

Trustee Council Use Only

Project No: _____

Date Received: _____

GEM PROPOSAL SUMMARY PAGE

(To be filled in by proposer)

Project Title: Monitoring of Killer Whales in Prince William Sound/ Kenai Fjords in 2004
(Submitted under the BAA)

Project Period: FY 2004

Proposer(s): North Gulf Oceanic Society
Craig Matkin, Principal Investigator

Study Location: Prince William Sound, Kenai Fjords Alaska

Abstract:

This project transitions monitoring of the damaged resident AB pod and other resident pods and the petitioned as depleted AT1 transient population into a cooperative program with additional collaborative support from the Alaska Sea Life Center, NMFS and various foundations. Monitoring has occurred on a yearly basis since 1984 and was crucial in evaluating the continuing effects from the oil spill. In addition, the role of killer whales in the nearshore ecosystem and possible effects on sea otters will be examined. Community based initiatives such as Youth Area Watch and tour operator educational programs will be integrated. The proposed work will augment current research directed at transient killer whales(ASLC) and provide for annual monitoring of AB pod and other resident pods and includes analysis and reporting of results. In future years the project will be integrated with oceanographic monitoring.

| | | | | |
|----------|----------------------------|-------|-----------|-----------------|
| Funding: | EVOS Funding Requested: | FY 04 | \$ 19,605 | TOTAL: \$19,605 |
| | Non-EVOS Funds to be Used: | FY 04 | \$ 80,800 | TOTAL: \$80,800 |

Date: Date proposal prepared: June 6, 2003

I. NEED FOR THE PROJECT

A. Statement of Problem

The proposed project addresses lingering effects of the *Exxon Valdez* oil spill by continuation of the monitoring of AB pod, the AT1 group killer whale populations in Prince William Sound. On March 31, 1989 AB pod was observed in oil sheens and six of the 36 pod members were missing. A total of 14 whales were lost from resident AB pod in the two years following the *Exxon Valdez* oil spill and there was no recruitment into the pod during those years. Since that time the social structure within AB pod has shown signs of deterioration. Maternal groups have traveled independently or with other pods, and pod members have not consistently traveled with closest relatives. Although 4 calves were recruited during the period 1992-1994, there were 5 additional mortalities in 1994. There has been a net increase of four individuals since 1995. In 2002 the entire pod was not photographed, however in 2001 there were two recruited calves and one new mortality, the pod contained 26 individuals. The rate of mortality observed in this pod after the oil spill far exceeds that recorded for 10 other resident pods observed in southern Alaska over the past 19 years or for 19 pods in British Columbia over the past 24 years. Although it appears this pod is now slowly recovering, population modeling indicates recovery will not be complete until 2015 due to the loss of females and juveniles and their reproductive potential at the time of the spill.

Nine whales from the transient AT1 group have not been observed since 1989. Two additional AT1 whales have not been sighted for seven years. Another member of this group stranded and died on a beach near Cordova, Alaska in July 2000 and another stranded and died in 2001. Another killer whale (possibly an AT1 whale- genetics pending) recently stranded in southwestern Prince William Sound (spring 2003). From genetic and photographic data from beached whales, four of these thirteen missing AT1 group whales are known to be dead. Although transient killer whale social structure is not fully understood, we are confident that the other missing AT1 whales also are dead. Statistical analysis backs up this supposition and strongly suggests that they have either died or permanently emigrated from the area. Since there is no record of these whales in adjacent regions and they appear to have a limited range, it is almost certain that the missing AT1 whales are dead.

Eighteen years of systematic data collected under public and private funding have been placed in a specially designed GIS database currently housed at the U.S. Fish and Wildlife Service, Marine Mammals Management Division, Anchorage, Alaska and at Alaska Pacific University, Anchorage, Alaska under the management of collaborator, Dr. David Scheel. The database contains nearly 1000 records of encounters with killer whales in and near Prince William Sound and Kenai Fjords, Alaska. Analyses have determined large-scale differences in spatial distribution patterns between resident and transient whales over time (Scheel et al. 2001). Changes in transient whale distributions have been examined in relation to changes harbor seal populations.

There is worldwide concern that specific PCB and dioxin congeners may have negative effects on reproduction in mammals. The recovery of killer whales in Prince

William Sound and the long-term health of the population is dependent on unimpeded reproductive processes. Recently there is concern over contaminant levels and their relationship to the recent decline of southern resident killer whales in Puget Sound. During this study we have measured contaminant levels in both resident and transient killer whales, and found much higher levels in the transient population. Contaminants apparently passed from mother to offspring via lactation and levels follow consistent patterns within genealogies (Ylitalo et al 2001). Samples were obtained from individually identified living whales that can be re-identified and re-sampled to assess future changes in levels. The ability to sample and then resample specific known individuals and their known kin is a unique aspect of this project. Results of contaminant analysis (Ylitalo et al 2001) raise concern that contaminants in transient whales could negatively impact reproduction and/or reduce immune response leading to mortalities. We will begin resampling of specific individuals to identify contaminant trends in this project. All chemical analysis of tissue and assistance in the interpretation of results is provided by the NMFS/NOAA Environmental Contaminant Laboratory, Seattle, Washington under a continuing co-operative agreement with N.G.O.S.

Feeding habits data is also collected during our long-term follows of killer whales. Resident killer whales are primarily salmon feeders (at least during the spring, summer and fall) and transient killer whales eat solely marine mammals including harbor seals, Dall's porpoise, harbor porpoise, and Steller sea lions (Saulitis et al 2000). Although we have observed only harassment of sea otters and overall sea otters do not appear to be declining in the study area, we are concerned that switching to this prey could occur as has been reported in the Central Aleutians (Estes et al 1998) and thus provide a linkage to the oceanic and nearshore ecosystems.

In FY97 we initiated a remote hydrophone and acoustic monitoring as a long-term assessment tool. Initial analysis and separation of pods has been completed and results are in publication. (Yurk 2002)). Currently we are operating a hydrophone in Resurrection Bay that allows wintering monitoring and identification of pods. The acoustic monitoring is fully supported by the Alaska Sea Life Center, (funds are not requested here) but will aid in our overall monitoring efforts of resident pods.

The AB pod of killer whales was injured by the EVOS. Although it initially had shown signs of recovery from 1991 to 1993, mortalities in 1994/95 reduced the number of surviving AB pod whales to a low of 22. Since 1995 there has been a net gain of four individuals; however, recovery to prespill numbers is not expected until 2015, provided there are no additional atypical mortalities. At least 12 of the original 22 members of AT1 group of transient killer whales have apparently died since 1989 and there has been no recruitment within the group. Recovery for this group seems doubtful at this time and a petition to list them as an endangered population is in preparation. This project will continue to monitor the status of AB pod and the AT1 group.

B. Relevance to GEM Program Goals and Scientific Priorities

The final report from previous monitoring (FY2002) will detail the status of AB pod and the AT1 transient group. However, the status of AB pod is considered not recovered at this time, the group numbers 26 whales and one subpod (AB25) continues to travel primarily with AJ pod. AB pod numbered 36 whales before the spill and was a

unified pod. This project continues the assessment of recovery from the Exxon Valdez oil spill.

In addition this project monitors feeding habits of killer whales and the potential effect on the Nearshore ecosystem. Harbor seals are a known major prey item for transient killer whales, and we are concerned that sea otters could also become an important prey due to the severe decline and lack of recovery of harbor seals in the region. Also, Resident killer whales are important nearshore predators on salmon. Our monitoring of feeding locations will facilitate development of potential nearshore important habitats for killer whales. Currently we are analyzing such data in GIS format for the Kenai Fjords region (Romer et al, in prep).

In the future (FY 05) we will be working with the KBNERR in the development and deployment of oceanographic equipment that will provide automatic monitoring of primary oceanographic variables from our research vessel while conducting our primary tasks. This will provide additional baseline oceanographic data used in the investigation of the Alaska Coastal Current. Testing of this equipment for our use will likely occur in FY2004 but is not an official part of this proposed project.

An annual killer whale behavioral database of spanning 18 years now exists in a GIS format. This will be continued as part of the proposed monitoring. It is accompanied by a photographic database that includes identifications of all individuals from each frame of film for every encounter logged in the GIS system.

Our program has a strong community involvement aspect, as we are part of the Youth Area Watch program which provides the opportunity for young students to accompany us during our research. In addition, we provide research results and educational briefings to tourboat operators on a regular basis.

PROJECT DESIGN

A. Objectives

1. To extend field time provided under other related projects and allow monitoring of resident killer whale pods, including the non-recovered AB pod in order to determine pod and population status.
2. Continue population, feeding habits, acoustics, genetics and contaminant studies that will be funded as part of cooperative agreements and collaborative projects.
3. To provide data for assessment of the killer whales role in the nearshore ecosystem; to determine any changes in killer whale feeding habits in this area from our previous data.
4. To continue to work with local groups (Youth Area Watch, tourboat operators) in providing community involvement with our work.

B. Procedural and Scientific Methods

The portion of study funded by the EVOS Trustee Council will rely on the photoidentification of each individual in each pod/group, that regularly uses the Sound, particularly AB pod. 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. We will use the field time provided under the Trustee Council portion of the study to work with AB pod and other resident pods when they are present. 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 nineteen consecutive 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 77.

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.

The Nobletech system will also be used to record specifics of each encounter with killer whales including the trackline during these encounters. This data system will be used in 2004 to log all encounters and summarize effort. Additional attention will be made to relate behavior to location using a Nobletech data recording system which relates precise geographic location to behavioral events. The new data collection system will be based on killer whale encounter data sheets developed in 1995 and specifically tailored to GIS data entry. 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' trackline during the encounter will be completed and the distance traveled by the vessel with the whales will be calculated by the Nobletech system on a daily basis. The new system will make it much simpler to 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 autofocus camera with internal motor drive and a 300 mm f4.5 autofocus lens will be used. 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 makes photography impractical.

All photographic negatives will be examined under a Wild M5 stereomicroscope at 9.6 power. 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 nineteen years. Identities of each whale that appears in every frame of usable film will be recorded and stored in VAX computer system. Final analysis and assessment will follow Matkin et al. (1994).

The primary vessel used to secure identification photographs will be a 34' diesel inboard powered vessel capable of 20 knots, that can sleep 3-4 individuals (R.V. *Natoa*). With sleeping accommodations and large fuel capacity, the R.V. *Natoa* can remain in the field for extended periods. This vessel will operate a total of 12 days under funding from this project, with days selected to maximize encounters with resident whales (AB pod) and the AT1 group during the late July through September period. From historical data these dates are judged to be to be the most likely time to encounter AB pod as well as many of the other resident pods that use the Prince William Sound and Kenai Fjords.

Both genetic and contaminant analysis will be conducted and biopsies from individual whales collected during the course of this project, however, it will not be paid for under this project. Methods will be similar to those used in previous years under EVOS funding and are described in the Data Management and Quality Assurance section of this proposal.

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. Frame by frame input of identification data from exposed film into VAX and IBM PC computer systems will occur and identifications tabulated by pod and by individual. Copies of killer whale encounter data and vessel logs will be made available to the EVOS Trustee Council and/or lead agency and this data will be archived in the GIS database for potential future analysis. 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 GIS system at Alaska Pacific University (Dr. David Scheel) and U.F.W.S, Marine Mammal Management Division in Anchorage (Doug Burn) and VAX data system at the Pacific Biological Station, Nanaimo also will be used for data storage and analysis.

C. Data Analysis and Statistical Methods

Because all measurements are being made in the same format as during the past 19 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. Because 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 without statistical aids. Genetic and contaminant analysis that may also be part of our field protocol are detailed in the Data Management section

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. 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 Southwestern Prince William Sound 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 the examine the interactions of killer whales with other species. It will be integrated nearshore studies that focus on sea otters and as the technology becomes available with the oceanographic studies of the Alaska Coastal Current. We have a record of community involvement and plan to continue work with the Youth Area Watch Program. In FY2004 this project will rely on approximately \$73,000 in funds from the Alaska Sea Life Center and another approximately \$8,000 in cooperative agreements with the NMFS environmental contaminant laboratory and support from various foundations to complete the overall program. Our GIS program is accomplished in conjunction with Alaska Pacific University (Dr David Sheel). In addition we are supported by separate contract and work cooperatively with the NMFS regional office (Kaja Brix) to provide observation and education of the tourboat 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 cooperation to maximize potential for funding in the future.

III. SCHEDULE

A. Project Milestones

Objective 1. Provide data for assessment of AB pod, other resident killer whales, and the AT1 group. Field work completed by October 2004, assessment by January 2005

Objective 2. Provide educational experience for Youth Area Watch and programs for Kenai Fjords/ Prince William Sound tourboat fleet Completed by June 2004

Objective 3. Development of oceanographic monitoring device and deployment on R.V.Natoa. Proposed begin in July 2004 for full operation in 2005.

B. Measurable Project Tasks

July-September 2004: Field work focusing on AB pod and other resident pods.

September 2004: Submission of annual report

Nov 2004 - Jan. 31, 2005: Analysis of photographs from 2004 fieldwork. Input data into GIS system.

January 2005: Attend EVOS Trustee Council/GEM annual workshop

C. Completion Date

Annual report will be submitted by September 30, 2004. Final report date to be determined by future funding schedule.

IV. RESPONSIVENESS TO KEY TRUSTEE COUNCIL STRATEGIES

A. Community Involvement and Traditional Ecological Knowledge

There is great public concern and interest for killer whales in Prince William Sound and in Kenai Fjords. The expanding tourboat industry depends on a healthy killer whale population to attract and satisfy visitors and residents and the research and its results enrich the experience of visitors and residents. We have been closely involved with tourboat and recreational operators and residents by exchanging sighting information on a daily basis and providing a catalogue of individual whales to enhance enjoyment of whale observation (Contact Dan McDonald, Kenai Fjords Tours, Seward Alaska). We have provided and continue to provide workshops detailing whale biology. We are involved in the Youth Area Watch program, taking young students out to participate in our research (Contact Shoo Salasky). Recent publication of an updated identification catalogue that includes details of our research results and viewing guidelines has further sparked interest in these whales. Killer whales now draw thousands of visitors to the region each year.

We continue to collect observations and stories from native residents and others that will provide background for interpretation of our findings and place the work in a historical and cultural perspective. Some of these legends and stories are used to place our research in a broader context in our publication: "Killer Whales of Southern Alaska" (Matkin et al 1999).

B. Resource Management Applications :

This study builds on a long-term database that gives us the ability to track the changes in killer whale populations in this region. Currently, resident killer whales are increasing in number (except for the focal AB pod), while the AT1 transients are in serious decline. This study will continue to examine these changes and hopefully help better explain and interpret them. Currently listing of the AT1 transients as depleted under the Marine Mammal Protection Act is pending and expected in late June 2003. Killer whales are an important resource for the tour industry as well as a cultural resource for native and non-native cultures. We are currently working with the National Marine Fisheries Service, Regional Management Office, Juneau, Alaska (Atten:Kaja Brix) in providing data on vessel and whale interactions and assisting in formulation of management guidelines. In addition we will be examining any changes in contaminant levels in specific individuals. These data may help provide direction in the management of toxic chemicals worldwide and are being supplied to the National Marine Fisheries Service, Northwest Region, Seattle, Washington (Atten: Gina Ylitalo) for use in developing reporting and monitoring programs that will have global implications in the management of contaminants.

PUBLICATIONS AND REPORTS:

Annual/Final reports will be filed as scheduled. Published papers on feeding habits and temporal and spatial distribution of whales are planned during Fall/Winter 2004/2005 but preparation will not be paid for by GEM funds.

PROFESSIONAL CONFERENCES:

Papers developed using data collected under this contract will be presented at conferences, but paid by other contracts (see current and pending support)

LITERATURE CITED

- Estes, J.A., M.T. Tinker, T.M. Williams, D.F. Doak 1998. Killer Whale Predation on Sea Otters Links Oceanic and Nearshore Ecosystems. *Science* 282: 473-476
- Matkin, C.O., D. Scheel, G. Ellis, L. Barrett-Lennard, H. Jurk, and E. Saulitis. 2000. Photographic and Acoustic Monitoring of Killer Whales in Prince William Sound and Kenai Fjords, Alaska (Restoration Project 99012), North Gulf Oceanic Society, Homer, Alaska
- Matkin, C.O., Ellis, G.M., Saulitis, E.L., Barrett-Lennard, L.G., & Matkin, D. 1999. *Killer Whales of Southern Alaska*. North Gulf Oceanic Society, Homer, Alaska.

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- Saulitis, E.L., F. H. Fay, C O. Matkin, in review. Acoustical Behavior of the AT1 Transient Killer Whale Population in Prince William Sound and Kenai Fjords, Alaska. *Animal Behavior*.
- Scheel, D., C. Matkin, E. Saulitis. 2001. Distribution of killer whale pods in Prince William Sound, Alaska over a thirteen-year period, 1984-1996. *Marine Mammal Science* 17(3).
- Ylitalo, G.M., C.O. Matkin, J. Buzitis, M. M. Krahn, L. L. Jones, T. Rowles, and J. Stein. 2001. Influence of Life-History Parameters on Organochlorine Concentrations in Free-Ranging Killer Whales (*Orcinus orca*) from Prince William Sound, Alaska.. *The Science of the Total Environment* 281: 183-203.
- Yurk, H., L. Barrett-Lennard, J.K.B. Ford, and C.O. Matkin. 2002. Cultural transmission within maternal lineages: vocal clans in resident killer whales in southern Alaska. *Animal Behaviour* 63: 1103-1119.

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Education

B.A. in Biology, University of California, Santa Cruz 1974.
MA. in Zoology, University of Alaska Fairbanks. 1980.

Experience

Currently: Director, North Gulf Oceanic Society, a non-profit research and education organization
Adjunct faculty, University of Alaska, Anchorage, Lower Peninsula Campus

Mr. Matkin has conducted research on marine mammals in southern Alaska since 1977. He completed work on harbor seals and Steller sea lions and their interactions with fisheries in 1978-79. He initiated photo-identification work of killer whales and humpback whales in Prince William Sound in 1977. Since 1982 he has been employed by the North Gulf Oceanic Society and has worked under numerous contracts from the National Marine Mammal Laboratory, NMFS; the U.S. Fish and Wildlife Service; the Sea Grant Marine Advisory Program; Alaska Council on Science and Technology, U.S. Marine Mammal Commission Hubbs Sea World Research Institute, the *Exxon Valdez* Trustee Council and the Alaska Sea Life Center. He has directed the NGOS long-term photo-identification project examining killer whale population dynamics in southern Alaska since 1984. He has conducted population/distribution/genetics research on humpback whales in Prince William Sound and western Alaska. He has specialized in biopsy sampling of various cetaceans including killer whales, humpback whales, and sperm whales. He directed work contracted by the Exxon Valdez Oil Spill Trustee Council and National Marine Fisheries Service assessing the impacts of the *Exxon Valdez* Oil Spill on killer whales for the past 12 years (1989-2001) and currently supervises a killer whale research program that extends from southeastern Alaska to the Eastern Aleutians. He has examined environmental contaminant levels in killer whales and humpback whales in Alaskan waters using biopsy sampling techniques. Currently he is a member of the Alaska Scientific Review Group, advising the National Marine Fisheries Service on the status of marine mammal stocks in Alaska.

Mr. Matkin has extensive experience in the operation and maintenance of commercial fishing and research vessels and has operated commercial vessels in southern Alaska since 1978. He has owned and operated a salmon and herring purse seine vessel since 1984. His commercial fishing experience includes Dungeness crab and Tanner crab pot fishing, salmon seining and gillnetting, herring seining, and roe-on-kelp impoundment.

Selected Publications

- Matkin, C.O. and E. Saulitis. 1994. Killer whale (*Orcinus orca*): Biology and Management in Alaska. U.S. Marine Mammal Commission, Washington D.C. 80pp. Contract T75135023.
- Matkin, C.O., G.M. Ellis, M.E. Dahlheim, and J. Zeb. 1994. Status of killer whale pods in Prince William Sound 1985-1992. In: T. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

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Collaborators:

Lance Barrett-Lennard Vancouver Public Aquarium, Vancouver, B.C. Canada
 Graeme Ellis Pacific Biological Station, Nanaimo, B.C. Canada
 Peter Olesiuk Pacific Biological Station, Nanaimo, B.C. Canada
 Eva Saulitis, North Gulf Oceanic Society, Homer, Alaska
 David Sheel Alaska Pacific University, Anchorage, Alaska
 Jan Straley, University of Alaska Southeast, Sitka, Alaska
 Paul Wade National Marine Mammal Laboratory, Seattle, WA
 Gina Ylitalo National Marine Fisheries Service, Seattle, WA
 Harald Yurk University of British Columbia, Vancouver, B.C. Canada

**EXXON VALDEZ OILSPILL TRUSTEE COUNCIL
DETAILED BUDGET FORM FY 04 - FY 06**

| Budget Category: | Proposed FY 04 | Proposed FY 05 | Proposed FY 06 | TOTAL PROPOSED |
|---|-------------------|-------------------|-------------------|-------------------|
| Personnel | \$8,420.0 | \$0.0 | \$0.0 | \$8,420.0 |
| Travel | \$575.0 | \$0.0 | \$0.0 | \$575.0 |
| Contractual | \$5,520.0 | \$0.0 | \$0.0 | \$5,520.0 |
| Commodities | \$1,750.0 | \$0.0 | \$0.0 | \$1,750.0 |
| Equipment | \$0.0 | \$0.0 | \$0.0 | \$0.0 |
| Subtotal | \$16,265.0 | \$0.0 | \$0.0 | \$16,265.0 |
| Indirect (rate will vary by proposer) | \$1,627.0 | | | \$1,722.0 |
| Project Total | \$17,892.0 | \$0.0 | \$0.0 | \$17,987.0 |
| Trustee Agency GA (9% of Project Total) | \$1,610.3 | \$0.0 | \$0.0 | \$1,618.8 |
| Total Cost | \$19,502.3 | \$0.0 | \$0.0 | \$19,605.8 |

Cost-share Funds:

Alaska Sea Life Center Steller sea lions and predation by Killer Whales: Contract \$73,000
 NMFS, Environmental Contaminant Laboratory Sample Analysis In Kind \$4,300.00
 Norcross Foundation: Radiotelemetry of Killer Whales (equipment grant) Grant: \$3,500

**FY 04-
06**

Date Prepared:

6-Jun-03

Project Number: 04012
 Project Title: Killer Whale Monitoring
 Proposer: North Gulf Oceanic Society

**FORM 4A
NON-
TRUSTEE
SUMMARY**

**EXXON VALDEZ OILSPILL TRUSTEE COUNCIL
DETAILED BUDGET FORM FY 04 - FY 06**

| Personnel Costs: | | | Months | Monthly | Overtime | Personnel |
|-------------------------|----------------------------------|-----------------|----------------|---------------|------------------------|------------------|
| Name | Description | | Budgeted | Costs | | |
| Craig O. Matkin | P.I., Field Biologist | | 1.4 | 4800.0 | | 6,720.0 |
| Eva Saulitis | Field Biologist, Data Management | | 0.5 | 3400.0 | | 1,700.0 |
| | | | | | | 0.0 |
| | | | | | | 0.0 |
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| | | | | | | 0.0 |
| | | | | | | 0.0 |
| | | | | | | 0.0 |
| Subtotal | | | 1.9 | 8200.0 | 0.0 | 0.0 |
| | | | | | Personnel Total | \$8,420.0 |
| Travel Costs: | | Ticket Price | Round Trips | Total Days | Daily Per Diem | Travel Sum |
| Description | | | | | | |
| 1 RT Homer/Anchorage | | 200.0 | 1 | 3 | 125.0 | 575.0 |
| | | | | | | 0.0 |
| | | | | | | 0.0 |
| | | | | | | 0.0 |
| | | | | | | 0.0 |
| | | | | | | 0.0 |
| | | | | | | 0.0 |
| | | | | | | 0.0 |
| | | | | | | 0.0 |
| | | | | | | 0.0 |
| | | | | | | 0.0 |
| | | | | | Travel Total | \$575.0 |

FY 04

Project Number: 04012
Project Title: Killer Whale Monitoring
Proposer: North Gulf Oceanic Society

**FORM 4B
Personnel
& Travel
DETAIL**

**EXXON VALDEZ OILSPILL TRUSTEE COUNCIL
DETAILED BUDGET FORM FY 04 - FY 06**

| Contractual Costs: | | Contract |
|---|--|--------------------------|
| Description | | Sum |
| Vessel Contract (34' R.V. Natoa, deisel inboard) 12 days at 460.00/day | | 5,520.0 |
| If a component of the project will be performed under contract, the 4A and 4B forms are required. | | Contractual Total |
| | | \$5,520.0 |
| Commodities Costs: | | Commodity |
| Description | | Sum |
| Communication | | 150.0 |
| Field Food (\$30/day for 12 days) | | 360.0 |
| Fuel (\$70/day for 12 days) | | 840.0 |
| Film, Photo processing | | 400.0 |
| | | Commodities Total |
| | | \$1,750.0 |

FY 04

Project Number: 04012
Project Title: Killer Whale Monitoring
Name: North Gulf Oceanic Society

**FORM 4B
Contractual &
Commodities
DETAIL**

**EXXON VALDEZ OILSPILL TRUSTEE COUNCIL
DETAILED BUDGET FORM FY 04 - FY 06**

| New Equipment Purchases: | | Number of Units | Unit Price | Equipment |
|----------------------------------|--|--------------------|----------------------------|-----------|
| Description | | | | 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 |
| | | | | 0.0 |
| | | | | 0.0 |
| | | | | 0.0 |
| | | | New Equipment Total | \$0.0 |
| Existing Equipment Usage: | | Number of Units | Inventory Agency | |
| Description | | | | |
| | | | | |

FY 04

Project Number:
Project Title:
Proposer:

**FORM 4B
Equipment
DETAIL**

**EXXON VALDEZ OILSPILL TRUSTEE COUNCIL
 DETAILED BUDGET FORM FY 04 - FY 06**

| Personnel Costs: | | | Months | Monthly | | Personnel |
|-------------------------|-------------|--------|----------|---------|----------|--------------|
| Name | Description | | 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 | 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 |
| | | | | | | 0.0 |
| | | | | | | 0.0 |
| | | | | | | 0.0 |
| Travel Total | | | | | | \$0.0 |

FY 05

Project Number:
 Project Title:
 Proposer:

**FORM 4B
 Personnel
 & Travel
 DETAIL**

**EXXON VALDEZ OILSPILL TRUSTEE COUNCIL
 DETAILED BUDGET FORM FY 04 - FY 06**

| Contractual Costs: | | Contract |
|---|--|--------------------------|
| Description | | 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: | | Commodity |
| Description | | Sum |
| | | |
| | | Commodities Total |
| | | \$0.0 |

FY 05

Project Number:
 Project Title:
 Proposer:

FORM 4B
 Contractual &
 Commodities
 DETAIL

**EXXON VALDEZ OILSPILL TRUSTEE COUNCIL
 DETAILED BUDGET FORM FY 04 - FY 06**

| New Equipment Purchases: | | Number of Units | Unit Price | Equipment |
|----------------------------------|--|--------------------|----------------------------|--------------|
| Description | | | | 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 |
| | | | | 0.0 |
| | | | | 0.0 |
| | | | | 0.0 |
| | | | New Equipment Total | \$0.0 |
| Existing Equipment Usage: | | Number of Units | Inventory | |
| Description | | | Agency | |
| | | | | |

FY 05

Project Number:
 Project Title:
 Proposer:

FORM 4B
 Equipment
 DETAIL

**EXXON VALDEZ OILSPILL TRUSTEE COUNCIL
DETAILED BUDGET FORM FY 04 - FY 06**

| Personnel Costs: | | | Months Budgeted | Monthly Costs | Overtime | Personnel Sum |
|-------------------------|-------------|-----------------|--------------------|------------------|-------------------|------------------|
| Name | Description | | | | | |
| | | | | | | 0.0 |
| | | | | | | 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 | 0.0 | 0.0 |
| Personnel Total | | | | | | \$0.0 |
| Travel Costs: | | Ticket Price | Round Trips | Total Days | Daily Per Diem | Travel Sum |
| Description | | | | | | |
| | | | | | | 0.0 |
| | | | | | | 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 |
| Travel Total | | | | | | \$0.0 |

FY 06

Project Number:
Project Title:
Proposer:

FORM 4B
Personnel
& Travel
DETAIL

**EXXON VALDEZ OILSPILL TRUSTEE COUNCIL
 DETAILED BUDGET FORM FY 04 - FY 06**

| Contractual Costs: | Contract |
|---------------------------|-----------|
| Description | Sum |
| | |
| | |
| | |
| Contractual Total | \$0.0 |
| Commodities Costs: | Commodity |
| Description | Sum |
| | |
| | |
| | |
| Commodities Total | \$0.0 |

FY 06

Project Number:
 Project Title:
 Proposer:

FORM 4B
 Contractual &
 Commodities
 DETAIL

**EXXON VALDEZ OILSPILL TRUSTEE COUNCIL
 DETAILED BUDGET FORM FY 04 - FY 06**

| New Equipment Purchases: | | Number of Units | Unit Price | Equipment |
|----------------------------------|--|--------------------|----------------------------|-----------|
| Description | | | | 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 |
| | | | | 0.0 |
| | | | | 0.0 |
| | | | | 0.0 |
| | | | New Equipment Total | \$0.0 |
| Existing Equipment Usage: | | | Number of Units | Inventory |
| Description | | | | Agency |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
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| | | | | |

FY 06

Project Number:
 Project Title:
 Proposer:

FORM 4B
 Equipment
 DETAIL

Budget Justification

Personnel \$8420.00

Funds here cover the time required for the field work by both the PI and field biologist (P.I. is also vessel operator) in addition to several days of prep time. It pays for the input of data into a GIS system as well as analysis of photographs and interpretation of genetic and contaminant data by P.I. Also included is time for reporting requirements.

Travel \$575.00

Funds for travel and lodging to the annual GEM meeting/workshop in Anchorage

Contractual \$5520

Funds for contracting the research vessel for 12 days (without an operator) for operation by the P.I. and Field Biologist.

Commodities \$1750.00

This includes money for basic communications and collaboration, food and fuel for the field work and money to process for film and to process photographs and negatives from the field work. Note that any costs of contaminant and genetic analysis will not be borne by this project.

Note: There is no equipment billed to this project

The North Gulf Oceanic Society is a non-profit research and education group. The indirect costs are based on a formula that we have used with EVOS sponsored projects for the past 10 years (10% of project cost). It includes office operation expense and computer expense and depreciation, maintenance and depreciation of field equipment (cameras, biopsy equipment, recorders, etc).