several regions of the spill area during the upcoming EVOS-sponsored Gulf Ecosystem Monitoring (GEM) program. The project will provide information needed by Trustee Council scientists to help assess and understand the types and levels of community participation that may be available for long-term GEM forage fish monitoring studies. Also, if project results are favorable, the information can be used to begin designing cost-effective, community-based forage fish monitoring studies to track long-term trends in capelin and sand lance stocks in the Kachemak Bay – lower Cook Inlet, Resurrection Bay, Kodiak Island, and Prince William Sound regions for GEM. The project addresses the need to increase public interest and participation in EVOS-sponsored research and monitoring work.

INTRODUCTION

Evaluating the influence of fluctuating prey populations (e.g., forage fish) is critical to understanding the recovery of many species injured by the T/V Exxon Valdez oil spill. It is also important to understanding changes in marine bird and mammal populations that may be caused by other phenomena (e.g., changing environmental conditions). However, it is expensive to conduct annual hydroacoustic and trawl surveys to assess forage fish stocks over large regions for long periods of time.

As part of the 1995-1999 Alaska Predator Experiment (APEX), we tested the feasibility and effectiveness of using stomach contents from sport-caught Pacific halibut (Hippoglossus stenolepis) to obtain information on capelin (Mallotus villosus) and Pacific sand lance (Ammodytes hexapterus), two forage fish important to piscivorous seabirds (Projects 95163K, 97163K, 98163K, and 99163K; see Roseneau and Byrd 1996, 1997, 1998, 1999, 2000). Results from the 5-year study in Kachemak Bay – lower Cook Inlet demonstrated that using these opportunistic predatory fish as sampling tools could supply valuable low-cost information on the relative abundance and spatial and temporal distribution of capelin and sand lance stocks that could be used to monitor long-term changes in prey bases important to seabird and marine mammal populations (see Roseneau and Byrd 2000). The multiyear data showed that capelin and sand lance dominated the fish component of the halibut stomachs every year (82%, 53%, 68%, 87%, and 93% in 1995-1999, respectively), and they also showed that the combined percentages of these two species were lowest in 1996 and 1997, when non-forage fish numbers were highest (22% and 25% in 1996-1997, compared to 6%, 11%, and 5% in 1995 and 1998-1999, respectively). The data also showed that capelin numbers declined throughout the study area from 59% in 1995 to 45% in 1996 and 18% in 1997, and then increased to 43% in 1998 and 54% in 1999, while concurrent changes in sand lance numbers were almost the reverse, increasing from 23% in 1995 to 50% in 1997, and then declining to 44% in 1998 and 39% in 1999.

Also, when the Kachemak Bay – lower Cook halibut stomach data were analyzed in conjunction with 1995-1999 black-legged kittiwake (Rissa tridactyla) chick diet data from the Barren Islands (see Project 99163J; Roseneau et al. 2000), a significant relationship was found between the numbers of capelin in the halibut stomachs and the weights of these forage fish as percentages of total fish in the chick diets (see Fig. 7 in Roseneau and Byrd 2000; Spearman Rank Correlation, $r = 0.98$, $P < 0.01$). An almost significant relationship was also found between the chick diets and capelin numbers in the smaller Barren Islands subunit of the study area (see Fig. 7 in Roseneau and Byrd 2000; Spearman Rank Correlation, $r = 0.87$, $P = 0.11$). A relationship was also probably present between the numbers of sand lance in the halibut stomachs and the weights of this species as percentages of total fish in the kittiwake chick diets (see Fig. 7 in Roseneau and Byrd 2000 and p. 3 of the text).

The study also demonstrated that there was a significant relationship between the numbers of capelin found per halibut stomach and per mid-water trawl in the Barren Islands sector of the study area (see Fig. 9 in Roseneau and Byrd 2000; Pearson Correlation Coefficient, $r = 0.99$, $P < 0.02$). Although a similar relationship was not found between the numbers of sand lance per halibut stomach and per mid-water trawl, the data suggested that one might be present for these variables, if a longer time series of data were available.

In summary, results from the 1995-1999 APEX large fish as samplers project confirmed that analyzing the stomach contents from sport- and subsistence-caught predatory fish, such as halibut, can supply low-cost relative abundance data on forage fish that can be used to monitor long-term changes in prey bases important to seabird and marine mammal populations. Furthermore, if sufficient data can be collected at regular intervals, within-season variation can also be detected by this relatively simple technique (see Fig. 6 in Roseneau and Byrd 2000). The

strong relationships between the halibut stomach data and the kittiwake chick diet and mid-water trawl data sets also indicated that changes observed in halibut stomach contents can provide a variety of valuable information on capelin and other forage fish stocks that will be useful to long-term monitoring studies of seabirds in areas where seabird foraging areas and sport and subsistence fishing activities regularly overlap.

Given these results, we believe that if similar work was conducted during the EVOS-sponsored Gulf Ecosystem Monitoring (GEM) program, it would provide valuable long-term information on capelin and sand lance populations and other forage fish stocks in the spill area. We also believe that these types of long-term monitoring projects could benefit from increased public participation in them. As a result, we designed a transition study to explore and evaluate the feasibility of developing similar forage fish monitoring studies for GEM that would not only directly involve charter boat operators, but also local subsistence and personal use fishermen, students, teachers, village and IRA council natural resource specialists, and other citizens from oil spill communities in the Kachemak Bay – lower Cook Inlet, Resurrection Bay, Kodiak Island, and Prince William Sound regions in the sampling efforts. The proposed project addresses the ongoing need to develop strong public interest and participation in EVOS-sponsored research and the upcoming GEM program.

NEED FOR THE PROJECT

A. Statement of Problem

Monitoring forage fish stocks during the EVOS-sponsored GEM program would provide valuable information on the long-term status of species important to a variety of northern Gulf of Alaska seabird, marine mammal, and fish populations (e.g., common murres, Uria aalge; black-legged kittiwakes, Rissa tridactyla; harbor seals, Phoca vitulina; northern sea lions, Eumetopias jubatus; salmon, Oncorhynchus spp.; Pacific cod, Gadus macrocephalus; halibut). It would also provide important information on the spatial and temporal fluctuations in populations of two key forage fish species (e.g., capelin, sand lance) that might help explain changes that might occur in northern Gulf of Alaska and Prince William Sound seabird, marine mammal, and fish populations important to subsistence-dependent communities; commercial, sport, and subsistence fishermen; charter boat operators and ecotourism businesses; and other resource users in these regions. However, it can be prohibitorily expensive to monitor forage fish over large regions for long periods of time using standard fisheries techniques, including hydroacoustic, trawl, and beach seine surveys. Furthermore, even if it was feasible to use some combination of these methods to track changes in forage fish populations, past experience strongly suggests that direct involvement of local resource users and other members of the public would be unlikely. The proposed study addresses the ongoing need to develop strong public interest and participation in EVOS-sponsored research and the upcoming GEM program.

B. Rationale/Link to Restoration

The proposed project is based on recently completed APEX Projects 95163K, 97163K, 98163K, and 99163K, a successful 5-year pilot study that used stomach contents from sport-caught halibut to sample forage fish populations in Kachemak Bay – lower Cook Inlet (see Roseneau and Byrd 1996, 1997, 1998, 1999, 2000). The project is designed to explore and evaluate the feasibility of developing similar community-based studies to help monitor long-term trends on forage fish populations in several regions of the spill area during the upcoming EVOS-sponsored Gulf Ecosystem Monitoring (GEM) program. The project will provide information needed by Trustee Council scientists to help assess and understand the types and levels of community participation that may be available for long-term GEM forage fish monitoring studies. Also, if project results are favorable, the information can be used to begin designing cost-effective,

community-based forage fish monitoring studies to track long-term trends in capelin and sand lance stocks in the Kachemak Bay – lower Cook Inlet, Resurrection Bay, Kodiak Island, and Prince William Sound regions for GEM. The project addresses the need to increase public interest and participation in EVOS-sponsored research and monitoring work.

C. Location

The project will be directed from the Alaska Maritime National Wildlife Refuge (AMNWR) headquarters in Homer, Alaska, and information will be collected from up to 11 oil spill communities in four separate study areas: Kachemak Bay - Cook Inlet, Resurrection Bay, Kodiak Island, and Prince William Sound. The communities include Homer, Seldovia, Port Graham, Nanwalek, Seward, Valdez, Cordova, Chenega Bay, Tatitlek, Kodiak, Ouzinkie, and possibly other villages in the Kodiak archipelago (e.g., Port Lions). All communities involved in the proposed project will benefit from the study.

COMMUNITY INVOLVEMENT AND TRADITIONAL ECOLOGICAL KNOWLEDGE

Community involvement is the central theme of the proposed project. The study is specifically designed to explore and evaluate the feasibility of directly involving residents (e.g., subsistence and personal use fishermen, charter boat operators, students, teachers, village and IRA council natural resource specialists, and other residents) from a number of oil spill communities in long-term forage fish monitoring studies that could become valuable components of the soon-to-be implemented GEM program.

PROJECT DESIGN

A. Objectives

The project objective is to explore and evaluate the feasibility of involving residents of oil spill communities (e.g., subsistence and personal use fishermen, students, teachers, village and IRA council natural resource specialists, other members of the public) directly in long-term forage fish monitoring studies that could become valuable components of the GEM program.

B. Methods

The project will be directed from AMNWR headquarters in Homer, Alaska, and information will be collected from 11 oil spill communities in four separate study areas: Kachemak Bay - Cook Inlet, Resurrection Bay, Kodiak Island, and Prince William Sound. The communities will include Homer, Seldovia, Port Graham, Nanwalek, Seward, Valdez, Cordova, Chenega Bay, Tatitlek, Kodiak, Ouzinkie, and possibly other villages in the Kodiak archipelago (e.g., Port Lions). A color poster summarizing the 1995-1999 APEX Project 99163K results will be prepared before data collection begins (see Roseneau and Byrd 2000). Fourteen large copies (one per community and three backups) and 600 smaller versions (50 per community) will be printed for use during community meetings and public presentations. Also, 110 copies of the 1995-1999 APEX Project 99163K final report and 110 copies of scanned color photos showing sand lance and capelin will be printed to hand out during meetings (10 of each per community). Note: Electronic copies of the forage fish photos and report will also be made available to the communities for residents with computers capable of handling these files.

Data Collection

During the data collection phase of the project, the principal investigator will visit each community on two separate occasions for three days at a time to give public presentations and meet directly with a variety of residents, including subsistence and personal use fishermen, students, teachers, city and village council members, community facilitators and natural resource specialists, and other members of the public. Presentations and meetings will be set up ahead of time by contacting various key members of the communities (e.g., community facilitators; natural resource specialists and managers; school teachers and principals; city and tribal council members; fisheries biologists, if present) and other entities (e.g., Youth Area Watch program managers and coordinators). During the presentations and meetings, including those held at local schools, information will be provided on the upcoming EVOS-sponsored GEM program and the forage fish sampling method developed by APEX Projects 95163K, 97163K, 98163K, and 99163K; see Roseneau and Byrd 1996, 1997, 1998, 1999, 2000). Community members attending the presentations and meetings will be asked to comment on their interest in participating in similar studies during the GEM program. They will also be asked for information on the species and general time-frames, locations, and quantities of predatory fish typically caught during local subsistence and other types fisheries. In addition, attendees will be asked for their opinions on how meaningful participation in long-term forage fish sampling efforts based on the large fish as samplers projects could best be achieved in their communities. They will also be asked to comment on the types and levels of support that might be needed to encourage and maintain participation in community-based long-term forage fish studies (e.g., stipends for local project coordinators and students collecting predatory fish stomachs from fishermen; other potential needs, such as supplying small freezers to store samples before shipping them to research facilities and covering costs of shipping samples to researchers). Note: The oil spill communities are fishing communities and many of the residents also live subsistence lifestyles. Making two separate trips to them will markedly increase the number of people that can be interviewed.

Data Analysis

Information gathered during the community visits will be organized into a variety of topics and summarized in a final report. Topics will include, but will not be limited to (1) the general types and levels of local interest expressed by residents in participating in community-based GEM forage fish studies; (2) the number of potential initial participants; (3) the species and general time-frames, locations, and quantities of predatory fish [e.g., halibut and other right-eye flounders (Pleuronectidae), Pacific cod (Gadus macrocephalus), lingcod (Ophiodon elongatus), rockfish (Sebastes spp.] typically taken by potential participants (e.g., subsistence and personal use fishermen; charter boat operators, if present; other interested residents); and (4) the general levels and kinds of support that would be required to encourage and maintain participation in community-based long-term forage fish studies (e.g., stipends for local project coordinators and students collecting predatory fish stomachs from fishermen; other potential needs, such as supplying small freezers to store samples before shipping them to research facilities, and covering costs of shipping samples to researchers). The report will provide the kinds of information needed by Trustee Council scientists to help assess and understand the levels and types of community participation that may be available for incorporation in long-term GEM forage fish monitoring studies.

Draft data collection and analysis protocols will also be developed for use during potential community-based GEM forage fish monitoring studies and appended to the final report. These protocols will based on information obtained during the1995-1999 APEX large fish as samplers studies and the community visits.

C. Cooperating Agencies, Contracts, and Other Agency Assistance

Alaska Department of Fish and Game (ADF&G) fisheries biologists will be interviewed as a potential source of contacts in some communities. No contracts are needed for the study. The Alaska Maritime National Wildlife Refuge will donate one month of the project manager's time (G.V. Byrd) to the project. The refuge will also provide computers and office space for the study.

SCHEDULE

A. Measurable Project Tasks for FY 02 (1 October 2001 – 30 September 2002), and FY 03 (1 October 2002 – 15 April 2003)

FY 02

1 Oct – 15 Nov 2001:	Prepare color poster of 1995-1999 APEX Project 99163K results, and have copies of it and the Project 99163K final report and forage fish photos printed for meetings; prepare draft meeting agendas; begin contacting key individuals in study communities (e.g., natural resource specialists and managers; community facilitators; school teachers and principals; village, tribal, and IRA council members, subsistence fishermen, charter boat operators) and personnel in charge of the Youth Area Watch Programs (Projects 02210 and 02610) to explain the purpose of the study and set up meetings.
16 Nov – 31 Dec 2001:	Continue contacting key individuals to set up community meetings and schedule public presentations; continue supplying information on the study to key individuals and Youth Area Watch program managers and coordinators.
1 Jan – 31 Mar 2002:	Begin visiting communities to give presentations and hold meetings with key individuals and other interested residents to collect information for the study.
1 Apr – 30 June 2002:	Continue visiting communities to give presentations and hold meetings with key individuals and other interested residents to collect information (see January-March above).
1 July – 31 August 2002:	Complete visiting communities and collecting information.
1-30 Sep 2002:	Begin compiling and organizing information collected during the January-August visits to the communities and meetings with Youth Area Watch personnel.

FY 03

1 Oct - 31 Dec 2002:	Finish compiling and organizing he FY 02 information; analyze information and organize results.
1 Jan – 15 Mar 2003:	Begin preparing draft final report of FY 02 activities.

16 March -15 Apr 2003:	Finalize and submit final report of FY 02 activities to Chief Scientist for peer-review on or before 15 April.

B. Project Milestones and Endpoints

November 2001	Complete preparing materials needed for community visits and public presentations.
December 2001	Complete setting up the first round of community visits to collect data.
March 2002	Complete the first round of community visits to collect data.
August 2002	Complete the second round of community visits to collect data.
September 2002	Begin compiling and organizing information collected during January-August.
December 2002	Finish compiling, and analyzing FY 02 data and organizing results.
April 2002	Submit final report of FY 02 activities to Chief Scientist.

C. Completion Date

A final report of FY 02 activities will submitted to the Chief Scientist on or before 15 April 2003.

PUBLICATIONS AND REPORTS

The proposed project is a transition study designed to evaluate the feasibility of directly involving fishermen, natural resource specialists, students, and other residents of communities in Kachemak Bay – lower Cook Inlet, Resurrection Bay, Kodiak Island, and Prince William Sound in community-based GEM forage fish monitoring projects to track long-term trends in capelin and sand lance stocks in large sections of the spill zone during the GEM program. The types of information collected by the study will not be particularly appropriate for standard scientific publications. However, if the study is funded, a comprehensive final report will be prepared and submitted to the Chief Scientist by 15 April 2003. The report will provide the kinds of information needed by Trustee Council scientists to help assess and understand the levels and types of community participation that may be available for incorporation in long-term GEM forage fish monitoring studies. It will also provide a sound basis for designing community-based forage fish monitoring projects.

PROFESSIONAL CONFERENCES

Study results will be presented at the annual Trustee Council-sponsored workshop in January 2003.

NORMAL AGENCY MANAGEMENT

The proposed project is not something that AMNWR or the FWS are required to do by statute or regulation. Furthermore, the types of information collected by the proposed study are not part of

the normal AMNWR resource monitoring plan. The project could not be conducted without support from the EVOS Trustee Council.

COORDINATION AND INTEGRATION OF RESTORATION EFFORT

Possible community involvement in forage fish monitoring studies has already been discussed with Nancy Yeaton (Natural Resources Specialist and Community Facilitator, Nanwalek IRA Council), Edgar Otis (Natural Resources Specialist, Port Graham Village Council), Lillian Elvsaas (Community Facilitator, Seldovia Village Tribe), and a representative of the Youth Area Watch Program (Joshua Hall, Anchorage School District). Similar discussions will be held with representatives and facilitators from other oil spill communities and the Youth Area Watch programs (Projects /210 and /610) before implementing the study. During the study, visits to communities will be closely coordinated with community representatives and facilitators, natural resource specialists, Youth Area Watch personnel, and other appropriate members of the public. Note: All discussions held to date with community representatives, natural resource specialists, and Youth Area Watch personnel about developing community participation in forage fish monitoring studies have been positive.

EXPLANATION OF CHANGES IN CONTINUING PROJECTS

This is a new study, not a continuing project.

PROPOSED PRINCIPAL INVESTIGATOR

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PRINCIPAL INVESTIGATOR

1. David G. Roseneau (Co-Principal Investigator)

Mr. Roseneau will be responsible for the project in the field and the office. He will travel to the communities in the four study areas to give public presentations on the previously successful APEX large predatory fish as samplers studies (Projects 95163K, 97163K, 98163K, and 99163K), and talk to and interview students, teachers, natural resource specialists, facilitators, subsistence fishermen, and other members of the public about possible participation in similar projects during the upcoming GEM program. He will make certain that the work stays on schedule and is coordinated with all participants, and he will analyze the data and write the final close-out report. Mr. Roseneau received his B.S. degree in wildlife management and M.S. degree in biology from the University of Alaska - Fairbanks in 1967 and 1972, respectively. His thesis research was on the numbers and distribution of gyrfalcons, Falco rusticolus on the Seward Peninsula, Alaska. He joined the U.S. Fish and Wildlife Service in January 1993, and was project leader for EVOS-sponsored common murre restoration studies at the Barren Islands during 1993-1994 (Projects 93049 and 94039). Mr. Roseneau was also principal investigator of the 1995-1999 APEX Barren Islands seabird and large fish as samplers studies (Projects 95163J, 95163K, 96163J, 97163J, 97163K, 98163J, 98163K, 99163J, and 99163K), and the 1996-1997

and 1999 Barren Islands and 1998 Chiswell Islands common murre population monitoring projects (Projects 96144, 97144, 98144, and 99144). Currently, he is principal investigator for the 2001 Chiswell Islands common murre population monitoring project (Project 01144). Prior to 1993, Mr. Roseneau worked as a consulting biologist for over 20 years. During that time, he conducted and managed marine bird, raptor, and large mammal projects in Alaska and Canada for government agencies and private-sector clients, and he also participated in several large-scale murre (Uria spp.) monitoring projects. In 1976-1983, as co-principal investigator of NOAA/OCSEAP Research Unit 460, he conducted monitoring studies of murres and black-legged kittiwakes (Rissa tridactyla) at capes Lisburne, Lewis, and Thompson in the Chukchi Sea, and St. Lawrence, St. Matthew, and Hall islands in the Bering Sea. He also studied auklets (Aethia spp.) at St. Lawrence and St. Matthew islands, and participated in murre and kittiwake projects at Bluff in Norton Sound. During 1984-1986, he also participated in monitoring studies of murres and kittiwakes in the northeastern Chukchi Sea, and in 1987-1988, 1991-1992, and 1995-2000, he conducted additional murre and kittiwake monitoring work at capes Lisburne and Thompson, and Chamisso and Puffin islands. Mr. Roseneau is experienced in collecting and analyzing data on numbers, productivity, and food habits of seabirds; relating trends in numbers and productivity to changes in food webs and environmental parameters (e.g., air and sea temperatures, current patterns); and assessing potential impacts of petroleum exploration and development on nesting and foraging marine birds. He also has experience collecting and analyzing certain types of data on forage fish, and he has designed and successfully tested a new technique for sampling capelin (Mallotus villosus) and Pacific sand lance (Ammodytes hexapterus) by using stomach contents from sport-caught Pacific halibut (Hippoglossus stenolepis). He has broad knowledge of rock climbing techniques and has operated inflatable rafts and other outboard-powered boats in the Bering, Chukchi, and Beaufort seas and on various Alaskan rivers in excess of 3,000 hrs. He has also accrued several hundred additional hours operating time in small boats and larger, more powerful vessels (e.g. 25 ft, 300-400 hp HydroSports and Boston Whalers) in Kachemak Bay, Prince William Sound, and Kenai Peninsula and Barren Island waters. During his career, Mr. Roseneau has authored and co-authored 100 reports and publications, including 33 on Alaskan seabirds and 5 on a new sampling technique for capelin and sand lance. He has also made over 30 public presentations on seabirds, raptors, and caribou at scientific and wildlife law enforcement conferences and meetings.

Selected Publications

Roseneau, D.G. and G.V. Byrd. 1997. Using Pacific halibut to sample the availability of forage fishes to seabirds. Pp. 231-241 in Forage Fishes in Marine Ecosystems, Proceedings of the International Symposium on the Role of Forage Fishes in Marine Ecosystems, University of Alaska Sea Grant College Program Report No. 97-01, University of Alaska-Fairbanks, Fairbanks, Alaska.

Murphy, E.C., A.M. Springer, and D.G. Roseneau. 1991. High annual variability in reproductive success of kittiwakes (Rissa tridactyla L.) at a colony in western Alaska. J. Anim. Ecol. 60: 515-534.

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Murphy, E.C., A.M. Springer, and D.G. Roseneau. 1986. Population status of Uria aalge at a colony in western Alaska: results and simulations. Ibis 128: 348-363.

Springer, A.M., D.G. Roseneau, D.S. Lloyd, C.P. McRoy, and E.C. Murphy. 1986. Seabird responses to fluctuating prey availability in the eastern Bering Sea. Marine Ecol. Prog. Ser. 32: 1-12.

Springer, A.M. and D.G. Roseneau. 1985. Copepod-based food webs: auklets and oceanography in the Bering Sea. Marine Ecol. Prog. Ser. 21: 229-237.

Murphy, E.C., D.G. Roseneau, and P.J. Bente. 1984. An inland nest record for the Kittlitz's murrelet. Condor 86: 218.

Springer, A.M., D.G. Roseneau, E.C. Murphy, and M.I. Springer. 1984. Environmental controls of marine food webs: food habits of seabirds in the eastern Chukchi Sea. Can. J. Fish Aquat. Sci. 41: 1202-1215.

OTHER KEY PERSONNEL

1. G. Vernon Byrd (Project Manager)

Mr. Byrd will supply overall guidance to the project, including providing advice during data collection and analysis and report writing, and he will also review presentations and reports as needed. Mr. Byrd received a B.S. degree in wildlife management from the University of Georgia in 1968, did post-graduate studies in wildlife biology at the University of Alaska-Fairbanks in 1975, and completed his M.S. degree in wildlife resources management at the University of Idaho in 1989. His thesis, entitled "Seabirds in the Pribilof Islands, Alaska: Trends and monitoring methods", explored statistical procedures for analyzing kittiwake (Rissa spp.) and murre (Uria spp.) population data. Mr. Byrd has worked for the U.S. Fish and Wildlife Service for over 20 years, focusing on studies of marine birds in Alaska and Hawaii. His major interests center around monitoring long-term trends in seabird populations, including numbers of birds and reproductive performance, and he has worked at murre colonies in the Aleutian Islands, the Bering and Chukchi seas, and western Gulf of Alaska. Mr. Byrd was a co-author of the final T/V Exxon Valdez oil spill damage assessment report for murres. Also, he was project manager of the 1993-1994 Barren Islands common murre restoration monitoring projects (Projects 93049 and 94039), the 1995-1999 APEX Barren Islands seabird and large fish as samplers studies (Projects 95163J, 95163K, 96163J, 97163J, 97163K, 98163J, 98163K, 99163J, and 99163K), the 1996-1997 and 1999 Barren Islands and 1998 Chiswell Islands common murre population monitoring projects (Project 96144, 97144, 99144, and 98144), and EVOS-sponsored work designed to remove predators from seabird nesting habitats (Projects 94041 and 95041). Currently, Mr. Byrd is project manager for the 2001 Chiswell Islands common murre population monitoring project (Project 01144). He has authored and co-authored over 50 scientific papers and 75 U.S. Fish and Wildlife Service reports on field studies, and has made over 35 presentations on seabirds at scientific conferences and meetings. Mr. Byrd is the supervisory wildlife biologist at the Alaska Maritime National Wildlife Refuge, the premier seabird nesting area in the national public land system.

Selected Publications

Roseneau, D.G. and G.V. Byrd. 1997. Using Pacific halibut to sample the availability of forage fishes to seabirds. Pp. 231-241 in Forage Fishes in Marine Ecosystems, Proceedings of the International Symposium on the Role of Forage Fishes in Marine Ecosystems, University of Alaska Sea Grant College Program Report No. 97-01, University of Alaska-Fairbanks, Fairbanks, Alaska.

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2002 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 2001 - September 30, 2002

Budget Category:	Authorized FFY 2001	Proposed FFY 2002						
Personnel	$0.0	$26.1						
Travel	$0.0	$20.8						
Contractual	$0.0	$0.0						
Commodities	$0.0	$3.5						
Equipment	$0.0	$0.0	LONG RANGE FUNDING REQUIREMENTS					
Subtotal		$50.4	Estimated FFY 2003	Estimated FFY 2004	Estimated FFY 2005	Estimated FFY 2006	Estimated FFY 2007	
General Administration	$0.0	$3.9						
Project Total	$0.0	$54.3	$11.6	$0.0	$0.0	$0.0	$0.0	
Full-time Equivalents (FTE)	0.0	0.4						
	Dollar amounts are shown in thousands of dollars.							
Other Resources								

Comments: This proposed transition project is based on recently completed APEX Projects 95163K, 97163K, 98163K, and 99163K, a successful 5-year pilot study that used stomach contents from sport-caught halibut to sample forage fish populations in Kachemak Bay - lower Cook Inlet. The project is designed to evaluate the feasibility of developing similar community-based studies to help monitor long-term trends in forage fish populations in several regions of the spill area during the upcoming EVOS-sponsored Gulf Ecosystem Monitoring (GEM) program. The project will provide information needed by Trustee Council scientists to help assess and understand the types and levels of community participation that may be available for long-term GEM forage fish monitoring studies. Also, if project results are favorable, the information can be used to begin designing cost-effective, community-based forage fish monitoring studies to track long-term trends in capelin and sand lance stocks in the Kachemak Bay - lower Cook Inlet, Resurrection Bay, Kodiak Island, and Prince William Sound regions for GEM. The project addresses the need to increase public interest and participation in EVOS-sponsored research and monitoring work. During the transition work, data collection and analysis protocols will also be

FY02

Prepared: 04/10/01

Project Number:
Project Title: Evaluating the Feasibility of Developing a Community-based Forage Fish Sampling Project for the EVOS GEM Program
Agency: DOI-FWS

2002 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 2001 - September 30, 2002

Personnel Costs:		GS/Range/ Step	Months Budgeted	Monthly Costs	Overtime	
Name	Position Description					
David G. Roseneau	Project Leader (Principal Investigator)	GS11/6	4.5	5.8	0.0	
G. Vernon Byrd	Project Manager	GS13/1	1.0	0.0	0.0	
C. Berg	Program Manager	GS12	0.5	0.0	0.0	
	Subtotal		6.0	5.8	0.0	
					Personnel Total	

Travel Costs:	Ticket Price	Round Trips	Total Days	Daily Per Diem	
Description					
Travel to Anchorage to meet with Youth Area Watch and EVOS staff	0.2	2	4	0.2	
Travel to Seldovia to give presentations and interview potential participants	0.1	2	6	0.2	
Travel to Nanwalek to give presentations & interview potential participants	0.1	2	6	0.2	
Travel to Port Graham to give presentations & interview potential pa	0.1	2	6	0.2	
Travel to Seward to give presentations & interview potential participants	0.1	2	6	0.2	
Travel to Kodiak to give presentations & interview potential participants	0.4	2	6	0.2	
Travel to Ouzinkie to give presentations & interview potential participants	0.1	2	6	0.2	
Travel to Chenega Bay to give presentations & interview potential participants	0.4	2	6	0.2	
Travel to Tatitlek to give presentations & interview potential participants	0.1	2	6	0.2	
Travel to Valdez to give presentations & interview potential participants	0.4	2	6	0.2	
Travel to Cordova to give presentations & interview potential participants	0.4	2	6	0.2	
Estimated car rental & taxi costs (all communities)			64	0.05	
				Travel Total	

FY02

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2002 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET
October 1, 2001 - September 30, 2002

Contractual Costs:	
Description	
No contracts are needed for the proposed project	
When a non-trustee organization is used, the form 4A is required. **Contractual Total**	
Commodities Costs:	
Description	
Costs of printing 110 copies of the 99163K final report ($3.00 each) Costs of printing 14 large laminated copies of a color poster summarizing the 99163K final report (1 per community + 2 @ $125.00 each) Costs of printing 550 small copies of a color poster summarizing the 99163K final report (50 per community @ $1.00 each) Costs of printing 110 copies of scanned photos of capelin and sand lance (10 per community @ $1.00 each) Costs of printing 550 copies of questionnaires (50 per community @ $1.00 each) Field notebooks, other meeting supplies [Note: FWS will furnish additional office supplies; office, warehouse, lab, and freezer space; and telephone and postage costs]	
Commodities Total	

FY02

Prepared: 04/10/01

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Agency: DOI-FWS

2002 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET
October 1, 2001 - September 30, 2002

New Equipment Purchases:	Number of Units	Unit Price	
Description			
No equipment is needed for the project			
Those purchases associated with replacement equipment should be indicated by placement of an R.		**New Equipment Total**	

Existing Equipment Usage:	Number of Units	
Description		
Computers and printers (non oil spill equipment)	2	
[Note: The FWS will also supply office space and supplies for the project]		

FY02

Prepared: 04/10/01

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