



P.O. Box 705 – Cordova, AK 99574
(907) 424-5800 – fax 424-5820

July 25, 2007

Michael Baffrey, Executive Director
EVOS Trustee Council
441 West Fifth Avenue, Suite 500
Anchorage, AK 99501

Re: Project 070814 Seabird Predation on Juvenile Herring in Prince William Sound

Dear Michael,

We are writing to you regarding project 070814, Seabird Predation on Juvenile Herring in Prince William Sound. As per your request of 15 June 2007, attached please find an update on this project that includes more detailed sections on “Progress to date”, and “Changes from original budget and proposal”.

Briefly, we are not proposing substantive changes to the project. As such, we did not revise the detailed project description. The budget described in the original proposal will be the same. We are attaching the budget – the only changes are removal of any references to R. Crawford’s proposed juvenile herring study in northeast Prince William Sound, which was not funded.

Seabirds are important predators of juvenile herring, making them an important long-term indicator for managers. Our project will provide a strong foundation for understanding herring predation as well as the role of herring for three seabird species that have not yet recovered from the EVOS oil spill: pigeon guillemot, marbled murrelet, and Kittlitz’s murrelet. At the same time, the synergistic effect of working together with the herring hydroacoustic surveys makes our project more cost efficient, and a better scientific effort.

We hope that you will recommend to the EVOS Trustee Council approval of Project 070814, Seabird Predation on Juvenile Herring in Prince William Sound for continued FY08-FY10 funding.

Best wishes,

/s/

Mary Anne Bishop, Ph.D.
Co-Principal Investigator
Prince William Sound Science Center

/s/

Kathy Kuletz, Ph.D.
Co-Principal Investigator
US Fish and Wildlife Service

Encs.: Update and Budget

Cc: Catherine Boerner, EVOS Interim Science Director
Dede Bohn, USGS Project Manager
Nancy Bird, President PWSSC

Update July 2007

Project 070814: Seabird predation on juvenile herring in Prince William Sound.

Principal Investigators: Dr. Mary Anne Bishop, Prince William Sound Science Center
Dr. Kathy Kuletz, U.S. Fish and Wildlife Service

Project background

Juvenile herring are heavily predated by multiple species of seabirds, including three species that have not yet recovered from the Exxon Valdez oil spill: pigeon guillemot, marbled murrelet, and Kittlitz's murrelet. Currently we know little about predation pressures on juvenile herring during winter months (October – March). By examining spatial and temporal abundance of seabird predators associated with juvenile herring schools, we are describing the physical and biological characteristics of the herring schools targeted by seabirds. In addition, we are conducting focal observations of foraging birds to determine herring consumption rates by seabird species. Our project is being performed in conjunction with vessels conducting hydroacoustic surveys for juvenile herring schools.

Progress to date

Our project began immediately upon receiving the EVOS contract in early March 2007. Field work began 18 March 2007 with the start of the juvenile herring hydroacoustic surveys. An experienced USFWS seabird observer joined Dr. Richard Thorne, PI for the EVOS juvenile herring surveys. On board the *M/VAuklet*, marine bird and mammal surveys were conducted in Eaglek, Galena Bay, Port Fidalgo, Port Gravina, Simpson Bay, Wells Bay and Zaikof Bay.

The seabird surveys were conducted during daylight hours, and the associated herring hydroacoustic surveys followed the same transects during their nocturnal surveys. Transects were zigzags across the bays, excluding waters < 200 m from shore. Data were recorded into a voice/GPS data input program directly into a laptop computer. The seabird observer followed USFWS protocols for ship transects, recording birds within 100 m of the vessel in an 180° arc at the bow.

During surveys we observed 25 species of marine birds, including 7 species of sea ducks. In addition, we observed bald eagles, northwest crows and five species of marine mammals. Additional observations were made of foraging seabird flocks and individual foraging activity. We have received the herring hydroacoustic data from this spring and are beginning to analyze the data.

Changes from original budget and proposal

We are not proposing any substantive changes to the seabird predation on juvenile herring project. The budget described in the original proposal will be the same. We will be shifting our focal observation effort to coincide with the PWS juvenile herring hydroacoustic surveys (PI R. Thorne). The focal observation component of our study was originally associated with R. Crawford's proposed juvenile herring study in northeast PWS, which was not funded. Our study design and data analysis will be strengthened by joining the focal foraging observations with the Sound-wide juvenile herring surveys. We will be using the same data analysis as described in the original proposal to describe the relationship between seabird densities and juvenile herring biomass in PWS.

Reason to continue funding through FY10

Predation is contributing to the suppression of herring populations in Prince William Sound and seabirds are one of the major predators. A critical component of this study is the determination of seasonal and inter-annual changes in seabird species and foraging activity, particularly relative to the presence of and consumption rate of herring. Among years, many alcids (pigeon guillemot, marbled and Kittlitz's

murrelets, common murre, and puffins) appear to have highly variable densities in March. There is no comparable data for seabirds in PWS during the fall months, but our surveys will provide data on inter-annual variability during this period as well. The March variability may be connected to oceanic conditions in the Gulf of Alaska. If conditions are poor in the Gulf of Alaska, more alcids may move into Prince William Sound and herring consumption by seabirds may increase. Multiple years of data are crucial to assess interannual variation in seabird numbers and herring consumption.

The estimates of juvenile herring consumption produced by our project will aid in planning future herring restoration efforts as well as in assessing the role of seabird predation on herring recruitment by providing data to both herring and ecosystem modeling. Stock assessment models can then determine how much (what biomass) needs to be available to birds, so that both bird and fishery requirements do not create a “predator pit”. At the same time, this project will provide data on the impact of juvenile herring availability on the recovery of marbled murrelet, Kittlitz’s murrelet, and pigeon guillemot.

2008 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 2007 - September 30, 2008

Budget Category:	Authorized FY 2006	Approved FY 2007	Requesting FY 2008	Projection FY 2009	Projection FY 2010	Total Project
Personnel		\$32.0	\$32.9	\$33.8	\$10.9	\$109.6
Travel		\$4.5	\$4.5	\$4.5	\$0.0	\$13.5
Contractual		\$143.2	\$149.0	\$140.5	\$0.0	\$432.7
Commodities		\$1.0	\$1.0	\$1.0	\$0.0	\$3.0
Equipment		\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Subtotal	\$0.0	\$180.7	\$187.4	\$179.8	\$10.9	\$558.8
General Administration		\$16.3	\$16.9	\$16.2	\$1.0	\$50.4
Project Total	\$0.0	\$197.0	\$204.3	\$196.0	\$11.9	\$609.2
Full-time Equivalents (FTE)		0.4	0.4	0.4	0.1	
Dollar amounts are shown in thousands of dollars.						
Other Resources		\$108.0	\$78.0	\$78.0	\$12.0	

Edited headers to correct federal fiscal year; changed PJ # to FY 08 #; Hid budget detail for FY 07, FY 09 and FY 10; Note PI has national travel budgeted in FY 08; In looking at the projections for FY 10, note that PWSSC does not have any expenditures budgeted and cannot determine within the timeline and justification for what purpose the \$10.9 is budgetd for USFWS for FY 10.

Comments:

In-kind contributions:
 Kathy Kuletz salary (GS12 for 1 months) = \$10K
 Boat user fee (60 days @ 250/day) = \$15k
 Equipment user fee (computers, survival suits, electronics, binoculars, rangefinders, etc.) = \$10k
 GSA vehicle user fee = \$3k
 Total = \$38k

**FY 2008 Request for
FY 2007 - FY 2010**

Project Number: 080814
 Project Title: Seabird Predation on Juvenile Herring in PWS
 Agency: DOI - US Fish and Wildlife Service

F
O
R
M

Submitted: July 25, 2007
 format revisions: August 12, 2006

2008 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 2007 - September 30, 2008

Contractual Costs:		Proposed
Description		FY 2008
Insert 4A/B Link		134.0
Statistician (contract)		10.0
Boat repairs and parts		5.0
When a non-trustee organization is used, the form 4A is required.		
Contractual Total		\$149.0
Commodities Costs:		Proposed
Description		FY 2008
IT supplies (backup disks, batteries, electronic support, etc)		1.0
Commodities Total		\$1.0

FY08

Project Number: 080814
 Project Title: Seabird Predation on Juvenile Herring in PWS
 Agency: DOI - US Fish and Wildlife Service

FO
 RM
 3B
 Con

Submitted: July 25, 2007

2008 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 2007 - September 30, 2008

Budget Category:	Approved FY 2007	Requesting FY 2008	Proposed FY 2009	Proposed FY 2010	Project Total
Personnel	\$89.4	\$95.3	\$89.5	\$0.0	\$274.2
Travel	\$5.1	\$5.1	\$5.1	\$0.0	\$15.3
Contractual	\$4.8	\$4.8	\$3.8	\$0.0	\$13.4
Commodities	\$1.5	\$1.5	\$1.5	\$0.0	\$4.5
Equipment	\$1.3	\$0.0	\$0.0	\$0.0	\$1.3
Subtotal	\$102.1	\$106.7	\$99.9	\$0.0	\$308.7
Indirect	\$26.1	\$27.3	\$25.6	\$0.0	\$79.0
Project Total	\$128.2	\$134.0	\$125.5	\$0.0	\$387.7
Full-time Equivalents (FTE)	1.0	1.0	0.9	0.0	
Dollar amounts are shown in thousands of dollars.					
Other Resources	\$70.0	\$40.0	\$40.0		
<p>Comments: Bird Surveys would be conducted on vessel charters provided by 2 collaborative projects:</p> <p>1) "Trends in adult and juvenile herring distribution and abundance in Prince William Sound" (Principal Investigator Richard Thorne, Prince William Sound Science Center) proposed for EVOS 07 funds</p> <p>2) Stellar Sea Lion Winter Food Limitation study (Nov 07 juvenile herring survey; Principal Investigator Richard Thorne, Prince William Sound Science Center), funded by NOAA.</p>					

**FY 2008 Request for
FY 2007 - FY 2010**

Project Number: 080814
 Project Title: Seabird Predation on Juvenile Herring in PWS
 Agency: PWS Science Center, Dr. Mary Anne Bishop

Submitted 7/25/07
 Format revisions: July 22, 2007

2008 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 2007 - September 30, 2008

Personnel Costs:				Months Budgeted	Monthly Costs	Overtime		
	Name	Position Description						
	Mary Anne Bishop, Ph.D.	Principal Investigator		6.0	9.7			
	Research Technician	Research Technician		6.5	5.7			
			Subtotal	12.5	15.4	0.0		
			Personnel Total					
Travel Costs:				Ticket Price	Round Trips	Total Days	Daily Per Diem	
	Description							
	Cordova to Anchorage			0.3	4	10	0.2	
	National Meeting			0.9	1	5	0.2	
			Travel Total					

FY08

Project Number: 080814
 Project Title: Seabird Predation on Juvenile Herring in PWS
 Agency: PWS Science Center, Dr. Mary Anne Bishop

Submitted 7/25/07

