FY12 INVITATION
PROPOSAL SUMMARY PAGE

Project Title: Long-term Monitoring: Pelagic monitoring component - Long-term killer whale monitoring in Prince William Sound/ Kenai Fjords

Project Period: October 1, 2011 – September 30, 2016

Primary Investigator(s): Craig O. Matkin, Principal Investigator
Eva Saulitis, Co-operating Investigator
Graeme Ellis Co-operating Investigator
John Durban Co-operating Investigator
Ward Testa Co-operating Investigator

Study Location: Prince William Sound/ Kenai Fjords

Abstract:
The proposed project is a continuation of the monitoring of AB pod and the AT1 population killer whale populations in Prince William Sound on an annual basis. These groups of whales suffered serious losses at the time of the oil spill and have not recovered at projected rates. Monitoring of all the major pods and their current movements, range, feeding habits, and contaminant levels will help determine their vulnerability to future perturbations, including oil spills. The project also extends the scope of the basic monitoring to include an innovative satellite tagging program used to examine habitat preference, feeding ecology and assist in relocating whales for feeding studies. It continues examination of feeding habits using observational and innovative chemical techniques. The study will delineate important habitat, variations in pod specific movements and feeding behavior within a temporal and geographic framework. We will describe the role of both fish eating and mammal eating killer whales in the near-shore ecosystem and their impacts on prey species. Community based initiatives, educational programs, and programs for tour boat operators will continue to be integrated into the work to help foster restoration by improving public understanding and reducing harassment of the whales

Estimated Budget:
EVOSTC Funding Requested: $494.2K without 9%GA; $538.7K with 9%GA
(breakdown by fiscal year and must include 9% GA)

FY12 -$7.2K	FY13 - $132.8K	FY14 - $132.8K	FY15 - $132.9K	FY16 - $132.9K	TOTAL $538.7K

Non-EVOSTC Funds to be used:
(breakdown by fiscal year)

Date: May 31, 2011

(NOT TO EXCEED ONE PAGE)

PROJECT PLAN

I. NEED FOR THE PROJECT

A. Statement of Problem

Justification

Both resident ecotype (AB pod) and transient ecotype (AT1 population) killer whales suffered significant mortalities following the *Exxon Valdez* oil spill in 1989. AB pod is recovering after 22 years but has still not reached pre-spill numbers. The AT1 population is not recovering and may be headed toward extinction. This project has determined that killer whales are sensitive to perturbations such as oil spills, but has not yet determined the long term consequence (extinction) or the recovery period required for AB pod. As an APEX predator, this species has impact on the ecosystem (fish and marine mammals); additionally they are a primary focus of viewing for a vibrant tour boat industry in the region, and can be closely monitored. This is a unique opportunity to continue a comprehensive database for a keystone species in the region. The wisdom of long-term killer whale monitoring has been borne out in other regions such as Puget Sound and British Columbia. Data from this project is used by tourboats in the region to enhance viewers experience and understanding of the local environment and fauna.

B. Relevance to 1994 Restoration Plan Goals and Scientific Priorities

Please see pages 2-4 of the integrated proposal titled "Long-Term Monitoring of Marine Conditions and Injured Resources and Services," and submited by McCammon et. al

II. PROJECT DESIGN

A. Objectives

Project Concept

This project will continue monitoring of individual killer whales through photoidentification and maintain individual histories that allows continued development of our population dynamics model. It maintains monitoring of blubber chemistry that regularly assesses contaminant levels and changes in dietary habits. Finally we will continue monitoring movement data through resighting by photoidentification and tracking with ARGOS satellite tags. This yields pod and group specific information on range and preferred habitat and aids in determination of the vulnerability of specific groups to regional perturbations (eg which pods would be most susceptible to another oil spill in the Sound). Additionally satellite tracking allows relocating groups of whales, greatly facilitating the overall monitoring effort.

Objectives:

1) Photo-identification of all major resident pods and AT1 transient groups that use Prince William Sound/Kenai Fjords on an annual basis. Realistically, all pods are completely documented on a biennial basis, despite annual field effort. Extension of individual

histories, identification catalogues of individuals and an annual update of population model are products of these data.

2) Collection of blubber samples for chemical monitoring of PCBs, DDT's and PBDE's, lipids /fatty acids and stable isotope values to gauge changes in contaminant loads as well as feeding habit changes. Most analytical costs are borne by NOAA fisheries.

3) Collection of fish scale samples and marine mammal tissue from kill sites to monitor potential changes in feeding habits

4) Collection of genetic tissue samples (Genetic analytical costs paid by NMML/UBC)

5) Tracking of individuals/pods using ARGOS satellite telemetry to improve re-sighting rate and foster completion of objectives 1-3. Use of time/depth recorders to examine feeding patterns and diel behavior

6) Determine details of range of pods/populations using both ARGOS and photoidentification data and identify important habitat on a pod specific basis

The field work consists of three major activities. First, photo-identification will be completed using Nikon D700 digital cameras to obtain photos of every individual in major resident pods and AT1 trasnsient groups, as well as of other killer whales that are encountered. (Humpback whales are photographed opportunistically as time allows.) Second, biopsy samples for chemical analysis and genetics will be collected using an air powered rifle and small floating biopsy darts that are easily retrieved. This technique has been used since 1994. Finally, ARGOS Spot 5 satellite tags manufactured by Wildlife computers will be attached with specially designed darts to specific whales to track movements over periods ranging from weeks to months.

Survey days and encounter data is logged in an Access database maintained by NGOS and the Alaska Sea Life Center. Data analysis includes a frame by frame analysis of all digital images, with individual identifications digitally recorded and attached to the photo. Improvement photos of each individual are selected and placed in appropriate folders and used to update catalogue (for NGOS and public access) and provide reference for future identifications. The population dynamics data base that lists data on each individual (including newly recruited calves) is updated annually. All vessel and encounter tracklines are stored in GIS format, ready for analysis. ARGOS tracklines are also placed in GIS format and initial analysis and mapping completed on an annual basis.

Project Integration

This project is a continuation of the longest running photo-identification, movement, and blubber chemistry database for any small cetacean in Alaska and has been supported by the Trustee Council for 22 years. This database extend back to 1984 and has made assessement of damages to killer whales possible both during interactions with long-line fishermen and following the *Exxon Valdez* oil spill. Additionally, during killer whale monitoring we have opportunistically collected substantial individual ID/population data on humpback whales during

spring, summer, and early fall and will continue to do so to complement the proposed fall/winter humpback monitoring program. The proposed winter humpback monitoring program will opportunistically collect killer whale data to complement our seasonal data collection.

B. Procedural and Scientific Methods

Our work depends on accurate photo-identification of each individual in each pod/group that regularly uses the Sound, particularly AB pod and the AT1 population. It is important that researchers maximize the time actually spent with resident killer whales (particularly AB pod and other resident whales) to insure thorough identification of all individuals and meet other objectives of this proposal which now amended to include satellite tracking and detailed food habits evaluation.

Methods proposed to obtain photographic data necessary to meet monitoring objectives will be similar to those used by the NGOS in Prince William Sound/Kenai Fjords for the past 24 years. Searches for whales will not be made on random transects, but based on current and historical sighting information. In addition whales will be located by listening for killer whale calls with a directional hydrophone (calls can be heard up to 10 miles away), or by responding to VHF radio calls from other vessels reporting sightings of whales. We have developed network of cooperating vessel owners and tour boat operators that regularly report whale sightings. In addition, requests for recent killer whale sightings will be made routinely on hailing Channel 16 VHF and working channel 72. Finally, we will use satellite tracking positions, when possible, to direct searches for individuals and groups.

A vessel log and chart of the vessel track will kept for each day the research vessels operate. Nobletech software and a laptop computer configured with GPS will automatically record the research vessel track in real time. The elapsed time and distance traveled will be recorded and vessel track plotted. Record will be made of the time and location of all whale sightings and the weather and sea state noted at regular intervals.

Data from each encounter will be stored in an access database and trackline and all vessel and whale tracklines stored in a GIS database. This data system will be used in 2010-12 to log all encounters and summarize effort. Data recorded will include date, time, duration, and location of the encounter. Rolls of film exposed and the estimated number of whales photographed will also be recorded. A chart of the whales' track line during the encounter will be completed and the distance traveled by the vessel with the whales will be calculated by GIS on a daily basis. We will link general behavior of the whales (i.e. feeding, resting, traveling, socializing, milling) to location and time.

Photographs for individual identification will be taken of the port side of each whale showing details of the dorsal fin and gray saddle patch. Photographs will be taken at no less than 1/1000 sec using Fuji Neopan 1600, a high speed black and white film. A Nikon F-100 auto focus camera with internal motor drive and a 300 mm f4.5 auto focus lens will be used. Digital photographs are taken as a backup using a Nikon D200 SLR camera, but film is still our primary recording medium. When whales are encountered, researchers will systematically move from one subgroup (or individual) to the next keeping track of the whales photographed. If possible, individual whales will be photographed several times during each encounter to insure an adequate identification photograph. Whales will be followed until all whales are photographed or until weather and/or darkness make photography impractical.

All photographic negatives will be examined under a Wild M5 stereomicroscope at 9.6 powers. Identifiable individuals in each frame will be recorded. When identifications are not certain, they will not be included in the analysis. Unusual wounds or other injuries will be noted. Photographic negatives will be analyzed using a photographic database that spans 24 years.

Recently we have developed the ability to make remote attachments of satellite transmitters to killer whales using a crossbow arrangement and small barbed tag that attaches to the dorsal fin of the whale. Re-sighting data indicates minimal scarring after the tag drops off. The position-only satellite transmitter that we are proposing to deploy is approximately 3.8 cm in diameter in a half dome shape, with a maximum height of 2.2 cm. The transmitting antenna is approximately 1.5 mm in diameter and 17 cm long sticking out of the center of the half dome. On the flat side, opposite the point of the antenna protrusion will be one or two barbed attachment post that will be 5 cm long and 0.6 cm in diameter. Attachments will be made from distances of approximately 6-8 meters using either a crossbow (e.g. Barnett Wildcat 170 pound bow or similar). Uplink schedules are set prior to tagging and data received through the Argos satellite system. We have had attachment times of up to 2 months in our tagging in Prince William Sound in 2007 and 2008. Reaction to application of the tags is slight and scarring after the tag drops off is minimal based on re-sight data from animals tagged in 2006. As part of this project we will attempt to place an average of seven tags per year 2010-2012, extending our examination of the ranges of various key groups over the season. We will examine variations in habitat use by the different pods as well as looking at the detailed movements of individuals. When possible we will access positions from the field on a daily basis to find individuals, in addition to compiling a long term record of movements.

Field observations of feeding will be made and prey parts collected when possible. Scales are retrieved from fish predations events and read for species and age at the Pacific Biological Station in Nanaimo, British Columbia, where a scale laboratory has been established and certified for over 20 years. If mammal prey species cannot be identified visually, then genetic analysis will be conducted if bits of prey remains are collected. The University of British Columbia, Department of Zoology genetics laboratory maintains a reference collection of genetic markers for each marine mammal species and will conduct species identification analysis.

Project Logistics

Annual monitoring is a time consuming process, requiring 50 days of field time to insure the continuation of data sets on the major resident pods (including AB pod) and important transient groups. Even with this amount of time, complete coverage typically occurs on a biennial basis. We request a base vessel lease of 40 days/year from EVOS funds. NGOS will supply an additional 10-20 days of survey time via foundation grants or other funding. Since the PI and others involved in the project are experienced vessel operators, no paid captain is necessary. Approximately 50% of the costs of monitoring of contaminants and blubber chemistry (via Northwest Fisheries Science Center) with the remaining 12 K in funds supplied by NWFSC. Major commodities(other than food and fuel) include 8 ARGOS tags. Included in the budget is 5 months salary for the PI and 2.5 months salary for a field biologist. Funded non-field activities include photographic analysis, data input and analysis, updating of photo-catalogue and supplying digital version to tourboat companies, GIS analysis of effort data, encounter data, and satellite tag data; and ongoing population dynamics analysis. Reports are the responsibility of the PI.

C. Data Analysis and Statistical Methods

Because photographic and observational data are being made in the same format as during the past 23 field seasons and using the techniques now standardized for studying killer whales, the data will be comparable with other data collected around the North Pacific. Since we identify every individual in each pod of resident killer whales, and pod membership only changes through death or calf production, we can accurately assess changes in pods/population.

The report for the monitoring segment will include a summary of all field effort including that funded outside of this DPD, and will include a summary of the pods and individuals encountered and a status report on AB pod and the AT1 group. Changes within AB pod will be examined with consideration for the age and sex structure of the pod and maternal groups within the pod and related to the population model now under development. Trends in transient killer whale sighting rates and demographics will also be presented.

Feeding data will be summarized and field observations and data from scales (species and age) will be summarized and statistically compared by area and by pod. In conjunction with the NWFSC we have used contaminant/fatty acid/stable isotope analysis to describe aspects of killer whale predation in other areas (Herman et al 2005, Krahn et al 2006, see Data Management and Quality Assurance). Analysis and publication for this aspect of the project will follow the model presented in these papers. We will also statistically compare chemical markers indicative of diet between pods and from different times of year (late winter/spring and late summer/fall). In our field sampling will take into account that chemical markers usually indicate prey from approximately two months prior to the sample in temporal comparisons. Genetic analysis, when appropriate, will be conducted using the methods detailed in Matkin et al (2003) and Barrett-Lennard 2000 and will include mtDNA and nuclear DNA analysis. Track lines from whales tagged with satellite tracking devices will be presented and analyzed in GIS format. Tracks will be examined for patterns in movements, and in relation to bathymetry, to known migratory pathways of prey and to areas of potential prey abundance. We will establish home range estimates and kernel density estimates to determine important habitat and migratory pathways.

Frame by frame identifications of individuals tabulated by pod and by individual and added to our database. Frame by frame identification data will also be made available on disk. Copies of the GIS program and data base will be available by request to NGOS.

PC (Windows) compatible computers owned by NGOS will be used to analyze field data. The various long-term databases will be housed at NGOS offices and the Alaska Sea Life Center, although copies will be made available to other management agencies on request.

D. Description of Study Area

This project is part of an ongoing killer whale research in Prince William Sound and the Kenai Fjords region, Alaska (Matkin et al 2008). The overall study area stretches from the Nuka Bay, outer Kenai Peninsula region to Cordova on the eastern edge of Prince William Sound. However, the funding specifically requested in this proposal will be used primarily in western Prince William Sound and Kenai Fjords where likelihood of encountering the focal whales is most likely. We cannot predict the specific locations where encounters will occur.

E. Coordination and Collaboration with Other Efforts

The monitoring of killer whales and analysis of current data is part of a long-term program to investigate killer whale recovery, monitor populations and examine the interactions of killer whales with other species. The PI, Matkin, will work closely with collaborators Russ Andrews at the Alaska Sea Life Center, who has designed the satellite tags and with Dave Herman and Peggy Krahn at the Northwest Fisheries Science Center, who conduct diet and contaminant analysis, and Kim Parsons who conducts the genetic analysis. We have been and will continue to be active collaborators on the studies examining the interaction of humpback whales and herring (see other projects, Jeep Rice, PI) and have contributed our substantial long-term humpback whale photo database to their analysis. We will continue to collect humpback whale fluke identification data during the course of the proposed work and share research platforms when possible. As possible the proposed study will be integrated with near shore studies that focus on sea otters and with the oceanographic studies of the Alaska Coastal Current.

This project will rely on approximately $15,000 annually in additional analytical time provided by the NWFSC, Environmental Contaminant Laboratory, $5000.00 annually in additional vessel time contributed by NGOS, and $3500 annually by the Norcross Foundation in equipment. In addition we are supported and work cooperatively with the NMFS regional office (Aleria Jensen) in providing observation and education of the tour boat fleet in the Prince William Sound/Kenai Fjords region. As a non-profit research institution familiar with private funding sources and cooperative programs, NGOS can work with the Trustee Council to maximize return for current and future funding.

III. SCHEDULE

A. Project Milestones

Objective 1. To prepare and launch field collection of data, including identification photos, prey samples and observations, biopsy samples and satellite tag attachments. Field work will begin in April 2012 and end by October 2016.

Objective 2. Conduct analysis blubber samples, scale samples, skin samples, and plot results of tagging efforts. Conducted **annually**, completion date for all laboratory analysis is February 2017

Objective 3. Annual update photographic catalogue, Argos tracking data, and population dynamics database. Statistical analysis and compilation of data from all years of the project to be published and included in final report (draft by April 2017)

B. Measurable Project Tasks

FY12, 1st quarter (October 1, 2011-December 31, 2011) *(Funded by FY11 money)*

Funding obtained from EVOS Trustee Council, prepare for initiation of project Our project year begins in January

FY12, 2nd quarter (January 1, 2012-March 31, 2012) *(Funded by FY11 money)*

January - Annual Marine Science Symposium. Compilation of previous data, preparation for field work

FY12, 3rd quarter (April 1, 2012-June 30, 2012)

Intiate annual field work. Conduct fieldwork in April (10 days) May (7days) and June (7 days).

FY12, 4th quarter (July 1, 2012- September 30, 2012)

Conduct fieldwork in August (10 days) and September-November (16 days) Initiate analysis of 2012 data

FY13, 1st quarter (October 1, 2012-December 31, 2012)

Workup satellite tag data in GIS format and update databases. Lipid/fatty acid, contaminant, stable isotope, prey sample and genetic analysis.

FY13, 2nd quarter (January 1, 2013-March 31, 2013)

January 23-27 Annual Marine Science Symposium Finish analysis of photographs from fieldwork and update catalogue. Workup satellite tag data in GIS format and update databases. Lipid/fatty acid, contaminant, stable isotope and genetic analysis completion

FY13, 3rd quarter (April 1, 2013-June 30, 2013)

Prepare for April field work Conduct fieldwork in April (7days) May (7days) and June (8days)

FY13, 4th quarter (July 1, 2013- September 30, 2013)

Conduct fieldwork in July-August (14 days) and September-November (14 days) Initiate analysis of 2013 data.

FY14, 1st quarter (October 1, 2013-December 31, 2013)

Workup satellite tag data in GIS format and update databases. Lipid/fatty acid, contaminant, stable isotope and genetic analysis.

FY14, 2nd quarter (January 1, 2014-March 31, 2014)

January 23-27 Annual Marine Science Symposium. Finish analysis of photographs from fieldwork catalogue, workup satellite tag data in GIS format and update databases. Lipid/fatty acid, contaminant, stable isotope, prey sample and genetic analysis completion.

FY14, 3rd quarter (April 1, 2014-June 30, 2014)

Prepare for April field work Conduct fieldwork in April (10 days) and May- June (10 days)

FY14, 4th quarter (July 1, 2014- September 30, 2014)

Conduct fieldwork in July-August (14 days) and September-November (14 days) Initiate analysis of 2014 data.

FY15, 1st quarter (October 1, 2014-December 31, 2014)

Workup satellite tag data in GIS format and update databases. Lipid/fatty acid, contaminant, stable isotope and genetic analysis.

FY15, 2nd quarter (January 1, 2015-March 31, 2015)

January Annual Marine Science Symposium. Finish analysis of photographs from fieldwork catalogue, workup satellite tag data in GIS format and update databases. Lipid/fatty acid, contaminant, stable isotope, prey sample and genetic analysis completion.

FY15, 3rd quarter (April 1, 2015-June 30, 2015)

Prepare for April field work Conduct fieldwork in April (10 days) and May- June (10 days)
FY15, 4th quarter (July 1, 2015- September 30, 2015)
Conduct fieldwork in July-August (14 days) and September-November (14 days) Initiate analysis of 2015 data.

FY16, 1st quarter (October 1, 2015-December 31, 2015)
Workup satellite tag data in GIS format and update databases. Lipid/fatty acid, contaminant, stable isotope and genetic analysis.
FY16, 2nd quarter (January 1, 2016-March 31, 2016)
January Annual Marine Science Symposium. Finish analysis of photographs from fieldwork catalogue, workup satellite tag data in GIS format and update databases. Lipid/fatty acid, contaminant, stable isotope, prey sample and genetic analysis completion.
FY16, 3rd quarter (April 1, 2016-June 30, 2016)
Prepare for April field work Conduct fieldwork in April (10 days) and May- June (10 days)
FY16, 4th quarter (July 1, 2016- September 30, 2016)
Conduct fieldwork in July-August (14 days) and September-November (14 days) Initiate analysis of 2016 data.

FY17, 1st quarter (October 1, 2016-December 31, 2016) *Funded by FY16 money*
Workup satellite tag data in GIS format and update databases. Lipid/fatty acid, contaminant, stable isotope prey sample and genetic analysis completion.
FY17, 2nd quarter (January 1, 2017-March 31, 2017) *Funded by FY16 money*
January Annual Marine Science Symposium. Final analysis and preparation of final report

Budget Justification

	FY2012	FY2013-16 (ANNUALLY)
Personnel	0	$34,250.0
Travel	0	$1,400.0
Contractual	0	$38,500.0
Commodities	$5995	$36,200.0
Equipment	$0.0	$0.0
Indirect	$600	$11,500.0

Because our annual project funding cycle begins in January, there will be overlap from previous years funding into the next fiscal year in all years of the project. Although funding was previously awarded for 2012, some costs for consistent continuation of the project (late field season) and were not included in that budget/contract and our included here ($6595)

FY 2012 Money for late season operations and commodities not covered in original award for FY 2010-2012. Will allow a seamless transition into FY2013-16 program.

Personnel: FY 2013-FY2016

Includes costs for the PI/Lead Field Biologist/Boat operator for each year, his time in annual analysis and reporting and includes the FY 2013 reporting costs. P.I. Matkin will supervise all aspects of the project and all contractors. Also included is annual is funding for an assistant field biologist/analyst for each year

Travel: FY2013-FY2016

Includes funds for travel and per diem for the Alaska Marine Science Symposium for each year of the project for the PI, Matkin

Contractual: FY2013-FY2013

This includes a majority of the vessel leases (40 days/year) with the remainder (10 days/year) supplied by NGOS funds. It also includes about 50% of the costs of chemical analysis of samples with the remainder supplied by the Northwest Fisheries Science Center. Also included is the cost of photographic analysis and cataloguing, GIS analysis of both effort data and tag data, and statistical analysis as necessary

Commodities: FY2013-2016

This category includes the constantly improved satellite tags, with eight purchased in each year. Fuel and food for the vessel is included as well as photographic and

printing costs, the cost for sat phone and cell phone time, tracking time with the ARGOS satellite system, shipping costs and miscellaneous minor supplies

Indirect: FY2013-2016

For all years these costs include the use of NGOS owned field equipment including cameras and lenses, hydrophones and digital recorders, biopsy rifles and sampling equipment, tag application equipment, satellite phones and cell phones, prey sampling nets, battery chargers and inverters and the use of NGOS vehicles. Also included is expense for use of office, accounting and bookkeeping expenses, internet, phone, fax machine and use of NGOS computers both in the field and in the office and the preparation of tax documents and associated non-profit management expenses.

***EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL**
DETAILED BUDGET FORM FY 12-FY16

Budget Category:	Proposed FY 12	Proposed FY 13	Proposed FY 14	Proposed FY 15	Proposed FY 16	TOTAL PROPOSED
Personnel	$0.0	$34.3	$34.3	$34.3	$34.3	$137.0
Travel	$0.0	$1.4	$1.4	$1.5	$1.5	$5.8
Contractual	$0.0	$38.5	$38.5	$38.5	$38.5	$154.0
Commodities	$6.0	$36.2	$36.2	$36.2	$36.2	$150.8
Equipment	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Indirect Costs (*will vary by proposer*)	$0.6	$11.5	$11.5	$11.5	$11.5	$46.6
SUBTOTAL	$6.6	$121.9	$121.9	$122.0	$122.0	$494.2
General Administration (9% of subtotal)	$0.6	$11.0	$11.0	$11.0	$11.0	$44.5
PROJECT TOTAL	$7.2	$132.8	$132.8	$132.9	$132.9	$538.7
Other Resources (Cost Share Funds)	$23.5	$23.5	$23.5	$23.5	$23.5	$117.5

Annually:15,000 Northwest Fisheries Science Center, Environmental Contaminant Lab: additional analytical and reporting services.
3,500 Norcross Wildlife Foundation, Equipment grant 5,000 NGOS in kind equiment use

FY12

Program Title: Long Terrm Killer Whale Monitoring in Prince William Sound/Kenai Fjords
Team Leader: Craig Matkin

FORM 3A
NON-TRUSTEE
AGENCY SUMMARY

***EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL**
DETAILED BUDGET FORM FY 12-FY16

Personnel Costs:		Months	Monthly		Personnel
Name	Project Title	Budgeted	Costs	Overtime	Sum
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
		Subtotal	0.0	0.0	
				Personnel Total	$0.0

Travel Costs:	Ticket	Round	Total	Daily	Travel
Description	Price	Trips	Days	Per Diem	Sum
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
				Travel Total	$0.0

FY12

Program Title: Long Terrm Killer Whale Monitoring in Prince William Sound/Kenai Fjords
Team Leader: Craig Matkin

FORM 3B
PERSONNEL & TRAVEL DETAIL

***EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL**
DETAILED BUDGET FORM FY 12-FY16

Contractual Costs: Description		Contract Sum
If a component of the project will be performed under contract, the 4A and 4B forms are required.	**Contractual Total**	$0.0

Commodities Costs: Description	Commodities Sum
Satellite Tags	5.0
Fuel	1.0
Commodities Total	$6.0

FY12

Program Title: Long Terrm Killer Whale Monitoring in Prince William Sound/Kenai Fjords
Team Leader: Craig Matkin

FORM 3B
CONTRACTUAL & COMMODITIES DETAIL

***EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL**
DETAILED BUDGET FORM FY 12-FY16

New Equipment Purchases: Description	Number of Units	Unit Price	Equipment Sum
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
		New Equipment Total	$0.0

Existing Equipment Usage: Description	Number of Units	Inventory Agency

FY13

Program Title: Long Terrm Killer Whale Monitoring in Prince William Sound/Kenai Fjords
Team Leader: Craig Matkin

FORM 3B
EQUIPMENT DETAIL

***EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL**
DETAILED BUDGET FORM FY 12-FY16

Personnel Costs:			Months	Monthly		Personnel
Name	Project Title		Budgeted	Costs	Overtime	Sum
						0.0
Craig Matkin	P.I. Field Biologist		5.0	5.1		25.5
Eva Saulitis	Field Biologist/Data analysis		2.5	3.5		8.8
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
			Subtotal	8.6	0.0	
					Personnel Total	$34.3

Travel Costs: Description	Ticket Price	Round Trips	Total Days	Daily Per Diem	Travel Sum
					0.0
Attend annual Alaska Marine Science Symposium	0.8	1	3	0.2	1.4
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
				Travel Total	$1.4

FY13

Program Title: Long Terrm Killer Whale Monitoring in Prince William Sound/Kenai Fjords
Team Leader: Craig Matkin

FORM 3B
PERSONNEL & TRAVEL DETAIL

***EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL**
DETAILED BUDGET FORM FY 12-FY16

Contractual Costs: Description	Contract Sum
Vessel Lease (R.V. Natoa/ 40 days @500/day)	20.0
NWFSC Environmental Contaminant Lab, Analytical Fees	12.0
GIS/Statistical Analysis	3.0
Photoidentification/Catalogue	3.5
If a component of the project will be performed under contract, the 4A and 4B forms are required. **Contractual Total**	$38.5

Commodities Costs: Description	Commodities Sum
Misc tagging and biopsy supplies	2.0
8 satellite tags @3000 apiece	24.0
Field Food ($40/day for 40 days)	1.6
Fuel ($150/day for 40 days)	6.0
Film, Photo processing	1.8
Field Communication, Tracking, Shipping, and Misc supplies	0.8
Commodities Total	$36.2

FY13

Program Title: Long Terrm Killer Whale Monitoring in Prince William Sound/Kenai Fjords
Team Leader: Craig Matkin

FORM 3B
CONTRACTUAL & COMMODITIES DETAIL

***EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL**
DETAILED BUDGET FORM FY 12-FY16

New Equipment Purchases: Description	Number of Units	Unit Price	Equipment Sum
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
		New Equipment Total	$0.0

Existing Equipment Usage: Description	Number of Units	Inventory Agency

FY14

Program Title: Long Terrm Killer Whale Monitoring in Prince William Sound/Kenai Fjords
Team Leader: Craig Matkin

FORM 3B
EQUIPMENT DETAIL

***EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL**
DETAILED BUDGET FORM FY 12-FY16

Personnel Costs:			Months	Monthly		Personnel
Name	Project Title		Budgeted	Costs	Overtime	Sum
						0.0
Craig Matkin	P.I. Field Biologist		5.0	5.1		25.5
Eva Saulitis	Field Biologist/Data analysis		2.5	3.5		8.8
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
			Subtotal	8.6	0.0	
					Personnel Total	$34.3

Travel Costs: Description	Ticket Price	Round Trips	Total Days	Daily Per Diem	Travel Sum
					0.0
Attend annual Alaska Marine Science Symposium	0.8	1	3	0.2	1.4
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
				Travel Total	$1.4

FY14

Program Title: Long Terrm Killer Whale Monitoring in Prince William Sound/Kenai Fjords
Team Leader: Craig Matkin

FORM 3B
PERSONNEL & TRAVEL DETAIL

***EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL**
DETAILED BUDGET FORM FY 12-FY16

Contractual Costs: Description	Contract Sum
Vessel Lease (R.V. Natoa/ 40 days @500/day)	20.0
NWFSC Environmental Contaminant Lab, Analytical Fees	12.0
GIS/Statistical Analysis	3.0
Photoidentification/Catalogue	3.5
If a component of the project will be performed under contract, the 4A and 4B forms are required. **Contractual Total**	$38.5

Commodities Costs: Description	Commodities Sum
Misc tagging and biopsy supplies	2.0
8 satellite tags @3000 apiece	24.0
Field Food ($40/day for 40 days)	1.6
Fuel ($150/day for 40 days)	6.0
Film, Photo processing	1.8
Field Communication, Tracking, Shipping, and Misc supplies	0.8
Commodities Total	$36.2

FY14

Program Title: Long Terrm Killer Whale Monitoring in Prince William Sound/Kenai Fjords
Team Leader: Craig Matkin

FORM 3B
CONTRACTUAL & COMMODITIES DETAIL

***EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL**
DETAILED BUDGET FORM FY 12-FY16

New Equipment Purchases: Description	Number of Units	Unit Price	Equipment Sum
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
		New Equipment Total	$0.0

Existing Equipment Usage: Description	Number of Units	Inventory Agency

FY15

Program Title: Long Terrm Killer Whale Monitoring in Prince William Sound/Kenai Fjords
Team Leader: Craig Matkin

FORM 3B
EQUIPMENT DETAIL

***EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL**
DETAILED BUDGET FORM FY 12-FY16

Personnel Costs:			Months	Monthly		Personnel
Name	Project Title		Budgeted	Costs	Overtime	Sum
						0.0
Craig Matkin	P.I. Field Biologist		5.0	5.1		25.5
Eva Saulitis	Field Biologist/Data analysis		2.5	3.5		8.8
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
			Subtotal	8.6	0.0	
					Personnel Total	$34.3

Travel Costs: Description	Ticket Price	Round Trips	Total Days	Daily Per Diem	Travel Sum
					0.0
Attend annual Alaska Marine Science Symposium	0.9	1	3	0.2	1.5
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
				Travel Total	$1.5

FY15

Program Title: Long Terrm Killer Whale Monitoring in Prince William Sound/Kenai Fjords
Team Leader: Craig Matkin

FORM 3B
PERSONNEL & TRAVEL DETAIL

***EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL**
DETAILED BUDGET FORM FY 12-FY16

Contractual Costs: Description		Contract Sum
Vessel Lease (R.V. Natoa/ 40 days @500/day)		20.0
NWFSC Environmental Contaminant Lab, Analytical Fees		12.0
GIS/Statistical Analysis		3.0
Photoidentification/Catalogue		3.5
If a component of the project will be performed under contract, the 4A and 4B forms are required.	**Contractual Total**	$38.5

Commodities Costs: Description	Commodities Sum
Misc tagging and biopsy supplies	2.0
8 satellite tags @3000 apiece	24.0
Field Food ($40/day for 40 days)	1.6
Fuel ($150/day for 40 days)	6.0
Film, Photo processing	1.8
Field Communication, Tracking, Shipping, and Misc supplies	0.8
Commodities Total	$36.2

FY15

Program Title: Long Terrm Killer Whale Monitoring in Prince William Sound/Kenai Fjords
Team Leader: Craig Matkin

FORM 3B
CONTRACTUAL & COMMODITIES DETAIL

***EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL**
DETAILED BUDGET FORM FY 12-FY16

New Equipment Purchases: Description	Number of Units	Unit Price	Equipment Sum
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
		New Equipment Total	$0.0

Existing Equipment Usage: Description	Number of Units	Inventory Agency

FY16

Program Title: Long Terrm Killer Whale Monitoring in Prince William Sound/Kenai Fjords
Team Leader: Craig Matkin

FORM 3B
EQUIPMENT DETAIL

***EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL**
DETAILED BUDGET FORM FY 12-FY16

Personnel Costs:			Months	Monthly		Personnel
Name	Project Title		Budgeted	Costs	Overtime	Sum
						0.0
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Eva Saulitis	Field Biologist/Data analysis		2.5	3.5		8.8
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
			Subtotal	8.6	0.0	
					Personnel Total	$34.3

Travel Costs: Description	Ticket Price	Round Trips	Total Days	Daily Per Diem	Travel Sum
					0.0
Attend annual Alaska Marine Science Symposium	0.9	1	3	0.2	1.5
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
				Travel Total	$1.5

FY16

Program Title: Long Terrm Killer Whale Monitoring in Prince William Sound/Kenai Fjords
Team Leader: Craig Matkin

FORM 3B
PERSONNEL & TRAVEL DETAIL

***EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL**
DETAILED BUDGET FORM FY 12-FY16

Contractual Costs: Description		Contract Sum
Vessel Lease (R.V. Natoa/ 40 days @500/day)		20.0
NWFSC Environmental Contaminant Lab, Analytical Fees		12.0
GIS/Statistical Analysis		3.0
Photoidentification/Catalogue		3.5
If a component of the project will be performed under contract, the 4A and 4B forms are required.	**Contractual Total**	$38.5

Commodities Costs: Description	Commodities Sum
Misc tagging and biopsy supplies	2.0
8 satellite tags @3000 apiece	24.0
Field Food ($40/day for 40 days)	1.6
Fuel ($150/day for 40 days)	6.0
Film, Photo processing	1.8
Field Communication, Tracking, Shipping, and Misc supplies	0.8
Commodities Total	$36.2

FY16

Program Title: Long Terrm Killer Whale Monitoring in Prince William Sound/Kenai Fjords
Team Leader: Craig Matkin

FORM 3B
CONTRACTUAL & COMMODITIES DETAIL

***EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL**
DETAILED BUDGET FORM FY 12-FY16

New Equipment Purchases: Description	Number of Units	Unit Price	Equipment Sum
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
		New Equipment Total	$0.0

Existing Equipment Usage: Description	Number of Units	Inventory Agency

FY16

Program Title: Long Terrm Killer Whale Monitoring in Prince William Sound/Kenai Fjords
Team Leader: Craig Matkin

FORM 3B
EQUIPMENT DETAIL