

11.16.02

Exxon Valdez Oil Spill Trustee Council

February 4, 2005

Agenda

Exxon Valdez Oil Spill Trustee Council

441 W. 5th Ave., Suite 500 • Anchorage, Alaska 99501-2340 • 907/278-8012 • fax 907/276-7178



AGENDA EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL MEETING

February 4, 2005 9:00 a.m.
441 West 5th Avenue, Suite 500, Anchorage

DRAFT

Trustee Council Members:

GREGG RENKES
Attorney General
State of Alaska

JAMES BALSIGER
Administrator, Alaska Region
National Marine Fisheries Service

KURT FREDRIKSSON
Acting Commissioner
Alaska Department of
Environmental Conservation

DRUE PEARCE
Senior Advisor to the Secretary
for Alaskan Affairs
U.S. Department of the Interior

WAYNE REGELIN
Acting Commissioner
Alaska Department of Fish
and Game

JOE MEADE
Forest Supervisor
U.S. Department of Agriculture
Forest Service

Meeting in Anchorage, Trustee Council Office, 441 West 5th Avenue, Suite 500
_____ Federal Chair

1. Call to Order – 9:00 a.m.
 - Approval of Agenda*
 - Approval of Meeting Notes*Dec 10, 2004 Trustee Council
2. Public comment – 9:15 a.m.
3. Executive Director's report (9:30 a.m.)
 - Introduction of new EVOS staff member – Gail
 - ARLIS report – Carrie
 - Public Advisory Committee comments, question and answer period added to TC agenda* – Gail
 - Investment Working Committee – Gail
 - Liaison hours survey – Paula

- Discuss joint PAC/TC meeting in Cordova June 11-12 (field trip) – Gail
- January Science Symposium – Gail
- PAC Report – PAC Chair Dr. John Gerster
 - 2 PAC Resolutions
 - PAC notes from Doug Mutter and Gail
- STAC Report – Brenda Norcross
 - STAC notes from Gail

4. Action Items (10:15 a.m.)

- Small Parcel Proposal* – Gail
- Project 040362 UC Davis invoice* – Brett
- Defer work on Science Plan for 1 year* – Richard
- Konar Project* – Richard
- Amendment to Investment Management and Assignment Fees* – Gail
- Lingering Oil Projects review * – Craig/Gina
- FY 2006 Invitation* – Richard

Noon working lunch – Executive Session

5. TEK presentation (3:00 p.m.) – Dr. Polly Wheeler, USFWS

6. Miscellaneous Items

- Letter from Stacy Studebaker
- Letter from Ken Adams
- STAC Process
- Letter from Pat Lavin
- PAC meeting calendar
- Letter from the Center for Alaskan Coastal Studies
- Meacham Resolution*

Adjourn

* Indicates action items

**Dec 10, 2004 meeting
notes**

Exxon Valdez Oil Spill Trustee Council

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TRUSTEE COUNCIL MEETING NOTES

Anchorage, Alaska

December 10, 2004

DRAFT

DRAFT

By Kevin Duffy
Trustee Council Member

Trustee Council Members Present:

Joe Meade, USFS
Drue Pearce, DOI
James Balsiger, NMFS ***

•Kevin Duffy, ADF&G
Kurt Fredriksson, ADEC
Gregg Renkes, ADOL**

• Chair

** Craig Tillery alternate for Gregg Renkes

*** Peter Hagen alternate for James Balsiger

Meeting convened at 10:05 a.m., December 10, 2004 in Anchorage at the EVOS Conference Room.

1. Approval of the Agenda

APPROVED MOTIONS: 1) *Approve* the December 10, 2004 agenda as modified: moving workshop and Science Plan discussion to follow the Executive Session (Attachment A)

Motion by Fredriksson, second by Tillery

2) *Postpone* STAC Operating Procedures review until the next TC meeting

Motion by Fredriksson, second by Meade

3) *Move* FY 06 Invitation to follow items 9 and 10

Motion by Pearce, second by Meade

4) *Motion* to accept modified agenda

Motion by Pearce, second by Fredriksson

Federal Trustees

U.S. Department of the Interior
U.S. Department of Agriculture
National Oceanic and Atmospheric Administration

State Trustees

Alaska Department of Fish and Game
Alaska Department of Environmental Conservation
Alaska Department of Law

2. Approval of the Meeting Notes

APPROVED MOTION: Approved the August 23, 2004 meeting notes
(Attachment B)

Motion by Fredriksson, second by Pearce

Public comment period began at 10:15 a.m.

**Public comment was received from six individuals in Anchorage, Cordova
and Kodiak.**

Public comment period closed at 10:38 a.m.

3. Executive Director's Report

4. Konar Iken additional funds

APPROVED MOTION: Motion to direct Konar a supplemental funding
request \$50,000 funding request to further
review by the PAC and STAC, subject to
Trustee Council review and reconsideration at
the Council's next meeting

Motion by Fredriksson, second by Meade

5. Hoover-Miller additional funds

APPROVED MOTION: Motion to approve \$4,500 additional funds for
Hoover-Miller 050749

Motion by Pearce, second by Tillery

6. RSA, ADEC's travel funds for FY 05 to ADF&G

APPROVED MOTION: Motion to approved the transfer of travel funds
for ADEC to ADF&G

Motion by Fredriksson, second by Tillery

7. Administrative Budgets amendments

APPROVED MOTION: Motion to approve additional funds to cover
increase personnel costs for Projects: ARLIS

(050550), Science Management (050630),
Administrative (050100) and Data
Management (050455)

8. Final and Annual Report due dates

APPROVED MOTION: Motion to defer decision to change Annual and
Final Report due date until the next Trustee
Council meeting

Motion by Pearce, second by Fredriksson

9. Extension of time to expend funds from ADNR to TNC

APPROVED MOTION: Motion to approve an extension of the existing
funding authorization for completion of the
Knol, Nakada and Thompson parcels by the
State of Alaska until September 30, 2005

Motion by Tillery, second by Pearce

10. Executive Session

APPROVED MOTION: Approved motion to move to executive session
to discuss legal matters and personnel issues

Motion by Tillery, second by Meade

EXECUTIVE SESSION

Off the record: 1:07

On the record: 2:49

11. FY 06 Invitation

APPROVED MOTION: Motion that the Trustee Council endorses a
\$600, 000 target for investing on FY 06
Invitation and the EVOS staff work with the
liaisons using the ADEC priorities as a starting
point subject to modification and
recommendation back at the next Council
meeting

Motion by Fredriksson, second by Meade

Meeting adjourned at 5:50 p.m. Motion by Pearce, second by Fredriksson

Trustee Duffy called the meeting to order at 10:05am. All Trustees were present or represented. The agenda was approved with the addition of one item – the last item under Miscellaneous Action Items: a request for an extension by DNR to complete land transactions and the withdrawal of one item – the STAC operating procedures. Staff was requested to work with the liaisons to go over the STAC procedural changes and bring these back to the Trustees at the next meeting. In the future, it was requested that approximate time frames be included for all agenda items so that everyone will have an idea of how much time is needed for the meeting. The amended agenda was approved. The official meeting notes covering the August 23, 2004 meeting were approved.

Public comments were provided by John Gerster (PAC), Stacy Studebaker (PAC), R J Kopchak (PAC) on line and by Ken Adams, Ross Mullins and Pat Lavin (PAC) in person. Stacy Studebaker also submitted written remarks which were in the Council's binders. Most of the comments were in regards to the Council's funding decisions at the August meeting and the continued need for Council action to be conducted in public. Comments also focused on the importance of continuing our community involvement outreach in the oil spill communities.

EXECUTIVE DIRECTOR'S REPORT

1. At the last meeting the issue of those agencies which do not have science projects but whose employees spend time working on EVOS issues should be compensated for this time and effort. Paula Banks was asked to survey all the liaisons from all member agencies to see how much time and cost this amounted to. This was limited to activities other than project management or administrative functions associated with general administration. Because not all agencies had responded, Paula did not have a completed survey. She will be contacting those still needed and submit the survey at the February meeting. With her survey will be proposals for the TC to consider:

- a. Amend the current budget to allow for reimbursement to agencies for expenses incurred in the current year;
- b. Place an appropriate dollar amount for the agencies in the Administrative budget during the next budget cycle and on into the future;
- c. Do nothing.

2. The Investment Working Committee will be meeting on Monday, December 13th to present an update on our investment picture. I will send the Trustees a copy of the power point that is given and any advice from our Committee.

3. Richard and Paula both reported on the latest plans for the Science Symposium that is scheduled for January 24-27th in Anchorage. Presently we have 200 folks registered; 90 of these are interested in making a presentation and 38 want to submit a poster. The Planning Committee has been meeting regularly and is firming up keynote speakers, time frames for the panel discussions, etc. Paula reported that we are still waiting for ADF&G to send back confirmation of the bid award before we can announce which hotel the Symposium will be in. Finances for the Symposium have been firmed up and everything is on track.

4. Rob next gave an update on where we are with our data management program. He explained the three stages of data management work he and Michael are doing and how this will be spread out over the next 3-5 years. He discussed other agencies who are interested in working with us and

sharing DM resources. Data stewardship is a critical asset to our program. Trustee Meade questioned where would be the proper place or agency to keep all the data that is produced. Trustee Fredriksson discussed the responsibility of this Council as to what to do with all the information that has been collected over the years and what we are going to do with the data that we have collected. He further reiterated that our first priority is to the data we have collected over the past fifteen years. Rob discussed how some of the earlier studies are getting lost in obscurity and the need to retrieve all of this data and restore it and then analyze and synthesize it. Trustee Hagen asked how the work being done in our office would interact with IT being done in the agencies. He elaborated on the interest now in the agencies for this type of data retrieval by users. Trustee Meade expressed his support of us working with other agencies on data storage processes. The question came up as to whether or not the Trustee Council office is the right place for this storage of information. Right now there is no other service available that will synthesize our data. Trustee Fredriksson requested that Rob come back to the TC with a report on how we can integrate and synthesize our data and research just for the Council office first. He wants us to primarily focus on our own data. Trustee Pearce agreed with this. She continued that we still need to work with ARLIS as an integral part of this program. Trustee Tillery expressed that it was important for us to work with other groups such as the NPRB and PSF and others to coordinate data so that the various organizations are not duplicating what others are working on and doing.

5. The Trustees moved the discussion of the workshops and membership on the working groups to the bottom of the agenda.

6. Gail discussed the 2005 Trustee Council meeting schedule. The Council agreed that we need to plan for more time for meetings in the future. It was recommended that the meetings be scheduled over a 36-hour or two-day time frame. The dates for planned TC meetings for next year will be February 3rd and 4th – (Approval of Draft Invitation); August 10th and 11th – (Approval of Final Work Plan and Budget); and December 1st and 2nd – (Project Contingencies). Other meetings can be scheduled as needed. Trustee Meade requested that we hold off on confirmation of this schedule until each Trustee could check with their calendars and then approve this at the end of the meeting.

7. Richard gave a brief update on the work going on with revisions to the Science Plan. He presented a flow chart to the Trustees on the work on the update and the time lines involved. Trustee Fredriksson questioned the need to continue work on the recovery of species that are shown to already be recovered vs. the ecosystem recovery itself.

8. Phil gave a report on the status of the GEM Science Plan book that is being published by the UAA Alaska Sea Grant. This is different from our working Science Plan itself. The Science Plan book is a benchmark of information at a specific time and our Science Plan work product is an update of the science in the book and how we have progressed through the years. This GEM book is not a policy book; rather it is a scientific benchmark. It is very close to being finalized for publication by the University.

MISCELLANEOUS ACTION ITEMS

1. Close-out funding for the Konar project: close-out funding of \$50,000 has been requested to get all the data that this project was capable of producing. This is additional data that was beyond the provisions of the work project itself. Trustee Duffy recommended that this request go back through the STAC and PAC review process and that a proposal be brought back to the TC during the February meeting. Council approved this recommendation.

2. Allocation correction to Hoover-Miller project: this request was for an additional \$4,500 for this Harbor Seal monitoring project. The original figure, approved by the Council last August, had been transposed and the funding was short. Council approved the additional funds.

3. RSA between ADF&G and DEC for DEC's travel funds: last August the TC approved travel funds for all agencies. Because DEC did not have the spending authority to accept and utilize their appropriation, it was requested that the Council approve a Reimbursable Spending Agreement (RSA) for ADF&G to accept these funds to cover DEC's EVOS-related travel. It was further recommended that DEC obtain spending authority for travel expenses in FY06 and future years. Council approved this action.

4. Administrative Budget Amendments: we have received budgetary increases to personnel costs that were not known at the time the budget was approved in August. Most of these increases were for insurance cost increases and increases in benefit costs (SBS, etc.). Council approved an additional \$25,349.22 to cover these increased costs.

5. Policies and Procedures changes: both of the proposed changes on the STAC Operating Procedures and Project Reporting Due Dates were deferred until the February meeting in order for EVOS staff to get input from agency liaisons and PIs before finalizing procedures.

6. DNR Small Parcels Extension: Carol Fries of DNR requested a 9-month extension on finalizing the transfer of three small parcels from The Nature Conservancy to the State of Alaska. Problems that have occurred with the closure on these properties require that DNR be given more time to finalize transactions. Council approved an extension until August 1, 2005.

EXECUTIVE SESSION AND LUNCH BREAK

The Trustee Council moved into an Executive Session to discuss legal issues and personnel issues. All others present took a lunch break. Council moved back into regular session.

PRESENTATION OF THE BOB SPIES BOOK

Phil introduced the work project more commonly known as the Bob Spies Book. A detailed description of the original scope of work required for this project, plus a time schedule for meeting the 2005 publishing date is included in the TC notebook prepared for this meeting (Tab: Synthesis of Ecological Findings – Spies). Bob Spies is quite ill and could not be at this meeting in person but was on the telephone with us to answer any questions from the TC. Jeep Rice gave a power point presentation on one portion of the book, "A synthesis emphasizing long-term effects of the spill". Council took no further action on this issue at this time.

COUNCIL WORK PRIORITIES

Trustee Fredriksson presented a list of priorities he would like to see the Council adopt for work in the future. These priorities include:

1. Information synthesis and scientific research for unknown and unanticipated EVOS impacts on endangered species;
2. Continued monitoring, research and evaluation of ongoing direct impacts from lingering oil;
3. Update on Injured Resources and Services;
4. Synthesis of the long-term effects of the spill; synthesis of information for each non-recovered species, habitat or service identified in Tables A1-A3 in the 1994 Restoration

- Plan (evaluate the recovery objectives, restoration strategies and define clear, measurable and achievable restoration strategy endpoints along with a recovery action plan);
5. Complete the large parcel program and adopt small parcel program; and
 6. Conduct household subsistence surveys in 2005.

Discussion followed the presentation of this list of priorities. Trustee Hagen recommended that we put a wrap on the injury list. This is presently being done by Richard Dworsky. Pete also recommended that we continue our existing monitoring programs. No formal action was taken by the Trustees on the Fredriksson priorities.

FY06 INVITATION AND FUNDING AVAILABILITY

Phil presented an update on the 2006 Invitation and a chart showing the funds that are and could be available for the Invitation, based upon action by the Council. The chart contains the dollar amounts available, with or without carry-forward funds. Without utilizing carry-forward funds, there is \$600,000 available for the '06 Invitation; with carry-forward, this increases to \$1,300,000.

Trustee Tillery reported that, in the past, carry-forward monies were not utilized and the Council made the decision to just lapse these dollars back into the regular fund. He further discussed the issue of the "cap" and said it was decided to place a \$5,000,000 cap into effect in order to allow the regular accounts to grow annually without depletion; in this way, they replenish themselves. He continued that he believed that the carry-forward monies were not intended to be spent and instead, the Council would work with the amount available under the cap.

In the future, we may want to budget a little higher than the \$5,000,000 cap level because history has shown over the past several years that we are actually spending less than this limit. The cap can be changed by the TC and should be viewed as a goal for spending.

The Council established the amount of \$600,000 available for funding the '06 Invitation. The Invitation will be put together in conjunction with the agency liaisons and will be presented to the PAC during their January meeting for review.

UPDATE ON ADDITIONAL FUNDS FOR LINGERING OIL PROJECTS

Trustee Tillery gave an update on the need for additional funds for lingering oil projects. There is a potential list of 12 additional projects that have been identified and vetted through the staff and PIs. Funds needed to cover these projects total approximately \$350,000 and would be included in the '05 field season. Phil will convene a meeting of the Lingering Oil committee to have these projects vetted through the procedural peer review. They will also be presented to both the PAC and STAC for their review. Trustee Tillery said that it is important to keep these lingering oil projects separate from the '06 Invitation. It is anticipated that the formal request for funding these projects will be presented to the Council in their February meeting.

RECONSIDERATION OF PREVIOUSLY UNFUNDED PROJECTS

In consideration of the monies that will be needed for additional lingering oil projects, the Council choose not to reconsider funding any other projects that were previously unfunded.

UPDATE ON WORKSHOPS AND MEMBERSHIP ON THE WORKING GROUPS

Richard gave an update on the various workshop meetings that have been held so far and also discussed the membership on these working groups. Gail will send an e-mail message to all Trustees asking them to submit their agency names for these working groups.

ADOPTION OF 2005 CALENDAR FOR COUNCIL MEETINGS

The Council adopted the 2005 Calendar of dates for Council meetings as outlined in Item #6 under the Executive Director's report. Gail will send these dates out to all Trustees, secretaries, liaisons, etc. so they can be placed on next year's calendar now.

The Council meeting was adjourned shortly after 6:30pm.

Gail Phillips
Executive Director

EVOS Trustee Council Meeting

February 4, 2005

Update on ARLIS

My name is Carrie Holba. I'm the Trustee Council funded librarian at Alaska Resources Library & Information Services, ARLIS. I'm here to give you an update on ARLIS

Last summer ARLIS moved to new quarters in the new library complex on the UAA campus. The new addition houses the UAA/APU Consortium Library, the Health Sciences Information Service, and the Alaska Moving Images Preservation Association. ARLIS occupies renovated space in the old portion of the building.

ARLIS was closed for one month during the move. We moved out of our old location by our August 31st deadline and re-opened in the new location on September 7th.

The new space is larger and more attractive. However, we've had a few building problems.

The **electrical power supply** to the wall where most of our equipment is located proved to be insufficient. We had to temporarily relocate our photocopiers and could use only one of our 3 microfilm reader/printers, which had to be shared by staff and library users. The problem was finally corrected two weeks ago and we now have adequate power on that wall.

We have no **exterior or interior signage** to direct library patrons to ARLIS when they get to the campus or once they are inside the library complex. According to our relocation agreement with UAA, the university must provide this. We are currently using paper signs and flip chart easels to mark the entrances to ARLIS.

Our patrons have free parking in the UAA parking garage, but there are no signs to direct them to the library from the garage. ARLIS staff put up a series of 20 paper signs to mark the way to ARLIS, but the UAA facilities staff have removed them because they are “unofficial”.

Steve Rollins, director of the UAA library, has accepted a bid from a local contractor for interior signage and we hope that will be in place some time this year. The exterior signage falls under the university’s overall signage plan, which is done in phases. We may not have exterior signage for another year.

Our relocation agreement with UAA states that UAA will provide **new furniture** in the public areas of ARLIS. To date we have received new study carrels, new worktables, and most of the new chairs. We are still waiting for the new computer tables and the rest of the chairs. We’re using folding tables in the interim. The designer says she has not ordered the furniture because there is no money left. Steve Rollins is following up on this.

Our biggest building problem is **security**. The library complex has an open floor plan. This design allows library patrons to move easily between ARLIS and the Consortium Library, while visually defining each library. However, the design does not provide doors to secure the ARLIS space when the library is closed. Due to budgetary constraints, ARLIS is not staffed all the hours the Consortium Library is open. Without doors to lock the four entrances when the library is not staffed, the ARLIS collection is vulnerable to theft or damage.

The university would not change the design nor allow ARLIS to purchase and install doors or security grills. As a compromise, the ARLIS Founders Board provided funding for **locking high-density shelving** to house those items that are unique, rare, and irreplaceable, some of which are available no where else in the

world. These materials are secured in the locked shelving when ARLIS closes each day, while the rest of the collection remains accessible to patrons all the hours the Consortium Library is open. The shelving has 10 double-sided rows. Each row is 30 feet long. The shelves have handles that allow them to be rolled tightly together and locked with a lock on one end.

Since ARLIS re-opened 5 months ago, this Special Collections **shelving has been broken into 7 times**. We have no way of knowing if anything has been stolen, or if it is vandalism. This would require us to do a complete inventory of the Special Collections after each break-in and we do not have the staff to do that. In addition, some of the material in these shelves is archival in nature – papers contained in boxes or binders. Pieces could be missing and not show up on an inventory.

We are now on our third set of **locks**, and each one has been stronger than the last. UAA is now paying for the locksmith work and has promised to pay for any other break-in related expenses.

Prior to the move UAA promised **security patrols** through ARLIS on evenings and weekends when ARLIS is not staffed. We finally succeeded in getting those on a regular basis in January. These are done by students and we now require them to sign in on a log sheet each time they do a patrol. The comments they provide on the log sheet have been helpful in determining when the break-ins are occurring.

Initially the **campus police** did not consider the forced locks to be break-ins, but rather weak or faulty locks. They would not even file a report until the fifth break-in occurred.

On Wednesday, January 26th, after the 6th break-in, at Steve Rollin's request, campus police installed a **covert surveillance camera**. The last 3 break-ins occurred on Wednesday evenings, so

they turned on the camera that evening. We were told not to use the new stronger locks because they might deter the perpetrator and they wanted to catch the person. No break-in took place that evening.

The next break-in was Sunday evening, January 30th. Due to the short life of the camera batteries – which last only about 1½ days – there was **no surveillance tape** to review. I was told by campus police that they would expedite the purchase of batteries with at least a 3-day life and replacements that could be used while the batteries recharge.

There have been other **smaller problems**. Someone has activated the **chimes** on the visitor counters we have at each entrance. We don't use the chimes, because of the noise factor, and keep them turned off. But on 6 or 7 occasions they had been turned on during the evening and were on when we came to work the next day.

Someone used **black marker** to mark a 5-inch "X" on one of the wooden end panels on one row of shelving. The X is about 6 feet up from the floor. We were able to scrub most of it off.

UAA has had some problems too. There have been minor thefts and vandalism in a break room. And several weeks ago, a patron was accidentally locked in the building at closing. The security sweep was not thorough.

As part of ARLIS's funding for FY 05, the Trustee Council kindly provided \$30,000 for a **security camera system**. We are currently working on the bid process to purchase this system. We are researching equipment options, contacting other libraries about their systems, and working with a FWS warehouse manager, who will show us his system and look at ARLIS to give recommendations for our system.

We are monitoring library usage to see how it has changed in our new location. Usage by UAA students and faculty more than doubled in September. When the statistics for the first quarter of FY 05 are compiled, we'll have more detailed information to report.

Thank you.

PAZ

Cherri Womac

From: Douglas_Mutter@ios.doi.gov
Sent: Monday, January 31, 2005 10:13 AM
To: jgerster@alaska.net; tidepoolak@ak.ne
Cc: gail_phillips@evostc.state.ak.us; Cherri Womac; RJ Kopchak; rhagenstein@tnc.org
Subject: EVOS PAC Resolutions [Virus checked]

Here are the resolutions passed by the PAC last week. I will forward a draft meeting summary later this week, but wanted to ensure the resolutions were available for John to sign, as Chairperson, and all action items were available to provide to the Trustee Council at their Feb. 4 meeting. The PAC actions were:

1. John Gerster was elected PAC Chairperson and Stacy Studebaker was elected PAC Vice-Chairperson.
2. The PAC unanimously endorsed placing a "PAC comment, question and answer" period on the agenda for EVOS Trustee Council meetings, in addition to the official report by the PAC Chairperson.
3. Resolution 2005-01: moved by Kopchak, second by Baker, passed unanimously:
4. Resolution 2005-02: moved by Kopchak, second by Studebaker, passed with 11 yeas, 1 nay, 2 abstains
5. The PAC supported continued funding of the Konar project, leaving negotiations of overhead to the EVOS Trustee Council and the University: moved by Hagenstein, second by Meacham, passed with 12 yeas, 2 nays

Please let me know ASAP if any changes are required.

Doug

Douglas Mutter
U.S. Department of the Interior
Office of Environmental Policy & Compliance
Anchorage, Alaska
907-271-5011
(fax: 907-271-4102)

Meeting Summary

A. GROUP: *Exxon Valdez Oil Spill (EVOS) Public Advisory Committee (PAC)*

B. DATE/TIME: January 27, 2005

C. LOCATION: Anchorage, Alaska

D. MEMBERS IN ATTENDANCE:

<u>Name</u>	<u>Principal Interest</u>
Torie Baker	Commercial Fishing
Jason Brune	Public-at-Large
Larry Evanoff	Native Landowners
John Gerster	Science/Technical
Randy Hagenstein	Recreation Users
Lisa Ka'aihue	Regional Monitoring
RJ Kopchak	Commercial Fishing
Chuck Meacham	Sport Hunting/Fishing
Brenda Norcross	Science/Technical and STAC
Pat Norman	Tribal Government
Ron Peck	Commercial Tourism
Martin Robards	Conservation/Environmental
Stacy Studebaker	Recreation Users
Andrew Teuber	Subsistence

E. NOT REPRESENTED:

<u>Name</u>	<u>Principal Interest</u>
Gary Fandrei	Aquaculture/Mariculture
Pat Lavin	Conservation/Environmental
Ed Page	Marine Transportation
Robert Patterson	Public-at-Large
Mead Treadwell	Science/Technical
Ed Zeine	Local Government

F. OTHER PARTICIPANTS:

<u>Name</u>	<u>Organization</u>
Linda Robinson	Prince William Sound Regional Citizens Advisory Council
Barat LaPorte	Patton Boggs
Ross Mullins	Public, Cordova
Ken Adams	Public, Cordova
Marilyn Sigman	Center for Alaska Coastal Studies
Susan Saupe	Cook Inlet Regional Citizens Advisory Council
Regina Belt	U.S. Department of Justice
Michael Baffrey	U.S. Department of the Interior
Steve Zemke	U.S. Forest Service

Michelle St. Peters	U.S. Geological Survey
Larry Dietrick	Alaska Dept. of Environmental Conservation
Pete Hagen	National Oceanic and Atmospheric Admin.
Mandy Lindeberg	National Oceanic and Atmospheric Admin.
Brett Huber	Alaska Dept. of Fish and Game
Doug Mutter	Designated Federal Officer, Dept. of the Interior
Craig Tillery	Alaska Department of Law
Leslie Holland-Bartels	STAC Member
Charlie Miller	STAC Member
Ron O'Dor	STAC Member
Tom Royer	STAC Member
Gail Phillips	Trustee Council Executive Director
Richard Dworsky	Trustee Council Staff
Cherri Womac	Trustee Council Staff
Paula Banks	Trustee Council Staff
Bryn Clark	Trustee Council Staff
Michael Schlei	Trustee Council Staff

G. SUMMARY:

The meeting was opened by Chuck Meacham, past chairman, at 9:00 a.m. Doug Mutter read the roll call, a quorum was present. After introductions, Craig Tillery provided a brief history of the oil spill, settlement, and subsequent restoration efforts. Mutter gave a summary of the requirements of the Federal Advisory Committee Act. Cherri Womac reviewed administrative and travel documentation requirements for PAC members.

The following PAC officers were elected for the two-year term: John Gerster as Chairperson, and Stacy Studebaker as Vice-Chairperson.

The PAC members thanked Meacham for serving in past PAC leadership roles.

The floor was open for public comment. Ross Mullins encouraged the PAC to continue to support long-term science for the spill-affected area. Susan Saupe encouraged continuation of Shorezone mapping in the spill-affected area, in particular in Prince William Sound (PWS) to provide a continuous survey of the whole area. Ken Adams is in favor of the application of science, in particular for herring and pink salmon management and forecasting. He wants to keep the Gulf of Alaska Ecosystem Monitoring and Research Program (GEM) viable. Marilyn Sigman praised past EVOS habitat protection efforts in the Homer area, supported Shorezone mapping for PWS, and would like to see implementation of the Community Involvement Plan for GEM. Gerster made particular note of the public support for GEM.

Gail Phillips gave the Executive Director's report. She introduced Bryn Clark, new EVOS staff member. She noted the calendar of upcoming EVOS Trustee council activities. The upcoming Trustee Council meeting agenda includes, in addition to the PAC Chairperson's report, a line item for PAC comments, questions and answers. This will be a PAC opportunity for dialogue with the Trustee Council. **The PAC unanimously endorsed placing this PAC dialogue period on the agenda for Trustee Council meetings.**

RJ Kopchak suggested the PAC include on it standard agenda, a time to approve the agenda for

the day and an item for introducing new business. Gerster agreed that this should be done.

Martin Robards expressed concern over the departure of Dr. Phil Mundy from the EVOS staff and the possible negative impacts this may have on the future of GEM. Phillips responded that his departure did not change the Trustee Council commitment to continuing the GEM program. A search will begin shortly to replace him. The Trustee Council priorities for the coming 18 months are to close work on lingering oil and the status of injured species.

Kopchak moved, second by Torie Baker, **resolution 2005-01, recognizing Phil Mundy's contributions to EVOS and GEM (see attached). The resolution was passed unanimously, as amended.**

Kopchak moved, second by Studebaker, **resolution 2005-02, regarding Trustee Council deliberations in open meetings (see attached). The resolution was passed with 11 yeas, 1 nay, and 2 abstains; as amended.** The group discussed the appearance of the Trustee Council deciding on projects to be included in the FY2005 work plan in an executive session, and concerns about the precedent this might set for not fully and openly discussing proposals; not listening to advice from the PAC, STAC, or Executive Director; and not making funding decisions in open public meetings. Phillips noted that the Trustee Council did reconsider all the FY2005 proposals at their December meeting, with the same results.

Richard Dworsky reviewed the format and approach to the FY2006 invitation for proposals (which was distributed earlier to PAC members for review and comment). He reiterated the Trustee Council priorities for the next 18 months are to complete work on lingering oil and injured species. There are a number of continuing multi-year projects for FY2006. There will be a 2-3 day work session this spring on the proposals--which the PAC is encouraged to participate in. The amount for funding "new" projects is about \$600,000. Multi-year projects will be funded for about \$2.17 million. The administrative budget is about \$1.8 million.

Dworsky discussed the status of the Konar project (distributed earlier to PAC members) and the recommendations for additional funding. The group discussed the level of overhead charged by the University. It was explained that Universities cannot do business without charging approved overhead rates on projects. **The PAC supported continued funding of the Konar project, leaving negotiations of overhead to the EVOS Trustee Council and the University: moved by Randy Hagenstein, second by Meacham, passed with 12 yeas, 2 nays.**

Phillips gave a brief report on the habitat protection programs. The large parcel program is finished for now. A Draft Small Parcels Acquisition Program is being proposed for consideration by the Trustee Council. The proposal would make about \$1 million per year available from the \$25 million account for acquisitions. The Alaska Department of Natural Resources and the U.S. Fish and Wildlife Service handle realty needs of the parcel program. Nominations for parcels to consider would be open to anyone.

Hagenstein declared that as an employee of The Nature Conservancy, and a past recipient of EVOS funds, he will withdraw from any discussions and decisions on parcel acquisitions to avoid the appearance of a conflict of interest.

Tillery briefed the group on the lingering oil studies. After the 2001 studies showed that there was more oil than expected in beaches, additional investigation became a priority. Questions

were raised about continuing impacts of the oil on, for example, ducks, sea otters, and herring. About \$250,000 from the FY2005 budget will be used for additional work. Meacham and Kopchak said it was good to include herring in these studies.

Tillery noted that the Settlement “re-opener clause” was not an issue for the Trustee Council, but for the State and Federal governments to decide. The summer of 2006 is the key period for any action. It is not clear if a public process will be part of the decision making, as it is a litigation decision.

During closing comments, Meacham requested a schedule of upcoming PAC meetings. Studebaker noted that Rikki Ott’s new book about the spill was worthwhile. Tom Royer thanked the PAC for allowing the STAC to sit in. Robards said he remains concerned about the direction after Mundy’s departure and would like more science orientation. Brune asked for more information on past habitat program efforts and accomplishments.

The meeting adjourned at 12:25 p.m.

H. FOLLOW-UP:

1. Gerster will present a PAC meeting brief to the Trustee Council at the February 4 meeting.
2. Phillips will provide PAC members with a copy of the EVOS administrative budget.
3. Phillips will provide PAC members with a tentative schedule of upcoming PAC meetings.

I. NEXT MEETINGS:

–June 10-11-12 in Cordova, including a field trip and discussion of community involvement

J. ATTACHMENTS: (Handouts, for those not present)

1. EVOS PAC Resolution 2005-01: recognizing Phil Mundy
2. EVOS PAC Resolution 2005-02: regarding deliberation at open meetings
3. Lingering Oil Studies

K. CERTIFICATION:

PAC Chairperson

Date

January 27, 2005 PAC Meeting Notes
By Gail Phillips, Executive Director, EVOSTC

The EVOSTC PAC met at the Hilton Hotel on Thursday, January 27th, following the annual Symposium. Members of the EVOSTC STAC were also invited to attend this meeting and were in attendance. A quorum of PAC members was present. This meeting was the indoctrination meeting for all the new members of the PAC.

PAC Chairman Chuck Meacham opened the PAC meeting at 9:00am.

Craig Tillery gave a recap of the history and background of all the Spill activities (attached).

Doug Mutter reported on the Federal Advisory Committee (FACA) requirements for all PAC meetings.

Cherri Womac had prepared a new briefing book for all PAC members and went through the administrative and travel policies with the members present.

The first item of meeting business was the election of a new Chair and Vice Chair. Chairman Meacham reported that he was no longer able to serve as Chairperson because of his absence from the State. He confirmed his desire to continue his service on the PAC, just not as an officer. He further recommended that two co-chairs be elected for the next year and that they come from the Anchorage area. Because the legal requirements for the PAC do not allow for two co-chairs, the PAC proceeded with the election of a Chair and a Vice Chair. John Gerster was elected as the new Chairperson and Stacy Studebaker was elected Vice Chairperson.

The following remarks were made under Public Comments:

Ken Adams, Cordova: reported that the Pink Salmon Forecasting was advanced because of the GEM program; he strongly supports continuation of the GEM program; he expressed his dismay at Dr. Mundy's departure from EVOS and the changes in the funding priorities and recommended that the Trustee Council seek legislation to enshrine the GEM program into the spill-affected area, similar to that of NPRB.

Ross Mullins, Cordova: strongly recommended continuation of the GEM program.

Susan Saupe, CIRCAC: reported on the need for shore zone mapping and offered strong support of the GEM Program.

Marilyn Sigman, Center for Coastal Studies, Homer: reported on community involvement issues and prepared a recommendation for the TC on enhancing their community involvement practices (attached). She also recommended that there needs to be a segment of the Annual Symposium dedicated to translating scientific information to the public in a manner easily understood by the general public. She supports continuation of the GEM Program.

Executive Director's Report:

Gail reported on the request from PAC member Pat Lavin to include an agenda item during the TC meetings for the PAC to have open dialogue with the TC, other than the public comments period, where there is no dialogue or interaction between the public and the TC. The PAC endorsed this recommendation unanimously.

Gail also reported that the TC has not changed its commitment to the GEM Program but has reprioritized its focus for the next 18 months or so to include lingering oil projects and projects that will bring closure to the Injured Species list. Upon questioning, she also responded briefly on the departure of Dr. Phil Mundy as Science Director.

Gail introduced Bryn Clark as the new Research Analyst for EVOS, presented the 2005 Calendar approved by the Trustees and discussed plans for a joint TC/PAC meeting to be held in Cordova some time during the weekend of June 12th. This meeting would focus on Community Involvement issues and provide opportunities for a field trip for the Council.

PAC member R J Kopchak brought forward two resolutions to be considered by the PAC:

1. A Resolution Recognizing Phil Mundy, PhD. For Outstanding Contributions
2. A Resolution on Open Meeting Deliberations

The resolutions were amended and passed by the PAC and will be finalized to submit to the TC during their February meeting.

EVOS Science Coordinator Richard Dworsky presented the draft 2006 Invitation to the PAC. He had also prepared a chart for the PAC/STAC that showed all the work projects that have been funded by the Council over the past fifteen years. He and Gail reiterated to the PAC the focus the Trustees want to take in this Invitation and the fact that there will only be \$600,000 available for proposals. A PAC member questioned the \$1.8 million in Internal Projects and Gail explained what these were. (The Internal Projects budget was included in the PAC's Briefing Book, and Gail agreed to send them out again to the members, which she did on the 28th.)

Following a period of questions and answers, the PAC was requested to get their input on the Invitation back to Richard by February 1st so their comments could be included in the report to the Trustees for their February 4th meeting.

Konar Project (STAC Review):

The PAC discussed the options for funding the Konar project; they were supportive of continuing the work on this project and passed a motion to that affect. They did not address the issue of the University overhead in their motion and determined that this was something the Trustee Council and the University needed to work out.

Draft Small Parcels Program Proposal:

Gail went through the basic proposal with the PAC and asked anyone who had comments, suggestions, input, etc. to make sure these were given to her by the 3rd of February so that they could be presented to the Trustees during their meeting on the 4th.

Lingering Oil Projects Review:

Craig Tillery gave a brief recap of the lingering oil projects; most of these are not new projects, but are fixing problems that may have been found in past studies. These projects will be a synthesis of existing studies that have been done in the past. He reported that the peer review process for these projects was accomplished by Dr. Bob Spies. The total amount of money being spent on these projects will come to about \$250,000 and this money is included in the 2005 Work Plan. Craig very specifically reported that these projects would not be included in the funding for the '06 Invitation. The PAC is very supportive of the continued work on the herring project. The PAC also discussed the issue of the Reopener Clause with Craig and Gina Belt.

The meeting was adjourned and all present were invited to the Chart Room for lunch.

GP

Resolution 2005-01
Exxon Valdez Oil Spill Trustee Council
Public Advisory Committee
January 27, 2005

A Resolution Recognizing Phil Mundy, PhD
for Outstanding Contributions

Whereas, Phil Mundy has honorably served as EVOS Trustee Council Senior Scientist, and as mentor and advisor to the Public Advisory Committee; and

Whereas, Phil Mundy provided valuable scientific and policy advice to various agencies of the State of Alaska under three governors; and

Whereas, Phil Mundy has been a tireless and selfless advocate for the voiceless natural resources impacted by the *Exxon Valdez* oil spill; and

Whereas, Phil Mundy has been a champion of the open public process to develop long term science programs that can contribute to understanding the long term effects of the oil spill; and

Whereas, Phil Mundy has tirelessly advocated on behalf of the damaged resources and communities impacted by the oil spill; and

Whereas, Phil Mundy has significantly advanced scientific understanding of the *Exxon Valdez* oil spill area through effective design and implementation of the Gulf Ecosystem Monitoring (GEM) process;

Now therefore be it resolved:

That in recognition of his selfless service on behalf of the oil-spill damaged resources, the communities of the impacted region, and the people of the state of Alaska, the EVOS Public Advisory Committee formally recognizes the contributions of Phil Mundy and commends him for selfless dedication to public process and in the scientific understanding of areas affected by the *Exxon Valdez* oil spill.

This resolution was presented at a regularly scheduled meeting of the EVOS Trustee Council Public Advisory Committee with a quorum established, and was,

Approved and Adopted this 27th day of January, 2005.

Dr. John Gerster, Chairperson
Public Advisory Committee
EVOS Trustee Council

Date

Resolution 2005-02
Exxon Valdez Oil Spill Trustee Council
Public Advisory Committee
January 27, 2005

A Resolution on Open Meeting Deliberations

Whereas; the chartering documents of the *Exxon Valdez Oil Spill (EVOS)* Trustee Council require public participation in all phases of the administration of the Restoration Fund; and

Whereas; the Memorandum of Agreement and Consent Decree establishing the federal and state co-trustees of the fund provides that *"the trustees shall agree to an organizational structure for decision making under this MOA and shall establish procedures providing for meaningful public participation in the injury assessment and restoration process;"* and

Whereas; the Restoration Plan echoes this requirement by declaring that, *"restoration must include meaningful public participation at all levels- planning, project design, implementation and review;"* and

Whereas; the Secretary of the Interior of the United States has appointed Alaska Citizens from spill impacted areas to the EVOS Trustee Council's Public Advisory Committee (PAC), which was created to provide a mechanism for meaningful public participation in the restoration planning, project design, implementation and review; and

Whereas; consistent with these mandates, the General Operating Procedures of the EVOS Trustee Council require the council to review work plan proposals in the following manner:

"After expiration of the period for public review and comment, the Trustee Council, in open session and with additional opportunity for public comment, shall review the Executive Director's recommendations on which proposals should be funded;" and

Whereas; during its brief deliberations on work plan proposals, and after a "closed door" executive session discussion at its August 23, 2004 meeting, the council failed to review recommendations regarding the 2005-07 Work Plan in open session and with additional opportunity for public comment; and

Whereas; State and federal law are clear that agency decisions are void for violating agency procedures.

Now therefore be it resolved:

That the Public Advisory Committee to the EVOS Trustee Council finds that,

1. On August 23, 2004 the Trustees appeared to have violated the General Operating Procedures of the EVOS Trustee Council.
2. That apparent failure to comply with the General Operating Procedures severely damaged the trust relationship between the Trustees, the Public Advisory Committee, and the people of the spill impacted areas.
3. That according to State and federal law, this violation appears to void actions taken at the meeting.

And be it further resolved: That the Public Advisory Committee requests that the EVOS Trustee Council reconsider all submitted proposals following the public process mandated in their charter, and adopt a new 2005-2007 Work Plan in a manner consistent with the General Operation Procedures of the EVOS Trustee Council;

And be it further resolved: That the Public Advisory Committee requests that the EVOS Trustee Council conduct review and deliberations on future work plans in open session with ample opportunity for public, Scientific/Technical Advisory Committee, and Public Advisory Committee comment.

This resolution was presented at a regularly scheduled meeting of the EVOS Trustee Council Public Advisory Committee with a quorum established, and was,

Approved and Adopted this 27th day of January, 2005.

Dr. John Gerster, Chairperson
Public Advisory Committee
EVOS Trustee Council

Date

Guidelines for the Public Advisory Committee Question and Answer Session with the Trustee Council

All Public Advisory Committee (PAC) members are welcome and encouraged to attend the Trustee Council meetings whether in person or via teleconference.

The PAC meeting summary is given during the Executive Director's report by the PAC Chair, Vice-Chair or other PAC representative. The summary may be given in person or via teleconference. The Trustee Council receives a copy of the PAC meeting summary in their pre-meeting Council packet.

Travel to the Trustee Council meeting to give the meeting summary will be at the discretion of the Executive Director on a meeting by meeting basis. Usually travel will not be necessary since the PAC Chair lives in Anchorage and a teleconference is always a part of the Trustee Council meeting if the Vice-Chair needs to substitute.

The question and answer session does not take the place of the PAC meeting summary report to the Trustee Council. It is in addition to the meeting summary report. It is intended to encourage an open dialogue between the Trustee Council and PAC members regarding their concerns about Trustee Council actions.

The question and answer session is open to all PAC members attending in person or participating via teleconference. Out of town travel is not necessary since a teleconference is always available.

It was suggested the question and answer session follow the public comment period.

2005 MEETING DATES
PAC and TC

DATE	ACTION	COMMENT
1/18/05	Symposium Planning for 2006	By Staff
1/24-26/05	Annual Science Symposium/TC Meeting	Optional Meeting
<i>1/27/05</i>	<i>PAC meeting (following Symposium)</i>	<i>PAC</i>
2/04/05	TC Meeting: Approval of Draft Invitation	Scheduled Meeting
2/15/05	2006 Work Plan Invitation Issued	By Staff
4/15/05	Deadline for Receipt of Proposals	By Staff
4/20/05	Proposal Distribution to STAC/PAC	By Staff
5/15-6/10/05	STAC Meeting: Proposal Review	STAC
6/11-12/05	<i>Joint TC/PAC meeting in Cordova PAC meeting to review FY06 Draft Draft Work Plan & Budget and Community Involvement (field trip will be planned)</i>	TC, PAC EVOS Staff
6/15/05	Funding Memo Draft Recommendations	By Staff
7/15/05	Draft Work Plan and Budget	By Staff
8/10/05	TC Meeting: Approval of Final Work Plan and Budget	Scheduled Meeting
10/15/05	Annual Report	By Staff
12/02/05	TC Meeting: Project Contingencies	Scheduled Meeting
1/06	2006 Science Symposium <i>PAC meeting</i> STAC meeting	EVOS Staff, TC PAC, STAC

PAC/STAC meeting 1/27/05

The Spill

On Thursday evening, March 23, 1989, the EXXON VALDEZ, a very large crude carrier and one of Exxon's two largest oil tankers, left the Port of Valdez bound for Long Beach, California. The ship passed through the Valdez Narrows and the pilot disembarked. Captain Joe Hazelwood ordered the vessel to proceed outside of the normal traffic separation lanes in order to avoid ice which had calved from the Columbia Glacier and was reportedly near the shipping lanes. The Captain indicated to the mate where he wanted the vessel to turn to bring it back into the shipping lanes and then he left the bridge. The ship did not make the turn prescribed by the Captain and, shortly after midnight on Friday March 24, 1989, struck Bligh Reef and "fetched up hard aground." The grounding punctured the single-hulled vessel, resulting in the rupture of eleven of the vessel's crude oil tanks. As a result, over 11 million gallons of crude oil were released into the pristine environment of Prince William Sound. It was the largest oil spill in United States history.

Response

For almost three days, the weather in Prince William Sound was unusually quiet. However, Alyeska Pipeline Company, the initial responder under the terms of the Prince William Sound contingency plan, was not ready and few pieces of equipment were in the area in a timely manner. In the early evening of March 24, as the Governor flew to the grounded vessel, only two skimmers, both of which were full at the time, were motoring aimlessly around the growing oil slick. There was little or no containment boom deployed and what was in the water was of little help. A test burn was conducted, which worked to some extent, but the water content of the oily mousse soon made burning impractical or impossible. Although dispersants were a primary response tool, and were

tested with somewhat inconclusive results, Exxon and Alyeska had neither sufficient dispersant or equipment to adequately deploy it.

In any event, the weather soon put an end to any hope of containment. In the evening of March 26, Easter Sunday, a severe winter storm blew into Prince William Sound, with wind gusts up to 73 miles per hour. The oil slick quickly went from a relatively compact mass to a widely dispersed uncontrollable collection of patches and streaks. Oil began to hit the beaches at Smith, Seal and Naked Islands and stretched as far south as 40 miles from the site of the grounding. Response vessels were forced to run for shelter in the face of the storm. Whatever hope of containing the spill initially existed was now gone. The oil soon hit the beaches in hundreds of places, overwhelming any efforts to stop it, with a few notable exceptions, such as in Sawmill Bay.

Over the next five and a half months the cleanup operations grew exponentially, ultimately becoming the largest private project in Alaska since construction of the Trans-Alaska Pipeline. At its high point over 11,000 people were working on cleanup. At times it looked like an invasion force had entered Prince William Sound. According to Exxon's count over one thousand miles of beach were treated that summer.

Assessment

Perhaps the most perplexing problem in assessing the extent of environmental damage caused by the oil spill was that, with a few exceptions, there was little baseline information on the natural resources in the oil spill area. As the spill expanded some scientists raced to gather data ahead of its reach.

However, the spill was too big and events moved too fast for this to suffice. Even where data existed, such as with salmon runs in the area, the natural variation in those resources made pre-spill and post spill comparisons suspect. Thus to document the extent of damages, one of the crudest measures, a body count, became a primary yardstick for describing the damage to the public. Following the spill, animal carcasses were found in large numbers, including approximately 21,000 murre, 1,100 marbled murrelets, 838 cormorants, 151 bald eagles, and 1,000 sea otters. However, this measure clearly understates the actual losses since animal carcasses sank or were never discovered in the huge area covered by the oil spill. For example, even though only about 21,000 murre carcasses were found, the estimated total loss, based on studies done at the time, was 250,000. This was about 40% of the pre-spill population of the oil spill area.

In some cases no carcasses were found to even confirm an oiling injury. For example, no oiled killer whale carcasses were found following the oil spill, but we know that 14 out of the 36 killer whales in the resident Prince William Sound pod disappeared in 1989 and 1990. During that same time period no whales were born in that pod.

Sublethal injuries to natural resources were even more subtle. For example, following the oil spill cutthroat trout in oiled streams grew more slowly than those in unoiled streams, possibly as a result of reduced food supplies or exposure to oil. There is concern that reduced growth rates may have led to reduced survival. These differences persisted through 1991 when the last study was completed. In recent years we have learned more about the isolated nature of cutthroat trout populations, suggesting the possibility of other explanations for the differences. At this time recovery status of

the cutthroat trout remains unknown.

An even more complex problem arose with pink salmon. Pink salmon in the Sound are both wild and hatchery raised. Wild pink salmon spawn in intertidal areas as well as in streams. These fish spawned in an oiled intertidal zone, swam through oiled waters and ingested oil particles and oiled prey as they foraged in the Sound and emigrated to the sea. As a result, post spill studies indicated two types of injury. First, growth rates in juvenile salmon from oiled areas of Prince William Sound were reduced. Second, there was increased egg mortality in oiled versus unoled streams. Thus we know there is injury from the oil spill, but the question remains, to what extent. Natural variability in wild pink salmon in the Sound is huge. In the years immediately preceding the oil spill the return of wild pinks to the Sound varied from a high of 23.5 million fish in 1984 to a low of 2.1 million in 1988. Since the oil spill, the return has varied from a high of 12.7 million in 1990 to a low of 1.9 million in 1992. In 2001 the estimated return was 6.7 million fish. While we can monitor growth and egg mortality rates to assess recovery, it is very difficult, in light of the natural variability, to determine the effect on the run attributable to the spill.

In sum, while we know there was tremendous injury to individual species, there was, and is, much uncertainty as to the exact amount of that injury.

Valuation

As difficult as it seemed to be to assess the extent of injury to natural resources, placing a dollar value on that injury was even more daunting. For example, what is the value of an otter, a seal or a

common murre? What is the financial cost of a cutthroat trout that grows slower? To answer these questions we looked, for the most part, to the value of the services that these resources provide to people, such as sport fishing and tourism.

Nevertheless, we made at least a passing attempt to value the cost of an animal. One of the first studies we initiated to evaluate damages from the spill was a replacement cost analysis, or as it was known colloquially among those involved in the litigation, the Buck a Duck study. This study estimates the value of injuries to natural resources based on the costs of relocation of adult animals from areas where they are abundant, the replacement of animals and the rehabilitation of injured animals.

Relocation costs are the costs of capturing an animal, acclimating it to a new location and releasing it in that location. Thus, for example with eagles the costs of capture and relocation is \$1,000 - \$1,500 per eagle. However, eagles tend to home so this cost is not truly indicative of the costs of replacing a breeding pair. Because this factor is not well understood this is not a useful number for value.

Replacement costs are essentially the cost of raising young animals to maturity. Again looking at eagles, there have been several efforts to raise young eagles and introduce them into the wild. One of these reports a cost of approximately \$22,500 to successfully produce one adult eagle living in the wild. Another had costs of \$12,500 - \$15,000 per eagle, while a third reported costs of about \$21,500 per eagle.

Rehabilitation costs for injured animals is a third option. In 1989 Exxon spent about \$100,000 per eagle in its rehabilitation program for animals injured by the oil spill. Looking at all of these figures, eagles were valued at about \$22,000 per bird.

The damages from this study totaled about \$50 million.

Sportfishing

Sportfishing is an activity clearly impacted by the oil spill. It is also an activity for which there is historic data. For a number of years the Alaska Department of Fish and Game distributed questionnaires to randomly selected fishing license holders. The responses to these questionnaires indicated that from 1984 to 1988 sport fishing increased 10% per year in the oil spill area. In 1989 the number of anglers decreased by 13%, the days fished decreased by 6%, and the fish caught decreased by 10%. To place a value on this decrease economists, through interviews with anglers, determined that the average person spent \$250 a day to fish in this area. This was assumed then to be the value to an average person of the fishing experience. By multiplying this value by the number of lost angler days (124,185), economists determined that the lost value of sport fishing in 1989 was approximately \$31 million.

Tourism

The impact of the oil spill on tourism was measured by surveys of planned and actual visitors to the state and the general population. These surveys indicated that visitor spending in 1989 decreased 8% in Southcentral Alaska and 35% in Southwest Alaska. In the spill area 59% of businesses reported cancellations. Of visitors who actually traveled to Alaska, 16% reported that the oil spill affected

their travel plans and half of these said they avoided Prince William Sound altogether. The result was an estimated loss of \$19 million in 1989. The impact in 1990 was much less severe and little long term impact is anticipated.

Passive Use

Ironically, the largest damage, in monetary terms, came not from the direct use of injured resources by individuals such as sport or commercial fishermen but rather from people who have only an indirect connection to Prince William Sound. These uses are called passive uses and include the loss felt by people who have not visited the oil spill area but wish to visit some day, those who have no plans to use the area but want their children to have the opportunity and those who have no plans for direct use but simply value the fact that unspoiled wilderness exists.

Although this may sound somewhat esoteric, it is grounded in reality. By way of example, some of you may belong to conservation groups such as the Nature Conservancy. In that capacity you give money so that the Conservancy can preserve specific endangered habitats. You do not plan to visit or use these habitats, but you are willing to spend money to ensure that they continue to exist in their current unspoiled state. In giving this money you have identified the value to you of their preservation. If the lands are despoiled, you have suffered a loss and that loss can be measured by the amount of money you were willing to give to see that they remained unspoiled. How then does one measure passive loss for an event such as the EXXON VALDEZ? Can that measurement stand up in court in an action to recover damages?

To answer this question the State of Alaska brought together a team of the most prominent economists in the country working in the area of measurement of passive loss. Peer review for the team was provided by Dr. Robert Solo, winner of the Nobel prize for economics. Ultimately the state spent over \$3 million to complete the study measuring lost passive use.

We learned early that the most accepted measurement of passive loss was through a method called contingent valuation. In essence this calls for determining the loss suffered by individuals through a public opinion survey that could be extrapolated across the population that was injured. Although the theory of this methodology was well developed and it was used on a number of occasions, it had never been tested in court. Moreover, it was controversial among economists. Thus while we believed that the measurement of damages was legitimate and should be investigated, we were mindful that it would be strongly challenged in court. For that reason whenever we were presented with a choice in how to design or administer the survey we invariably opted for the more conservative, defensible path.

First, it was necessary to determine the population that suffered the loss. In the case of a local river that may be as small as the population of a city or county; in the case of something like the Grand Canyon it may be as large as the nation. Because of the extent and depth of the public knowledge and feelings about the EXXON VALDEZ oil spill, it was clear that the appropriate population was the nation.

The key to measurement of lost passive use is to design and implement a survey through which

people are asked how much they value the attribute that is lost. This can be done by measuring either: (1) the amount a person would be willing to pay to prevent the oil spill or (2) the amount they would be willing to accept to allow it to happen. Studies have shown that use of a willingness to pay concept is more conservative and more defensible and for that reason we took that approach.

Once this decision is made the team set about to design a survey that would answer the question in the most accurate manner. Using focus groups, test surveys and pilot surveys in every region of the country, the team developed a willingness to pay survey. The survey first described the EXXON VALDEZ oil spill through words and pictures. To describe the damages the survey used a very conservative variation of the estimated numbers. Thus, for example, the number of dead murre was described as between 56,000 and 112,000 rather than the 250,000 that we believe were actually killed. These conservative numbers were used because we felt that defending the methodology would be difficult enough without the additional burden of defending the description of damages at the high end of the range. We were also very careful to not include any damages, such as commercial fishing or subsistence activities that were claimed by other litigants.

The survey went on to say danger of a another equally bad spill still exists in Prince William for the next ten years while double hulled tankers are phased in. Therefore, survey respondents were told that a special safety could be put in place to prevent an equally bad catastrophe and that people had proposed to fund the program by a one time tax on oil companies as well as individuals. The survey then concluded by asking the respondent if they would be willing to pay a specified amount (between \$10 and \$120) for this program.

The survey was given in person to 1,200 persons. Alaskan households were not included in the survey. We found that over 90% of the respondents were aware of the oil spill, justifying our initial decision to use base the damages on a national sample.

The survey results, after being run through what I can only describe as complicated formulas found a median willingness to pay of \$31 per household. Multiplied by the number of English-speaking households in the United States (90,838,000), the total passive use damages came to \$2.8 billion.

Settlement

Even though we had taken the conservative turn at every fork, problems remained in obtaining this amount through the courts. As I mentioned earlier, this methodology was never tried in court. It was controversial and just as we had a Nobel Laureate willing to give it his blessing, Exxon had one in the wings waiting to say no. Taking all of these uncertainties into account we decided on \$1 billion as an acceptable amount for purposes of settlement.

In 1989 there was a brief attempt by the federal government to settle a good portion of the governments legal claims against Exxon for about \$500 million. We determined, rightly, that this amount was too low, and the attempt fell by the wayside.

On August 28, 1991 a Memorandum of Agreement setting out the rules by which the governments would work together to recover and expend any settlement money received from Exxon was approved by the federal district court. In late September the governments and Exxon signed a civil

settlement agreement and Exxon and the United States reached a criminal plea agreement. Those agreements were approved by the court on October 8, 1991. Under the civil settlement agreement, the governments were to receive \$900 million from Exxon over a 10 year period. There was a provision for payment of an additional \$100 million for damages not known at the time of the settlement. The money was to be used to reimburse the governments for their expenses in the oil spill, to pay for any additional cleanup and to pay for restoration. Through the criminal judgment Exxon was to pay each government \$50 million in criminal restitution and \$25 million to the United States for a criminal fine. With these agreements in hand we turned our attention to implementation of the MOA.

Restoration

The MOA called for the expenditure of settlement money to be overseen by six Trustees. They were the Secretaries of the United States Departments of the Interior and Agriculture, the Administrator of NOAA, the Commissioners of the Alaska Departments of Fish and Game and Environmental Conservation and the Attorney General. These trustees created a Trustee Council in Alaska to handle the day to day decisions on expenditures. On the federal side the Council members were the head of the Alaska National Marine Fisheries service office, the Alaska Regional Forester and the Alaskan Special Assistant to the Secretary of the Interior. For the state the Council members were the state Trustees.

During the first few years of the Council's existence, there were two very important and fundamental

decisions that were made.

First we needed to develop a staff to carry out the mission of the Council. Initially, somewhat by default, we relied on the Trustee agencies to provide the staff. However this method soon proved problematic. Although the agency staff were of the highest abilities and integrity, the public was concerned that agencies were using their positions to "feather their own nests" in a manner by supporting projects that benefited that agency before the Council. Rightly or wrongly this impression presented a substantial problem for a group like the Council that was under such intense public scrutiny and depended on public support to complete its mission. Therefore, after a period of time we decided to move to a professional staff. This was accomplished by hiring an Executive Director who, in turn, hired a professional staff, independent of the agencies, dramatically reducing, though not entirely eliminating, the complaints about agency bias in project funding.

The second major decision that was needed was a general outline of how we were going to spend the settlement monies. At the time there was much discussion by the public as to whether the money should be used for scientific research, direct restoration activities, habitat acquisition or oil spill prevention. Some advocated spending most of the money on injured natural resources while others felt that people who suffered from the spill should benefit directly.

To answer this question the Council first looked to see what was legally permissible. As suggested earlier, there are specific limitations on the use of the Joint Trust Funds. Those limitations arise first out of the federal law under which the monies were recovered and are

repeated in substantially similar form in the MOA. The Governments' intent to adhere to the limitations described in the MOA is affirmed in the Consent Decree. Under AS 37.14.400, state agencies are required to manage the Joint Trust Funds as provided in the MOA. Thus the limitations are established both in law and through Court Order.

The controlling authorities with respect to the expenditure of the Joint Trust Funds all identify, with varying degrees of elaboration, the activities of restoration, replacement, rehabilitation, enhancement, and acquisition of the equivalent injured resources or impacted services as the primary and, generally, sole use of the monies. The Clean Water Act and CERCLA, as well as relevant case law, offer guidance for formulating a principled approach to undertaking these activities. These authorities indicate that Congress intended to give priority to activities that directly restore or replace the injured resources. To the extent that is not practical, trustees may turn to a second tier of priority, the acquisition of equivalent resources. Direct restoration generally encompasses projects that assist in returning an injured resource to its prespill condition or replace the service provided by the injured resource. In the case of an injured species such as an otter, for example, this would include such diverse activities as rehabilitation of oiled habitat, cultivation of replacement animals of the same species, and acquisition and conservation of habitat available to the injured population. The common thread is that each activity directly benefits the injured resource. Acquisition of equivalent resources would include actions such as improving habitat in an area accessible to the same species, but not the injured population.

In looking at particular projects, the Trustee Council should look at a number of factors:

- does the project address a resource that was injured or a service that was effected as a result of an injury to a particular resource;
- is natural recovery inadequate;
- what is the public value of the resource, including its uniqueness, and ecological or commercial value;
- for “services” projects, does it benefit the original user group;
- is the project technically feasible;
- is the project cost effective; does the project return the resource or service to baseline conditions; and
- does the project have harmful side effects.

There is no specific formula for balancing these factors, but rather they should all be considered and applied through the reasoned judgment of the Trustee Council member.

Through this analysis some categories of proposals, such as prevention of future oil spills, were rejected. We then took the remaining proposals and asked the public their opinion. Perhaps the most interesting effort we made at public outreach was a questionnaire we sent out to many Alaskans. In it we posed the question of what should we do with the settlement money. We received back what several agencies have told me was the largest public response to any solicitation of public input in Alaska. In addition to these responses we conducted public hearings and solicited letters and other forms of comment. The Council took this public opinion very seriously, reading

each public opinion letter sent by the public. In large part this concern for public opinion, was based on our understanding of the damages resulting from the oil spill. As noted earlier, by far the major damage was to the public perception of the damage to the oil spill area and the animals that lived there, so called passive use. To remedy that harm, it was incumbent on us to listen closely to the public and to respond to their concerns where legally permissible and scientifically possible.

Listening to the public we devised what we came to describe as a balanced and comprehensive plan for restoration. It included money for habitat acquisition, scientific research and direct restoration through manipulation of the environment. We also adopted the request of the public that we not spend all of the money as it came in, but rather set some of it aside for long term restoration activities. The Council did this by setting aside \$12 million a year in a restoration reserve account. In March of 1999 the Trustee Council voted to establish a permanent marine research endowment fund with the money in the reserve account. Under the Council's actions, a long term marine research program will be funded with a portion of the earnings each year. As of the end of December, there was \$106.7 million in the research investment account. An additional \$32.2 million is in the habitat investment fund. It is these revenue streams that bring us all here today.

\\TILLERYC\WP\EXXON\SPEECH\1.WPD

Marilyn Sigman's Testimony to EVOSTC PAC, January 27, 2004

I'm Marilyn Sigman, Executive Director of the Center for Alaskan Coastal Studies, a community-based non-profit that has been operating for 23 years based in Homer. I want to thank the PAC members because Homer has benefited from its representation on this committee during the earlier restoration work and during planning for the GEM program. A major land acquisition on Homer Spit for Mariner Park has provided a tremendous recreational site, which addresses one of the human uses injured by the spill and, by providing a camping area for tourists, has also had a large economic impact on Homer. We have also benefited by the research funded for work by the Kachemak Bay Research Reserve, the first unit of the National Research Reserve System in Alaska. This is the "new kid on the block" for coastal research and educational outreach in Alaska, and its partnerships with the EVOS Trustee Council and other researchers has jump-started research on Kachemak Bay as an estuary of national significance. The funding has also leveraged 2-3 times the amount in federal funding.

We have also benefited in terms of the application of the results of EVOS projects to natural resource management. One of the best examples is the ShoreZone mapping that has been completed for much of the spill area. The Center is partnering with the Research Reserve, Cook Inlet RCAC, and the U.S. Fish and Wildlife Service to promote the use of this mapping in a variety of ways by shoreline property owners, municipalities, spill responders, and recreational users of the beaches. Just producing an accurate map of the Alaska shoreline is a complicated process and the map plus all of the associated geomorphological and biological information is a tremendous resource for management of shoreline areas. I did work with Youth Area Watch teachers on teaching both technology and science skills by creating maps from the ShoreZone website last summer and there is some disappointment about the lack of coverage for Prince William Sound so I hope this is a gap that can be remedied in the near future.

I was also the P.I. on an EVOSTC project to develop a community involvement plan for the GEM program. I was part of a team of people who represented the diversity of communities in both Prince William Sound and Cook Inlet and who met several times to develop this plan. We surveyed organizations, local governments, and government agencies throughout the GEM area to find out about their interests in participating in GEM. Nearly hundred replied they were very interested in participating, from being involved in setting the direction for the program through mechanisms such as the PAC, to developing research and monitoring projects to address community concerns and issues, to collecting data, to having access to GEM data and sharing local environmental data with GEM, to receiving information about the results of GEM activities. Some organizations were interested in organizing community forums and educational events.

We on the working group made four major recommendations to be implemented for community involvement in GEM:

1. Continue the public and community involvement activities that have been established, including the PAC, the annual meeting (with sessions on scientific

research results geared specifically for the public), a listserv for notification about upcoming meetings, publications, etc.; and opportunities to comment during decision-making.

2. Provide sufficient EVOSTC staff support. We recommended a full-time position to act as liaison between communities and scientists to assist with partnerships to develop and implement cooperative research and monitoring projects and to disseminate EVOS data and information to communities.
3. Adopt the definition of community involvement and the project review criteria developed by the working group to ensure meaningful community involvement. Incorporate these into the RFP and proposal review process.
4. Modify the proposal review process to provide a strong role for the PAC on the review of community involvement projects or aspects of scientific projects and recruit additional peer reviewers with expertise in community involvement.

These recommendations were reviewed and endorsed at a meeting in Seward last spring. Funding for community involvement projects has been deferred or limited in RFPs that were issued in the last three years while the planning project was underway. The recommended plan is now before the Trustee Council and the Council staff and we would like to see the implementation that would again include a specific call for community involvement projects in the RFP and review criteria and a review process in place for community involvement aspects of all projects.

My final message is that the communities want the GEM program and they want to be involved in it in a variety of ways. GEM is truly a visionary concept of what science can contribute to ecosystem management and the communities recognize the tremendous potential benefits of the GEM program.

As I hand the imaginary gavel over to Doug to conduct elections, I want to share 2 election related thoughts with you:

First, I've been asked if I was willing to be nominated for another term as chair or vice chair--the succinct answer is "no." I find myself being able to spend less time and effort devoted to this EVOS process at a time when it is critical to devote additional attention to some serious challenges that I will share with you in a moment. Let me thank the members of the PAC who have worked with me in the past and the EVOS staff for your excellent support over the number of years I've been either the chair, co-chair, or vice chair. I am very willing to serve out my term on the PAC, but I think it will benefit our group to bring a couple of new people into this roll.

The second item I want to share with you is encouragement to give this election process a little bit of extra thought. I ask that because I've been personally involved with the EVOS Trustee Council process since its inception (1991?) and I don't know if there was another time that is quite as challenging as it appears to me today.

We have a relatively new Trustee Council going through the challenges associated with moving in a new direction. And now two of these new members have moved to the private sector and two newer trustees will be involved. We also have challenges for the PAC itself in effectively interacting with the Trustees and a somewhat confused public as the trustees make a mid-course pause of change in direction.

And, I think the EVOS staff has a big challenge in trying to administratively take care of us, the STAC, the Trustees while they handle the myriad of projects and project proposals that require attention throughout the year.

I'm identifying these challenges not as complaints but because I think we as a Public Advisory Committee, and especially our spokesperson (the chair), need to step up to the plate and address these items in an aggressive manner. That's difficult for someone down in Juneau and who spends too much time traveling out of state these days.

I would like to suggest that for the next year the PAC focus additional efforts on working with the EVOS staff and agency leaders to get our program firmly on track.

I further suggest that for the next year only, we consider co-chairs physically located in Anchorage where they can work more effectively with the EVOS office.

Thank you for your indulgence--It's all yours Doug.

STAC

MEMORANDUM

DATE: 1-31-05

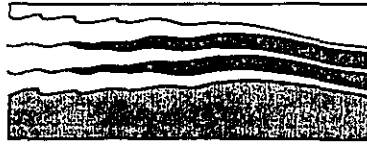
RE: Attached Letter
from the STAC

I will discuss a response with you during the meeting on Friday.

State Trustees
Alaska Department of Fish and Game
Alaska Department of Environmental Conservation
Alaska Department of Law

CENTER FOR COASTAL PHYSICAL OCEANOGRAPHY

Crittendon Hall Old Dominion University Norfolk, Virginia 23529 (757)683-4945 (Fax)683-5550



17 September 2004

Exxon Valdez Oil Spill Trustees Council
441 W. 5th Ave., Suite 500
Anchorage, AK 99501-2340

The Scientific and Technical Advisory Committee (STAC) has reviewed the recent funding decisions by the EVOS Trustee Council (TC) on the FY05 EVOS proposals. We recognize that ours is but one source of input to your decision process and that the TC has the authority to change the direction of the GEM science program. However, we wish a clarification of process. We believe that it is most appropriate to outline decisions for program change within the annual requests for proposals process. Last year's call specifically requested proposals on synthesis and modeling. There were highly ranked proposals that responded to that call. Though the rankings by the scientific peers, Science and Technical Advisory Committee, Public Advisory Committee, Science Director and Executive Director were consistently positive, the TC chose not to fund many of these proposals. Thus, we are concerned about a possible change in direction of the GEM science program that has not been clarified through the existing Trustees' process (e.g. annual call for proposals).

In preparing next year's proposal announcement, we believe that we need some specific directions from the TC. This will help avoid this year's frustration of those participating in the proposal writing and review processes. Those frustrations were the result of proposals that responded to the invitation, received high scientific peer reviews, and thus cleared all of the hurdles, yet were not funded. Specifically, should we encourage the resubmittal of the proposals addressing synthesis and modeling in the GEM region? Unfortunately, we cannot assume that qualified researchers will continue to contribute to the program if they make a strong effort to respond to a call and then are rebuffed without an explanation.

If the direction of the GEM program as determined by the FY06 work plan is acceptable, are the criteria correct that the STAC uses to evaluate the submitted proposals? Namely, these criteria are:

- 1) Does it respond to the Invitation?
- 2) Is it relevant to the Science Plan, e.g. addresses an identified gap?
- 3) Does it have scientific and technical merit?
- 4) Is it relevant to a management application or community involvement strategy?

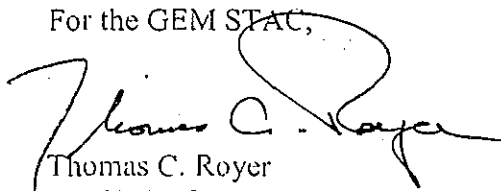
5) Is it relevant to GEM's five major goals (Detect, Understand, Inform, Solve, Predict) or six "implementation" goals (Lead, Track, Leverage, Involve, Increase community involvement, Facilitate application) ?

6) Is it fiscally sound?

7) Are the proposers qualified to carry out the proposed work and are they productive?

The STAC needs direction on GEM synthesis and modeling from the Trustee Council. This information will allow the STAC to better serve EVOS and the science community. We will be able to tailor our announcement for proposals for next year to enable all proposers and reviewers involved to focus on those issues that are most pertinent to GEM and hence most likely to be funded. This will also reduce the efforts and frustrations to all involved in the writing and review processes.

For the GEM STAC,



Thomas C. Royer
Co-Chair, GEM STAC

Professor of Oceanography
Old Dominion University



Prof. Charles B. Miller
College of Oceanic and Atmospheric Sciences
Oregon State University
Corvallis, OR 97333-5503
Tel.: 541-737-4524
FAX: 541-737-2064
cmiller@coas.oregonstate.edu

28 January 2004

Ms Gail Phillips
Exxon Valdez Oil Spill Trustee Council
441 West Fifth Avenue, Suite 500
Anchorage, AK 99501

Dear Gail,

At the STAC session yesterday, among Brenda Norcross, Tom Royer, Ron O'Dor and myself, after you and others left us to ponder, produced two recommendations we would like forwarded to the Trustee Council and drafters of the 2006 invitation. I am delegated to send them to you:

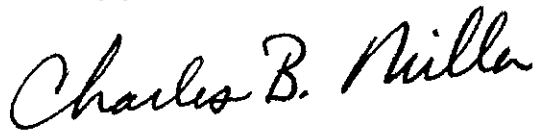
- (1) University and other institutional overhead should be paid at the standard rates negotiated between those institutions and the State of Alaska or what are usually referred to as "the cognizant federal agencies". For federal grants, The University of Alaska, for example, will have a standard rate representing real, grant-related costs (heating, lighting, cleaning, library support, depreciation and more) not represented as direct charges on the grant. Almost always the rate for federal grants is negotiated with accountants from only one federal agency and other agencies agree to it. A typical exception is that the Department of Agriculture often has separate, much lower rates for land grant institutions. Almost no marine science organization can have any significant proportion of its work at such lower overhead rates. In some cases state agencies will have had separate negotiations, and those may be acceptable to proposing agencies, again such as the university, for purposes of EVOS/GEM funding. In summary, it should be the policy of GEM to pay overhead. That policy should be reflected in the invitation.
- (2) The 2006 invitation should include a statement of the review criteria and the weight they are to be given in review. We revisited those criteria in Tom Royer's letter to the Trustees dated 17 September 2004, which we learned yesterday you had only then seen. Proposing scientists should be clear about the basis on which their submissions will be evaluated. For the unusual content of the forthcoming invitation, the relevant criteria are only four:

- a) Does the proposal respond to the invitation? 20%
- b) Does it have scientific and technical merit? 30%
- c) Is it fiscally sound? 20%
- d) Are the proposers qualified to carry out the proposed work and are they productive workers? 30%

Clearly, no proposal will be funded that does not reach a minimum standard on all of these criteria. The rankings are to show greater emphasis on sound science and scientists than on exact fulfillment of invitation details.

Thank you, Gail, for your care in hosting a pleasant, if intense, sequence of PAC and STAC meetings yesterday. It was a long day, but it was likely useful.

Sincerely yours,

A handwritten signature in cursive script that reads "Charles B. Miller". The signature is written in black ink and is positioned above the printed name.

Charles B. Miller

To G. Phillips via both email and postal service
Copies to B. Norcross, T. Royer and R.O'Dor by email

January 27, 2005 STAC Meeting Notes
By Gail Phillips, EVOSTC Executive Director

The STAC was invited to attend the PAC meeting this morning. Because the STAC was in Anchorage for the Symposium, they stayed for the PAC meeting and then convened an informal meeting of their committee in the afternoon.

The EVOSTC's STAC (Science and Technical Committee) is a Trustee subcommittee that reports directly to the Executive Director and therefore is not governed by the FACA and the various open meetings acts.

STAC members present included Chair Tom Royer, Brenda Norcross, Leslie Holland-Bartels, Stephan Braund, Charles Miller, Ron O'Dor and Richard Dworsky. Several liaisons were present for the first part of the meeting as guests.

Chairperson Tom Royer prepared a draft agenda for the meeting, which included:

- 1. Discussion of the '06 Invitation:*
 - A. Invitation to Larry Dietrick of the State DEC to explain the synthesis Scope in the FY '06 Invitation;*
 - B. Discussion of the reactions to the synthesis and the lingering oil emphasis;*
 - C. How will the STAC be able to evaluate the scientific and technical merits of the proposals? Who will be assigning the reviewers? Is the time schedule realistic? Will the STAC have the proposals to review by mid-May?*
 - D. Should the STAC keep a call for GEM proposals in the Invitation?*
 - E. Are there other suggested changes for the Invitation?*
- 2. Does the STAC need to make a renewed effort to place GEM in the context of a continuation of the 1994 Restoration Act? How will it provide for follow up and new direction for EVOS?*
- 3. During the present transition period, is there any way that the STAC can provide further help besides reviewing projects?*
 - A. Will a new science director be hired?*
 - B. If so, can the STAC assist in composing the job description and ad?*
 - C. Are there any expected changes in the role of the STAC?*
- 4. Regarding the lingering oil proposals, should the STAC be involved in a review of the proposals?*
- 5. Review of schedule for the rest of the year*
- 6. What are the best methods for the STAC to communicate with the TC?*
- 7. Other issues as needed*

Dr. Phil Mundy served as a non-voting member of the STAC in the past. Today, Brenda Norcross was chosen as the new STAC co-chair.

DISCUSSION OF THE '06 INVITATION

Basically, the '06 Invitation will be a "literature review, recap or analysis" rather than an invitation that includes any new studies. Leslie feels that the Invitation needs to have more-clearly identified goals than are currently shown. Brenda also felt that the goals of the Invitation were not clear enough and that until we received the information from Integral on the synthesis studies they are presently working on, that we will not be able to write the goals of the Invitation in such a way that we would be able to get the results we need from independent PIs.

The STAC recommended that we put the Integral synthesis information and the Spies synthesis information on our web site as soon as possible so that the Invitation proposers will have access to this information before formulating their proposals for '06. Also, they recommended a link between our website and that of the Integral's and Spies's sites.

Integral was contracted with independently by DOL/DOJ for legal advice to DEC/ADF&G, separate from the work they are doing for the Trustees.

All the new projects under the "lingering oil" category (2005) fell under the auspices of the Lingering Oil Committee rather than with the STAC committee and the GEM program. The STAC feels that this is an area they need to discuss and clarify with the TC. How does the TC want to include the STAC, which was not involved in these lingering oil projects?

Before GEM, there was a Scientific Committee that addressed all of the TC's projects. After GEM, there is a Lingering Oil Committee and a Restoration STAC review committee and each address separate projects. If the 2005 lingering oil projects are to go to the STAC for review, they must be worded to include judging criteria. The STAC requests a response from the TC as to whether or not they will be requested to review these 2005 proposals.

The STAC also recommended that we make it very clear in the Invitation where all the reports are filed and can be located and that this language be included in the Invitation: online, from the EVOS office and from the ARLIS Library.

They further recommended that all the review criteria needs to be included in the Invitation.

The members discussed the perceived conflict of interest Integral has in the entire Invitation process. Because of the work they are involved in now and the work they put into drafting the 2005 proposals, the STAC feels that Integral has a real conflict if they plan to respond with proposals for the '06 Invitation. They feel that the public will have real heartburn if the '06 projects are just handed to Integral to do, but that the public will be much more incensed if the Invitation is put on the street and then awarded to Integral. (These same concerns were brought up by the liaisons in an earlier meeting regarding the Invitation.) The STAC was upset about Integral being hired without consulting them (the science and tech committee) and said that the perception is not good. They see a great conflict, stepping on the ethical question of determining an answer beforehand and then creating an invitation to get the needed answers.

The STAC is also concerned about Integral's slow time line in writing their report and making the information available, which will affect the outcome of other individual proposals. They do not feel

that Integral should be able to put in proposals for the '06 Invitation because of the preliminary work they are doing for the Council.

The STAC asked that the Council request an Interim Work Product from Integral that can be published now so that anyone interested in putting together a proposal for '06 will have the benefit of the information already collected and paid for by the Council. They recommended that rather than requiring this interim report going through the peer review process, it could clearly state that it is a "Draft – Interim Information Only" report.

Another suggestion was that each of the key scientists who have a specific area of expertise – such as "herring", be asked to report on their specific area and have Integral put all of this outside information together in a report.

Leslie suggested including "guiding language philosophies" in the guidelines for the proposals so that the people responding would have a better picture of what is expected and why. It was also recommended that we include the phrase "ecosystem-based" in the Invitation's requirements.

Also, the Invitation must clearly state that any major changes in the scope of a project must go through a re-review by the STAC before it can go to the TC for consideration.

The STAC discussed the timeline needed for their reviews and responses. The STAC reviewers need about one month this year just to get the outside reviewers on contract. We will try to schedule the STAC proposal review meeting sometime between May 15th and the 5th of June.

At this time the STAC recessed their meeting so that the staff and liaisons could depart. They continued their meeting for several hours and Brenda Norcross will make a STAC report during the Council meeting on the 4th. I am also forwarding to you written comments from the STAC.

GP

Gail Phillips

From: Gail Phillips [gail_phillips@evostc.state.ak.us]
Sent: Tuesday, February 01, 2005 4:30 PM
To: 'Charlie Miller'
Cc: Thomas C. Royer (royer@ccpo.odu.edu); Brenda L. Norcross (norcross@ims.uaf.edu); Charlie Miller (cmiller@coas.oregonstate.edu); Leslie Holland-Bartels PhD (leslie_holland-bartels@USGS.gov); Ronald O'Dor (rodor@coreocean.org); Stephen R Braund (srba@alaska.net)
Subject: RE: STAC Recommendations

Hi Charlie...thank you very much for your notes and letter with recommendations for the Invitation. I have forwarded them to Richard to incorporate into the draft invitation. I will also forward your notes and letter on to the Trustees tonight. I very much appreciate the help from the entire STAC. Thanks again, Gail

-----Original Message-----

From: Charlie Miller [mailto:cm@coas.oregonstate.edu]
Sent: Monday, January 31, 2005 8:08 AM
To: gail_phillips@evostc.state.ak.us
Cc: Ron O'Dor
Subject: RE: STAC Recommendations

Dear Gail, Please find attached some review notes regarding the proposals for support of reanalysis of old samples for cytochrome P450 activity. The notes were drafted by Ron O'Dor and checked by me.

Best regards, Charlie Miller

Charles B. Miller
Prof. Emer. Oceanography
College of Oceanic and
Atmospheric Sciences
Oregon State University
Corvallis, OR 97331-5503 USA
+1-541-737-4524
cmiller@coas.oregonstate.edu

-----Original Message-----

From: Ron O'Dor [mailto:rodor@coreocean.org]
Sent: Saturday, January 29, 2005 7:18 AM
To: Charlie Miller
Subject: RE: STAC Recommendations

Hi Charlie,

This is what I wrote on the plane yesterday. It is not as elegant as your letter. Suggestions welcome or you can take over, but it should be in Gail's email on Monday morning. Distribute if you think others need to see it.

Ron O'Dor

Senior Scientist, Census of Marine Life
CORE, Suite 420, 1201 New York Ave. NW, Washington, DC 20005
Tel 1-202-332-0063 x239, Fax 1-202-332-9751, Direct Line 1-202-448-1233 Email
rodor@coreocean.org Web www.coml.org

Professor of Biology, Dalhousie University
Halifax, Nova Scotia, Canada B3H 4J1
Tel 1-902-494-2357, Fax 1-902-494-3736
Email Ron.O'Dor@Dal.Ca

-----Original Message-----

From: Charlie Miller [mailto:cm@coas.oregonstate.edu]
Sent: Friday, January 28, 2005 7:30 PM
To: gail_phillips@evostc.state.ak.us
Cc: Tom Royer; norcross@ims.uaf.edu; Ron O'Dor
Subject: STAC Recommendations

Dear Gail,

Please find attached the letter that we told you as you departed Thursday evening that the STAC would submit to you today. A paper copy will go in Monday's mail.

Charlie Miller

Charles B. Miller
Prof. Emer. Oceanography
College of Oceanic and
Atmospheric Sciences
Oregon State University
Corvallis, OR 97331-5503 USA
+1-541-737-4524
cmiller@coas.oregonstate.edu

Memorandum (via email) to Gail Phillips, Executive Director
EVOS Trustee Council
31 January 2005

The EVOS STAC was offered the opportunity to review the proposals for work on the potential effects of lingering oil.

Ron O'Dor and Charlie Miller expressed some concern over the Esler and Bodkin/Ballachey proposals, which propose simultaneous re-analyses of historical samples using identical techniques to reduce variance and reveal patterns that were, perhaps, missed when samples were processed annually. Although this seems a reasonable concept, neither proposal offers any evidence that the archived biological samples will not show other patterns resulting from degradation over time. To be confident that the results will be meaningful, the authors should provide evidence of the 'sample security' of the frozen (?) or otherwise archived material and any available published studies that demonstrate that this approach works. Alternatively, it may be possible in the context of their studies to demonstrate that such degradation is not a problem.

We are not experts in the particular techniques, but are concerned that they deal with relatively unstable biological materials and sensitive assays. The references provided do not seem to address these issues. If this is not addressed, the resultant patterns could be laboratory artifacts rather than reflecting the real situation.

Esler also proposes a new type of analysis by Baird, but does not provide the reference to Baird 2004.

Gail Phillips

From: Charlie Miller [cm@coas.oregonstate.edu]
Sent: Friday, January 28, 2005 3:30 PM
To: gail_phillips@evostc.state.ak.us
Cc: Tom Royer; norcross@ims.uaf.edu; rodor@coreocean.org
Subject: STAC Recommendations



Phillips_G.DOC (208
KB)

Dear Gail,

Please find attached the letter that we told you as you departed Thursday evening that the STAC would submit to you today. A paper copy will go in Monday's mail.

Charlie Miller

Charles B. Miller
Prof. Emer. Oceanography
College of Oceanic and
Atmospheric Sciences
Oregon State University
Corvallis, OR 97331-5503 USA
+1-541-737-4524
cmiller@coas.oregonstate.edu

Cherri Womac

From: Brenda L. Norcross [norcross@ims.uaf.edu]
Sent: Friday, February 04, 2005 12:28 AM
To: Cherri Womac; Rob Bochenek; Richard Dworsky
Subject: a request for Friday morning 4 Feb

Hi-

I am in Anchorage and will be at the TC meeting Friday morning.
I am not certain what you will have for handouts.
I would like to have a paper copy of Richard's latest version of the FY06 invitation.
I would also like to have a paper copy of Gail's STAC notes to TC.
I attached a copy of my power point presentation for Friday 4 Feb.
Please print a "notes" hard copy of this for me to use.
You can either load this on your computer or you can load from my USB stick in the morning.

Thank you for your help.

Brenda

Brenda L Norcross, Ph.D.
Professor, Fisheries Oceanography
Institute of Marine Science
School of Fisheries and Ocean Sciences
University of Alaska Fairbanks

ph: 1-907-474-7990
fax: 1-907-474-1943
email: norcross@ims.uaf.edu

Mailing address:
P.O. Box 757720
Fairbanks, Alaska 99775-7220 USA

Delivery address:
245 O'Neill Bldg
SFOS
Fairbanks, AK 99775 USA

<http://www.sfos.uaf.edu/directory/faculty/norcross/>

STAC Report to TC – Feb 05

- We would like clarification of our role as advisors to TC – in past our role was to comment on GEM science only.
- Will we be requested to review Lingering Oil proposals in future, i.e., for FY06?
- Are we just supposed to review GEM invitation proposals, which are not invited for FY06?

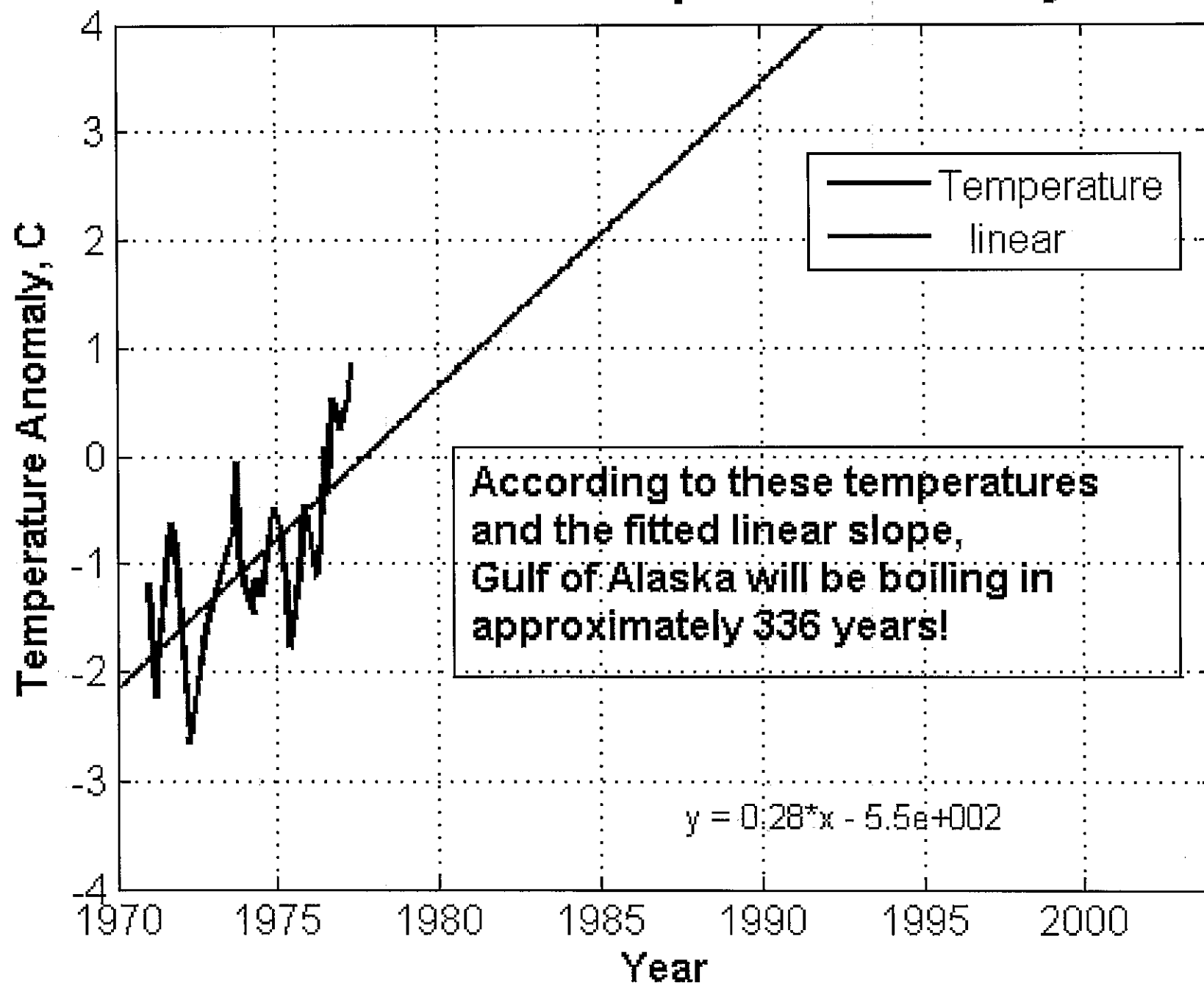
STAC Report to TC – Feb 05

- Reviewed Lingering Oil proposals for FY05
 - Expressed concerns about methodology
 - Pls addressed the concerns
 - We endorse the proposals
- Reviewed Konar and Iken completion proposal
 - Endorse funding proposal
 - Suggest process change to avoid future proposals of this kind

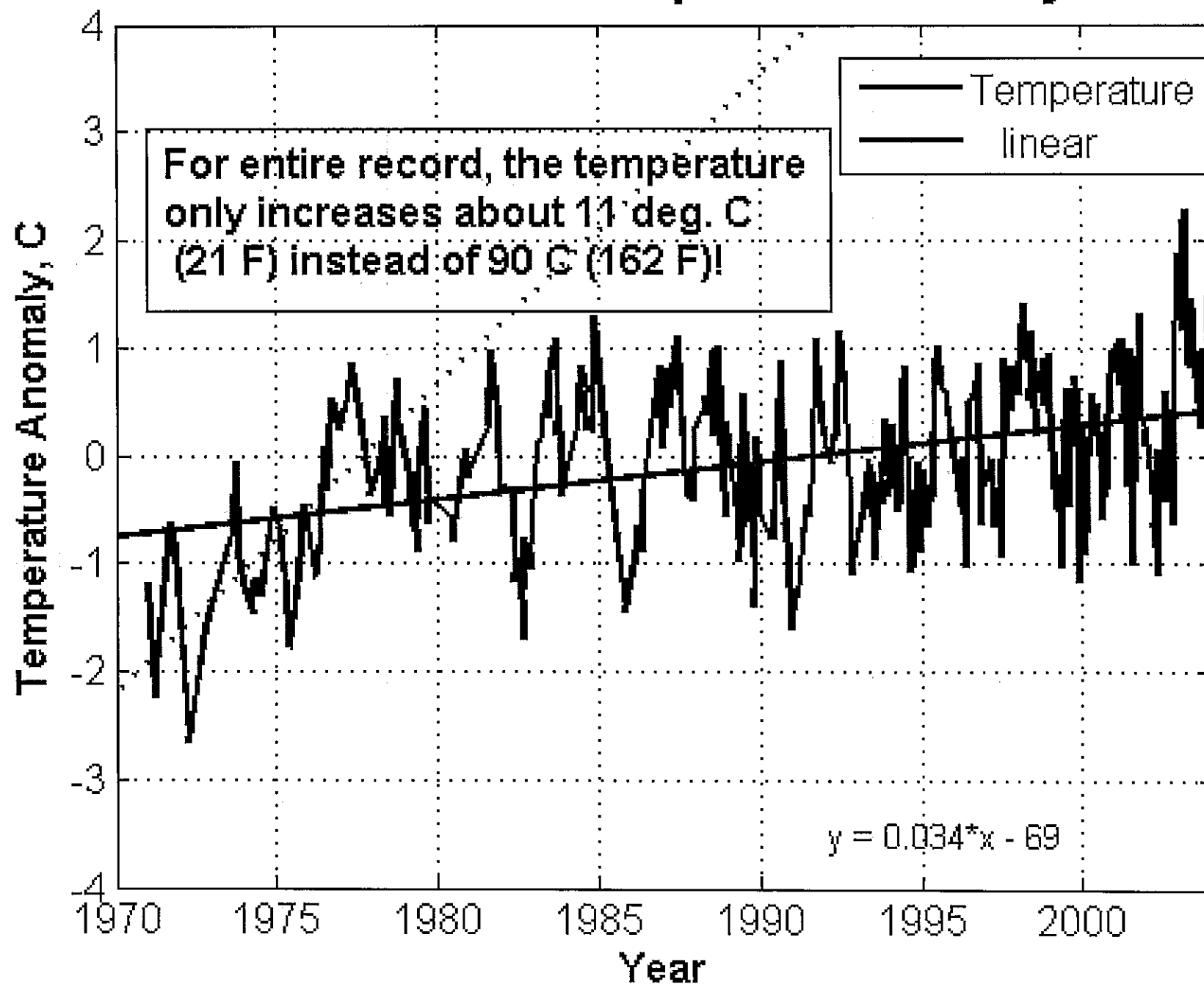
STAC endorses EVOS-sponsored long-term monitoring

- Cannot establish a “baseline” because conditions are always changing
- But cannot see the changes without monitoring
- The longer the data set, the more it is possible to see patterns

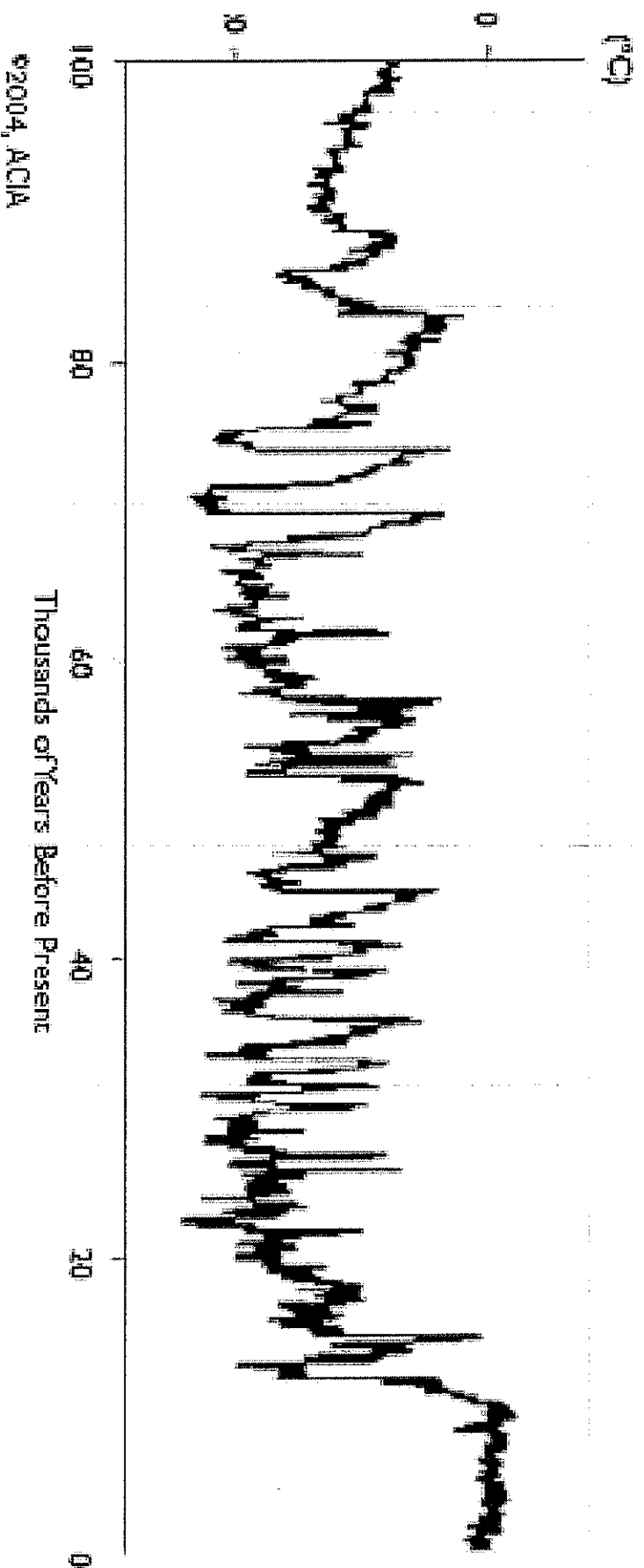
GAK1 0-100 m Temperature Anomaly



GAK1 0-100 m Temperature Anomaly



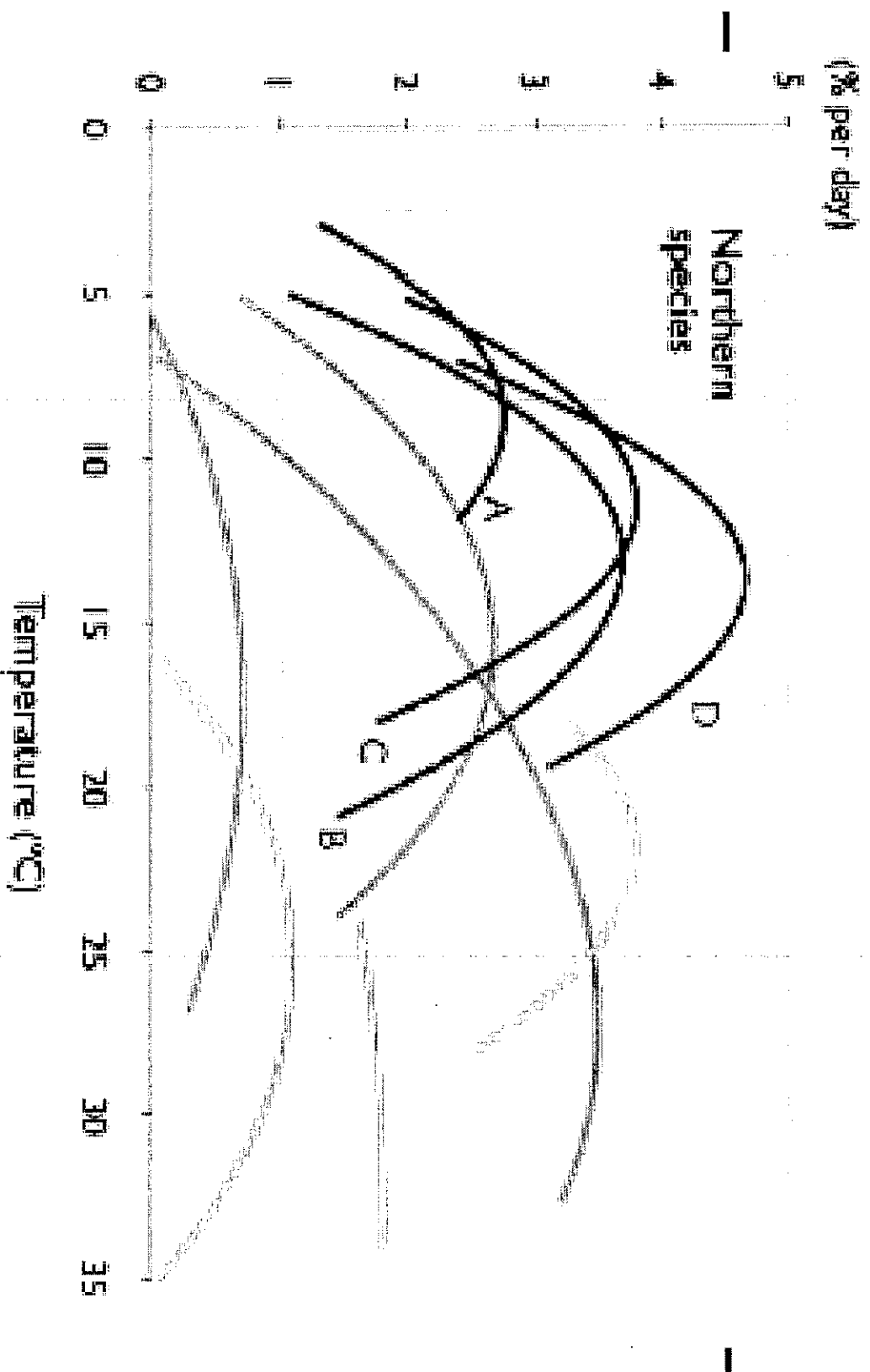
100000 Years of Temperature Variation in Greenland



STAC endorses EVOS-sponsored long-term monitoring

- To discern patterns it is important to continue funding for currently-funded multi-year projects.
- It is equally imperative to invite GEM projects for FY07 for continuing and new monitoring.
- GEM is an integral partner in the other AK programs currently funding marine research.

Fish Growth Rate and Temperature



STAC role – FY06 Invitation

- The Invitation needs to clearly reflect the TC's objectives and goals for funding.
- The invitation needs to clearly state the criteria on which the proposals will be judged.
- All proposers need to have equal access to information required to write proposals.

STAC role – FY06 Invitation

- Invitation must avoid perception of conflict of interest with Integral and proposal process.
- For continuing proposals adjustments, Invitation must clearly state that any major changes in the scope of a project must go through a re-review by the STAC before it can go to the TC for consideration.

STAC role – Clarification in Invitation

- The Invitation needs to request “Summary of past EVOS-funded work, including reports and publications produced.”
- Individual projects that are outside the scope of projects requested should not specifically be encouraged to apply for funding.
- Redesign Budget Justification to request breakdown of “Contractor” expenditures.

STAC role – Reviewing Invitation

- These are not GEM projects. Do you want us to review the proposals?
- STAC should know ahead of time what the priorities are for funding.
- STAC review of proposals should be conducted in closed meetings without PAC members or EVOS staff unless specifically invited.

**Investment Working
Group**

Exxon Valdez Oil Spill Trustee Council

441 W. 5th Ave., Suite 500 • Anchorage, Alaska 99501-2340 • 907/278-8012 • fax 907/276-7178

MEMORANDUM



TO: Trustee Council

DATE: January 21, 2005

FROM: Gail Phillips
Executive Director

A handwritten signature in cursive script, appearing to read 'Gail', written over the printed name 'Gail Phillips'.

RE: IWG Meeting and
Recommendations

The Investment Working Committee met on December 13th to review updated information regarding our investment policies. Gary Bader went through the attached power point presentation which was forwarded to you later that day.

The Committee agreed that the Council should look at their allocation policy and make adjustments that are more in line with new projections. As of this week, the State is still waiting for the Callan Institute reports, which will give the IWC the direction they need to make any recommendations to the current asset allocation policy. As soon as we get the Callan reports, we will convene another IWC meeting to study their advice and make any needed recommendations to the Council.

Also enclosed with this memo:

Memo dated 1-03-05 from Paula Banks regarding investment band adjustments to the Habitat Fund

Summary of Performance/Rates of Return on our accounts as of 12-31-04

Exxon Valdez Oil Spill Trustee Council

Performance Review & Asset Allocation

December 8, 2004

Review of Performance

Broad Market Equity

(Period Ending October 31, 2004)

	<u>3 Mo.</u>	<u>YTD</u>	<u>FYTD</u>	<u>1 Year</u>
EVOS Russell 3000 Index	3.62	3.35	-0.26	9.55
Russell 3000 Index	3.63	3.30	-0.29	9.52

Fixed Income Pool
(Period Ending October 31, 2004)

	<u>3 Mo.</u>	<u>YTD</u>	<u>FYTD</u>	<u>1 Year</u>
Broad Market Fixed Income Pool	3.02	4.45	4.05	5.90
Lehman Bros. Aggregate	3.04	4.22	4.06	5.53

International Equity

(Period Ending October 31, 2004)

	<u>3 Mo.</u>	<u>YTD</u>	<u>FYTD</u>	<u>1 Year</u>
EVOS SOA Intl. Equity Pool	-7.81	-5.76	-15.62	-11.39
MSCI EAFE	-9.52	-6.37	-20.00	-17.46

Rates of Return

(Period Ending October 31, 2004)

	MKT VAL.				
	<u>\$(M)</u>	<u>3 Mo.</u>	<u>YTD</u>	<u>FYTD</u>	<u>1 Year</u>
EVOS Investment Fund	103,829	4.04	4.23	2.23	9.15
EVOS Habitat Investment Fund	30,496	4.09	4.25	2.15	9.26
EVOS Koniag Investment Fund	37,215	4.09	4.27	2.21	9.25
EVOS Investment Fund Index		3.89	4.50	2.14	9.42

Capital Market Projections

2004 Capital Market Projections

Guiding Objectives

- Our best thinking regarding the 5-year outlook, recognizing our median projections represent the midpoint of a range, rather than a specific number.
- Results that are readily defensible both for individual asset classes and for total portfolios.
- Conscious of the level of change suggested in strategic allocations for DB, DC and foundation/endowment clients.
- Reflect common sense and recent market developments.
- Balance conflicting goals and conflicting opinions.



Back in Black After the Longest Equity Bear Market Since 1930's

	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>Avg Ann Return Last Five Years</u>
Russell 3000	20.90	-7.46	-11.46	-21.54	31.06	0.37
S&P Super Composite 1500	20.27	-6.98	-10.64	-21.31	29.59	0.39
Russell 1000	20.91	-7.79	-12.45	-21.65	29.89	-0.13
S&P 500	21.04	-9.10	-11.88	-22.10	28.80	-0.57
Russell 2000	21.26	-3.02	2.49	-20.48	47.25	7.13
S&P 600 Small Cap	12.40	11.80	6.54	-14.63	38.79	9.67
EAFE (\$US)	26.96	-14.17	-21.44	-15.94	38.59	-0.06
LB Aggregate	-0.82	11.63	8.43	10.26	4.10	6.62
SB Non-US Bonds	-5.07	-2.63	-3.54	21.99	18.52	5.21
90-day T-bill	4.85	6.18	4.42	1.78	1.15	3.66



2004 Capital Market Preview: Keep Those Expectations Low

- The economic recovery will continue, but growth will remain modest. Capital spending will ultimately follow GDP.
- Fed will ultimately shift to tightening monetary policy.
- The stock market recovery will be slow. U.S. stocks are still expensive relative to their valuations and to other markets.
- Callan's outlook in a nutshell: expect a low inflation, low interest rate, single digit return environment.
- Low return expectations mean 8% nominal return assumptions may be difficult to achieve. Callan's 2004 assumptions generate an expected return for a 60% stock/40% bond allocation of 7.4% over the next five years. Plans may need to shift their focus to real return expectations.



2004 Capital Market Projections

- Practically no changes from last year's projections!
- Inflation is held at 2.6%, depicting inflation rising from current low levels.
- Cash returns reflect rising short-term yields, but still low real return of 0.1%.
- Bond returns held at 4.75% :
 - reflects current yield-to-worst, plus small adjustment
 - build in moderate increase in short rates, relatively stable long rates, a little more narrowing of credit spreads.
- Equity returns built from fundamentals: 3-4% real GDP growth which means 5.5%-6.5% nominal earnings growth, 2% dividend yield, 0.5%-1% "buyback" yield.
- Real estate return held at 7.6%, reflecting income component & potential valuation pressure.
- Private equity return held at 12%, a 3% premium over public markets.
- Premiums of international equity over domestic and small cap over large cap have been narrowed, reflecting recent performance and relative valuations.



2004 Capital Market Projections

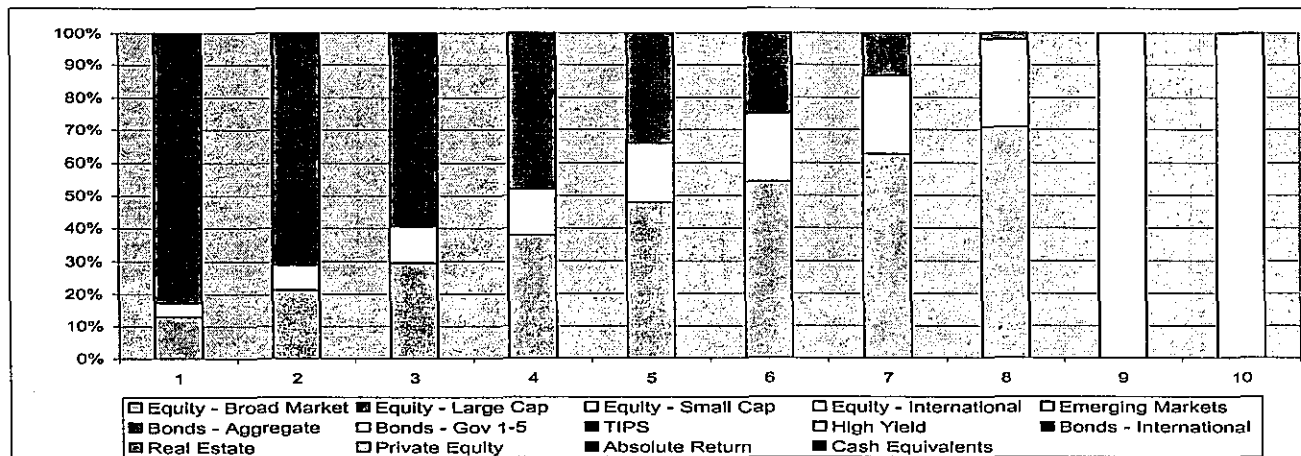
Asset Class	Index	Projected Annual Return	Projected Standard Deviation (Risk)	Projected Yield	2003 Projections	
Equities						
Broad Domestic Equity	S&P 1500	9.00%	16.90	2.10	9.00%	17.30
Large Cap	S&P 500	8.80%	16.20	2.20	8.70%	16.20
Small Cap	S&P 1000	10.10%	23.50	1.20	10.30%	25.00
International Equity	MSCI EAFE	9.30%	20.30	2.20	9.60%	21.50
Emerging Markets Equity	MSCI EMF	9.80%	33.00	0.00	10.10%	35.00
Fixed Income						
Domestic Fixed	LB Aggregate	4.75%	4.50	4.75	4.75%	4.50
Defensive	LB Gov't 1-3 Year	3.75%	2.30	3.75	3.75%	2.30
TIPS	LB TIPS	4.40%	6.00	4.40	4.40%	6.00
High Yield	FB High Yield	6.75%	12.10	6.75	6.75%	12.30
Non US\$ Fixed	SB Non-US Gov't	4.65%	9.60	4.65	4.65%	9.60
Other						
Real Estate	Callan Real Estate	7.60%	16.50	7.00	7.60%	16.50
Private Equity	Post Venture Cap	12.00%	34.00	0.00	12.00%	34.00
	Absolute Return	6.50%	10.50	0.00	6.50%	10.50
Cash Equivalents	90-Day T-Bill	2.70%	0.70	2.70	3.00%	0.70
Inflation	CPI-U	2.60%	1.40		2.60%	1.40



2004 Efficient Frontier

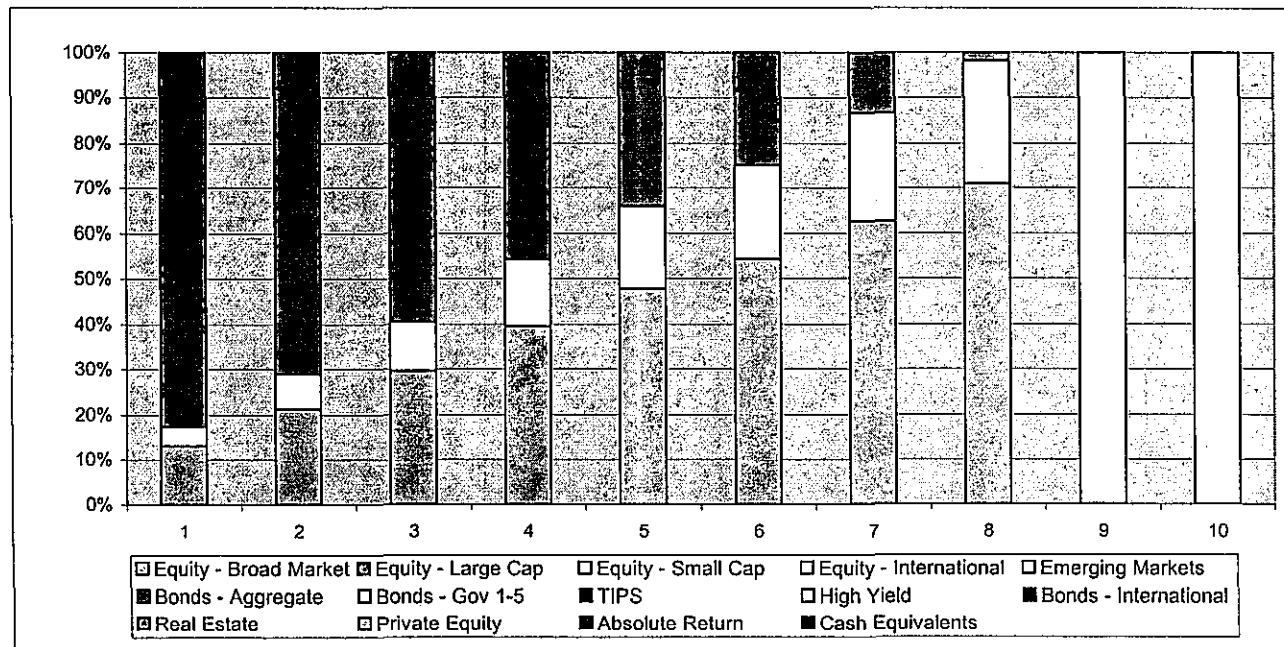
2004 Asset Classes	Constraints		Asset Mix Alternatives									
	Min	Max	1	2	3	4	5	6	7	8	9	10
Equity - Broad Market	0%	100%	12.99%	21.25%	29.51%	37.77%	47.68%	54.29%	62.55%	70.81%	0.00%	0.00%
Equity - Large Cap	0%	0%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Equity - Small Cap	0%	0%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Equity - International	0%	100%	4.35%	7.63%	10.90%	14.17%	18.10%	20.72%	23.99%	27.26%	100.00%	100.00%
Emerging Markets	0%	0%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Bonds - Aggregate	0%	100%	82.66%	71.13%	59.59%	48.06%	34.22%	24.99%	13.46%	1.92%	0.00%	0.00%
Bonds - Gov 1-5	0%	0%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
TIPS	0%	0%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
High Yield	0%	0%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Bonds - International	0%	0%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Real Estate	0%	0%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Private Equity	0%	0%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Absolute Return	0%	0%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Cash Equivalents	0%	0%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Totals			100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Target Return	5.500%	6.000%	6.500%	7.000%	7.600%	8.000%	8.500%	9.000%	9.500%	10.000%
Projected Return	5.500%	6.000%	6.500%	7.000%	7.600%	8.000%	8.500%	9.000%	9.300%	9.300%
Projected Risk	5.268%	6.439%	7.883%	9.475%	11.495%	12.882%	14.645%	16.430%	20.300%	20.300%
1 Yr. Probability of Loss	14.82%	17.57%	20.48%	23.00%	25.43%	26.73%	28.08%	29.19%	32.34%	32.34%
5 Yr. Probability of Loss	0.98%	1.86%	3.26%	4.93%	6.97%	8.25%	9.72%	11.03%	15.28%	15.28%
10 Yr. Probability of Loss	0.05%	0.16%	0.46%	0.97%	1.83%	2.48%	3.32%	4.16%	7.37%	7.37%



Asset Classes	Constraints		Asset Mix Alternatives									
	Min	Max	1	2	3	4	5	6	7	8	9	10
Equity - Broad Market	0%	100%	12.99%	21.25%	29.51%	39.42%	47.68%	54.29%	62.55%	70.81%	0.00%	0.00%
Equity - Large Cap	0%	0%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Equity - Small Cap	0%	0%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Equity - International	0%	100%	4.35%	7.63%	10.90%	14.83%	18.10%	20.72%	23.99%	27.26%	100.00%	100.00%
Emerging Markets	0%	0%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Bonds - Aggregate	0%	100%	82.66%	71.13%	59.59%	45.75%	34.22%	24.99%	13.46%	1.92%	0.00%	0.00%
Bonds - Gov 1-5	0%	0%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
TIPS	0%	0%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
High Yield	0%	0%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Bonds - International	0%	0%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Real Estate	0%	0%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Private Equity	0%	0%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Absolute Return	0%	0%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Cash Equivalents	0%	0%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Totals			100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Target Return	5.500%	6.000%	6.500%	7.100%	7.600%	8.000%	8.500%	9.000%	9.500%	10.000%
Projected Return	5.500%	6.000%	6.500%	7.100%	7.600%	8.000%	8.500%	9.000%	9.300%	9.300%
Projected Risk	5.268%	6.439%	7.883%	9.805%	11.495%	12.882%	14.645%	16.430%	20.300%	20.300%
1 Yr. Probability of Loss	14.82%	17.57%	20.48%	23.45%	25.43%	26.73%	28.08%	29.19%	32.34%	32.34%
5 Yr. Probability of Loss	0.98%	1.86%	3.26%	5.27%	6.97%	8.25%	9.72%	11.03%	15.28%	15.28%
10 Yr. Probability of Loss	0.05%	0.16%	0.46%	1.10%	1.83%	2.48%	3.32%	4.16%	7.37%	7.37%



Exxon Valdez Oil Spill Trustee Council

441 W. 5th Ave., Suite 500 • Anchorage, Alaska 99501-2340 • 907/278-8012 • fax 907/276-7178



To: Trustee Council

Thru: Gail Phillips, Executive Director *Gail*

From: Paula Banks, Administrative Manager *Paula Banks*

Date: January 3, 2005

Re: Investment allocation band adjustments to the Habitat Fund

This memo is to inform the Trustee Council, that on December 30, 2004, Gary Bader with the Department of Revenue recommended that adjustments be made to the EVOS Habitat fund. The asset allocation for the Habitat fund fixed income pool target is 42% plus or minus 7% (35%-49%). As of December 29, 2004, the fund's fixed income market value was at 34.87%, which is outside the band set by the Trustee Council. This week the fund is within its bands. Gail Phillips provided authorization (as recommended) to the Department of Revenue on January 3, 2004 to sell \$1 Million of the Russell 3000 Index fund and purchase \$1 Million of the AY 73 Broad market Fixed Income pool in order to bring the band closer to the target and provide a cushion in order to stay with in the asset allocation policy set by the Trustee Council.

State of Alaska

SUMMARY OF PERFORMANCE

RATES OF RETURN

PERIODS ENDING December 31, 2004



STATE STREET.
For Everything You Invest In

	MKT VAL \$(T)	Month	QTR	1 Year	3 Years	5 Years
AY02 - EVOS RESEARCH INVESTMENT	106,695	2.61	7.02	9.89	6.89	
EVOSINFI - EVOS INVESTMENT FUND INDEX		2.59	7.09	10.13	6.96	
AY2H - EVOS HABITAT INVESTMENT FUND	32,208	2.68	7.31	10.15		
EVOSINFI - EVOS INVESTMENT FUND INDEX		2.59	7.09	10.13		
AY2J - EVOS KONIAG INVESTMENT FUND	39,273	2.64	7.17	10.04		
EVOSINFI - EVOS INVESTMENT FUND INDEX		2.59	7.09	10.13		
AY00A43 - EVOS BROAD MARKET FIXED	65,776	0.99	0.99	4.69	6.40	
XSL - LB AGGREGATE		0.92	0.95	4.34	6.20	
AY00A45 - EVOS SOA INT'L EQUITY POOL	35,523	3.73	13.19	16.63	11.66	
XCB - MSCI EAFE (NET)		4.39	15.32	20.25	11.89	
AY00A42 - EVOS SHORT TERM POOL	8	0.21	0.36	1.11	1.45	
X11 - 91 DAY T-BILL		0.21	0.48	1.33	1.42	
AY00A46 - EVOS RUSSELL 3000 INDEX	76,869	3.57	10.14	11.94	4.75	
XF3 - RUSSELL 3000		3.56	10.16	11.95	4.80	

Exxon Valdez Oil Spill Trustee Council

441 W. 5th Ave., Suite 500 • Anchorage, Alaska 99501-2340 • 907/278-8012 • fax 907/276-7178

MEMORANDUM



TO: Trustee Council

DATE: January 21, 2005

FROM: Gail Phillips
Executive Director

A handwritten signature in blue ink, appearing to read 'Gail', is written over the printed name 'Gail Phillips'.

RE: TC Agency Survey

During the December meeting, you tabled the issue of the survey of agency hours not compensated by EVOS until the February meeting.

Per the attached memo from Paula Banks, you will see that she completed the survey of all agencies and prepared a table showing the survey results.

There are several options for you to consider:

1. Amend the current Project Management Budget (FY 05) to compensate each agency for a specific amount of money to cover their costs;
2. Leave the option open for agencies to submit a proposed budget request to be included in the next Project Management budget for FY 06 (no reimbursement of past expenses);
3. Amend the proposed dollar amounts and set fixed numbers;
4. Do nothing and leave things as they are.

If you do chose to reimburse the agencies for uncompensated costs, I would recommend that you set a fixed amount for travel. Previously you established Trustee Council travel reimbursement for most of the Trustees at \$4,000-\$4,500 annually. Since most of the agencies replied with a request for travel funds between \$2,000 and \$2,500, I would recommend setting the amount for reimbursing travel at that level.

Exxon Valdez Oil Spill Trustee Council

441 W. 5th Ave., Suite 500 • Anchorage, Alaska 99501-2340 • 907/278-8012 • fax 907/276-7178

MEMORANDUM



TO: Gail Phillips
Executive Director

FROM: Paula Banks *Paula Banks*
Admin Manager

DATE: January 20, 2005

RE: TC agency Survey

At the December 10, 2004 TC meeting I reported the results of a polling done on Trustee Council agencies. The survey asked for non compensated costs related to EVOS that were not being supported by the general administration fees or the project management budget. This report was lacking responses from two agencies. Since that report all agencies have reported. The attached spreadsheet includes all of the agencies responding.

It was my understanding that the Trustee Council tabled making a decision and opens the discussion whether to provide funds to agency's supporting EVOS activities.

- 1) Amend the Project Management Budget to compensate each agency in this budget cycle (FY 05).
- 2) Leave the option open for agencies to have the opportunity to submit a proposed budget to be included in the Project Management budget cycle in FY 06.
- 3) Do nothing and leave things the way they are.

The comments below are from some of the agencies in response to the three questions listed above: AK Depart of Environmental Conservation, Requested \$50.0 for FY 05; and the option to submit a budget for FY06 equal to 12 months liaison salary; AK Department of Fish and Game, Express an interest in having the opportunity to explore the issue, and hear what other agencies needs are; AK Depart of Law, would prefer the all of the agencies be reimbursed from the point of decision forward, (not past costs); NOAA, Expressed an interest in leaving the option open for agencies to submit an FY06 budget.

The following agencies have not provided any new information: AK Dept of Natural Resources; US Dept of Commerce; US Dept of Interior; US Forest Service; US Geological Survey; US Department of Justice; US DA Office of General Council

EVOS - Agency Expenditure Survey Results (Jan 2005)

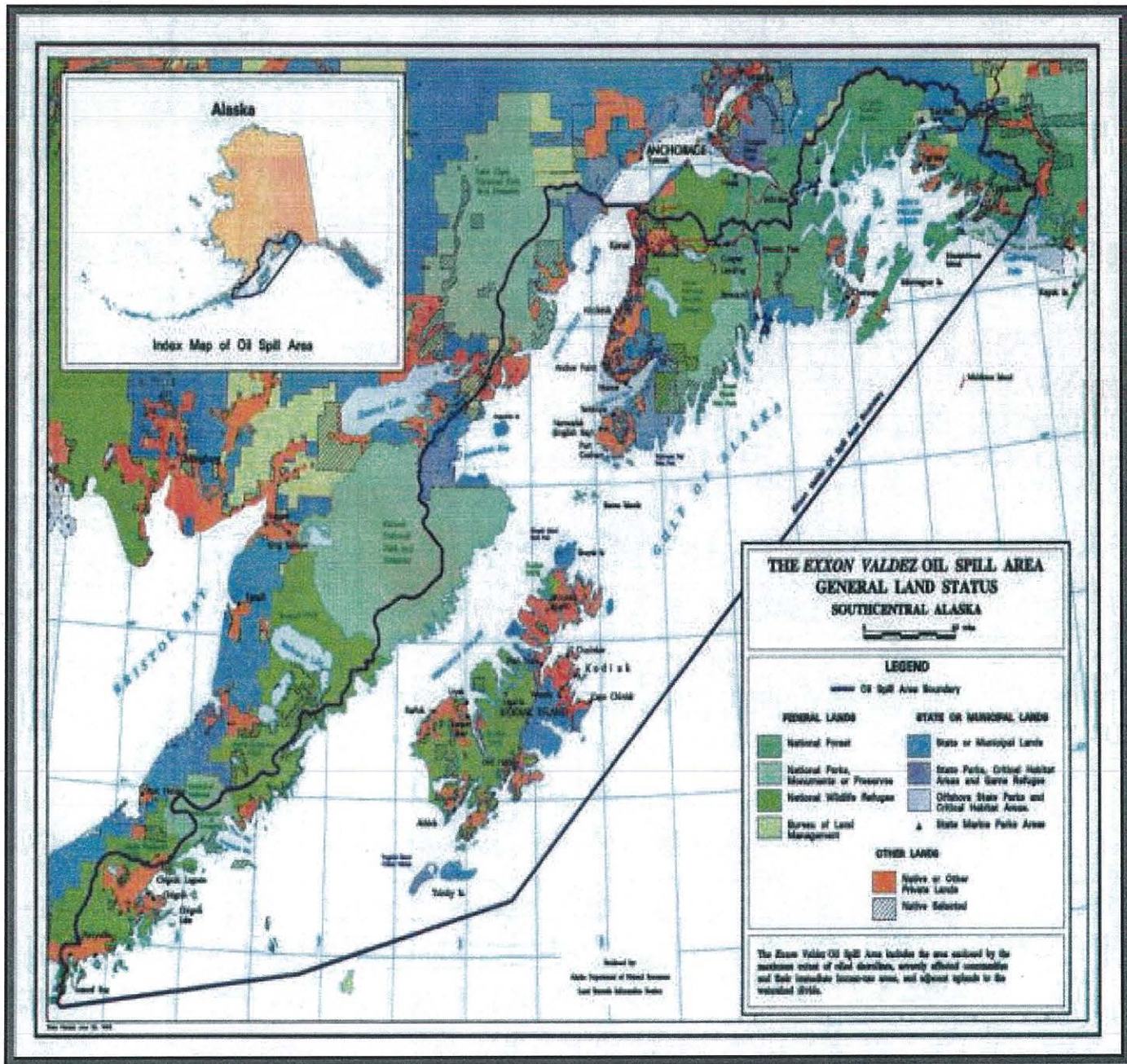
Agency	Employee Representative	Personnel Cost	Travel	Total	Time Equivalent
AK Depart of Environmental Conservation	Larry Dietrick (Includes Admin Staff)	\$ 50,000.00	\$ 10,000.00	\$ 60,000.00	6 Months
AK Depart of Fish and Game*	Brett Huber	-	-	-	Covered with 250 budget
AK Depart of Law	Craig Tillery (Includes Admin Staff)	60,000.00	-	60,000.00	75% of Exxon Related issues
AK Dept of Natural Resources	Carol Fries	10,112.00	-	10,112.00	Not Available
NOAA*	Pete Hagen	-	-	-	Covered with 250 budget
US Dept of Commerce	Craig O'Connor (federal Attorney)	3,343.74	2,000.00	5,343.74	Not Available
US Dept of Interior	Tony DeGange/Michael Baffrey (Includes Admin	12,200.00	2,500.00	14,700.00	1 month
US Forest Service	Steve Zemke	15,120.00	2,000.00	17,120.00	1.6 Months
US Geological Survey*	Dede Bohn	-	-	-	Covered with 250 budget
US Department of Justice	Regina Belt	-	-	35,000.00	Over a 10 mth period
US DA Office of General Council	Maria Lisowski	8,700.00	2,500.00	11,200.00	150 hours
	TOTALS	150,775.74	16,500.00	167,275.74	
				\$ 15,054.82	Total GA
				\$ 182,330.56	Overall 250 budget Increase
United States		83,363.74			
9% GA	\$	7,502.74			
United States Total	\$	90,866.48			
State of Alaska	\$	130,112.00			
9% GA	\$	11,710.08			
State of Alaska Total	\$	141,822.08			

* Adequately covered under their existing Budgets

Figures represent estimated expenditures outside of existing 250 (Project Management) Budgets

**Small Parcel
Proposal**

SMALL PARCEL ACQUISITION PROGRAM



FEBRUARY 4, 2005

EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL

DRAFT
SMALL PARCELS ACQUISITION PROGRAM

1. Cover Letter to the Trustees
2. Small Parcels Administrative Procedures
3. Habitat Protection and Acquisition Policy – Adopted 7-09-02
4. Criteria for Small Parcel Program
5. Flow Chart for Action
6. Small Parcel Nomination Form
7. Sponsoring Agencies and Contact Information

Supplemental Information

8. Status of Habitat Sub-Account as of 11-30-04
9. Small Parcels Acquisition Program Working Group

Draft Plan
Presented to the Trustee Council
February 4, 2005

Exxon Valdez Oil Spill Trustee Council

441 W. 5th Ave., Suite 500 • Anchorage, Alaska 99501-2340 • 907/278-8012 • fax 907/276-7178



MEMORANDUM

TO: Trustee Council

DATE: January 15, 2005

FROM: Gail Phillips
Executive Director

RE: Small Parcels Program
Recommendations

The Habitat Protection/Small Parcel Acquisition Program has been in existence since 1994 with the public solicitation of nominations of parcels. This initial solicitation was followed with a supplemental solicitation through the spring of 1995 that required parcels to have agency sponsorship. These initial solicitations generated nearly 300 parcel nominations. Over the four years prior to these solicitations, the Trustee Council, through EVOS and agency staff, prepared the policy framework for the protection and acquisition of habitat.

Following the initial invitations, the program went forward under the same general process and procedures, but with significantly fewer parcels nominated and needing review. Most, but not all, of the parcels nominated came forward with an agency sponsor. Others, which came to the attention of the EVOS staff or Trustee Council through the land owner, were paired with an agency sponsor to proceed in the process.

In 2001, the Trustee Council established a pilot grant program for the administration of the Small Parcels Acquisition Program (SPAP). This grant made \$1,000,000 available for the purchase of small parcels and was contracted with two Non-governmental Organizations (NGOs) in the land acquisition business – the Nature Conservancy and The Conservation Fund. This grant was administered by the Department of Interior, United States Fish and Wildlife Service. The goal of the pilot grant was to streamline the parcel acquisition process. This grant process also envisioned that most of the work for acquiring parcels would be performed by the NGOs with a limited support role for the land management agencies. The administrative provisions of the grant program were structured to allow greater flexibility in transferring funds for parcel purchases than the existing Trustee Council agency policies could permit. The grant program expired in September 2003.

In March, 2004, the Trustee Council directed the Executive Director to initiate a Small Parcels Working Group to prepare a new policy for the Council to consider for the purchase of small parcels in the future. The membership of this working group included the Trustees and/or their staff, agency staff, Council staff, NGO representatives and representatives from the EVOS Public Advisory Committee. This Committee was charged with reviewing current and past policies and procedures for the acquisition of small parcels and to formulate recommendations for future implementation.

The attached packet includes all the various items recommended by the Committee. It includes:

Small Parcels Administrative Procedures
Habitat Protection and Acquisition Policy, Adopted 7-09-02
Criteria for the Small Parcels Program

A Flow Chart for Action

Federal Trustees
U.S. Department of the Interior
U.S. Department of Agriculture
National Oceanic and Atmospheric Administration

State Trustees
Alaska Department of Fish and Game
Alaska Department of Environmental Conservation
Alaska Department of Law

The Small Parcels Nomination Form
Sponsoring Agencies and Contact Information

The Committee recommended that \$1,100,000 be made available annually for the SPAP. This would be divided equally between the State and Federal agencies. The State would need to obtain \$500,000 in capital spending authority and \$50,000 in the Operating budget. This amount allows preservation of the Habitat Fund and utilizes an approach for disbursement based upon the annual percent of market value.

One of the main issues the Committee addressed was the issue of the State's Legislative Funding Authority. Previously, the State budget cycle and the legislative approval process has often required over a year for the State to secure legislative authority to receive and expend funds for the purchase of small parcels. Landowners find this process particularly disconcerting and may be unable to wait a year or longer to complete the sale of a parcel.

In order to address this issue, the Committee proposed that DNR work through the Governor's office and the legislature to secure \$500,000 in a capital appropriation within the capital budget annually. If a parcel is already identified, a more specific request can be pursued. Also, it is recommended that language be included to attach a condition to the appropriation that provides that the Legislative Budget and Audit Committee (LB&A) has a specific time frame (i.e. 30 days) to deny the acquisition request rather than requiring them to act in approval. The Committee felt that if this recommendation was presented to the LB&A at the time DNR requested the spending authority, it would provide oversight and allow for increased flexibility and a significant reduction in the time it takes to facilitate a transaction, particularly during the Interim when the Legislature is not in session.

In essence, the Committee is recommending that blanket spending authority (not to exceed \$500,000) be granted by LB&A at the beginning of the budget cycle. In order to spend the money, the Trustee Council would need to approve the parcel purchase(s) and then the nomination packet would be presented to the LB&A. LB&A would have 30 days to object to the purchase. If no objection is received within the 30-day time period in the EVOS office, the purchase would automatically be considered approved and the transfer of funds and closing would commence.

The SPAP Committee also considered the option of pursuing a direct grant program utilizing a NGO. The Committee reviewed the efforts of the pilot grant program and found that while the participating NGOs made significant contributions to the program, further use of a similar mechanism was unlikely to be satisfactory for either the NGOs or the participating agencies. In addition, it was felt that perhaps other NGOs might be interested in contributing to the Council's efforts and the group had a desire to pursue a more inclusive process. Nothing in the proposed policies and procedures prevents the participation by NGOs in the Small Parcel Program.

There is nothing in the proposed package that would change the Habitat Protection Policy. The recommendations made by the Committee, if approved, will create a more efficient and timely Small Parcels Acquisition Program for all parties involved.

Attachment: Proposal for Small Parcels Acquisition Program

DRAFT
ADMINISTRATIVE POLICIES AND PROCEDURES
For Small Parcels Acquisition Program

The following steps are recommended for funding the Small Parcels program. This proposal will include recommendations for administering land purchases at both the State and Federal levels, lead agency designations, preauthorized spending authority of the State and recommendations for agency program support costs.

1. Lead Agency Designations

For the State of Alaska, the Department of Natural Resources will be considered the lead agency for coordinating all EVOS small parcel acquisition requests.

For the federal government, small parcel acquisition requests will be coordinated through the U. S. Fish and Wildlife Service.

2. Parcel Nominations

Parcels may be nominated through a sponsoring agency, which is responsible for coordinating small parcel acquisition requests with their respective state or federal lead agency.

3. Public Involvement in the Small Parcels Program

The general public, municipalities, governmental or non-governmental organizations are provided the opportunity to have a parcel considered for Council review through a sponsoring agency. There is no intent to exclude anyone from the program at the nomination process.

4. Small Parcel Program Funding

Funding Strategy

An annual spending authorization will be established by the Trustee Council for the Small Parcel Acquisition Program and shall be allocated 50% to the State and 50% to the Federal governments. The Restoration Office will develop an annual funding recommendation for consideration by the Trustee Council based upon a 4.5% - 4-year average POMV (percent of market value) to be applied to the funds remaining within the Habitat Fund. This annual recommendation is a guideline and does not prevent the Council from considering a parcel(s) that exceeds the amount established, should the Council find that circumstances warrant such consideration. In addition, should the state or federal government choose not to expend the authorized funds in one year, these funds may accrue within the Habitat Fund for future use by that government.

Program Costs

An amount up to \$100,000 is allocated for the base agency small parcels acquisition costs. These funds will be made available to sponsoring agencies as part of the annual work plan through a multi-agency budget. Funds will be appropriated at fifty percent to the state agencies

and fifty percent to the federal agencies. This budget will address agency costs for gathering and preparing parcel nominations for submittal to the Council. In addition to preparing parcel nominations, these funds will also be used to conduct a preliminary review of title and hazmat issues and may include a site inspection in order to increase the likelihood that only viable proposals move forward.

Acquisitions

For viable proposals, the lead agency will submit, consistent with the "Criteria for the Small Parcel Program" a proposal to the Council, including a draft budget outlining anticipated acquisition costs such as appraisals, title insurance, hazmat inspections and agency due diligence. The council will, at that point, make funds available, as warranted, from the annual spending authorization for acquisitions to support appraisals and other due diligence requirements of the sponsoring agency. Prior to signing a purchase agreement, the lead agency will request approval to purchase the subject parcel. Should the Council agree to the purchase, funds (from the annual acquisition budget) will be noticed to the court and requested through the Alaska Department of Law and the US Department of Justice for the acquisition and associated costs due at closing.

Agency Budget Requirements

All participating agencies will be responsible for addressing state and federal budgeting requirements and processes.

HABITAT PROTECTION AND ACQUISITION

1. *General.* Habitat Protection and Acquisition is an important means of restoring injured resources and the services that are dependent upon those resources. Habitat Protection and Acquisition may include the purchase of lands or interests in land such as conservation easements, mineral rights, or timber rights.
2. *Parcel Nomination.* Only those parcels nominated by a willing seller shall be considered for purchase. The Executive Director shall prepare and maintain written procedures regarding nomination of parcels.
3. *Parcel Evaluation.* Nominated parcels shall be evaluated based on their importance to the conservation and protection of marine and coastal resources, ecosystems, and habitats in order to aid in the overall recovery of, and to enhance the long-term health and viability of, those resources injured by the oil spill and the spill area ecosystem.
4. *Terms and Conditions.* By unanimous agreement of the six Trustees, their designee or their alternate, a resolution shall be adopted authorizing the purchase of land or ownership rights. The resolution shall set forth the terms and conditions appropriate for the identified parcel(s).
5. *Title and Management.* The title of any lands or ownership rights shall be specified in the resolution adopted by the Trustee Council. All land acquired shall be managed in accordance with the terms and conditions of the Trustee Council.
6. *Public Review and Comment.* Prior to final Trustee Council action, reasonable public notice shall be given and the public shall be provided an opportunity to comment.
7. *Application or Notification for Disbursement.* Upon certification from the Executive Director that the terms and conditions set forth in a resolution have been satisfied, the Alaska Department of Law and the United States Department of Justice shall be requested to provide notice to the United States District Court for the District of Alaska regarding the expenditure of funds. Concurrently, as appropriate, the Executive Director shall provide the custodian of the Investment Fund(s) with payment instructions.

**Exxon Valdez Oil Spill Trustee Council
Criteria for the Small Parcel Program**

The Exxon Valdez Oil Spill (EVOS) Trustee Council will consider small parcel nominations focusing on the acquisition of small parcels, generally less than 1,000 acres in size, designed to restore, replace, or enhance the recovery of resources and associated services injured by the Exxon Valdez Oil Spill.

Acquisition of small parcels prevents further injury to those species and services injured by the oil spill and enables populations to recover and sustain recovery objectives. Proposals for consideration by the Council should address those species identified by the Council as "not recovering," "recovery unknown," or "recovering," and/or the services supported by these species.

Injured Resources and Associated Services*

Injured species:

Not Recovering	Recovery Unknown	Recovering
Common Loon	Cutthroat trout	Clams
Cormorant	Dolly Varden	Designated Wilderness
Harbor Seal	Kittlitz's murrelet	Intertidal communities
Harlequin duck	Rockfish	Killer whale (AB pod)
Pacific herring	Subtidal communities	Marbled murrelets
Pigeon guillemot		Mussels
		Sea otter
		Sediments

Associated injured services:

Recovering
Recreation
Commercial Fishing
Passive Uses
Subsistence

*As outlined in the Injured Resources and Services List, 2002 (amended 2003).

The Small Parcel Program will enhance the recovery of resources and services injured by the Exxon Valdez Oil Spill. It is not intended to impede commercial development nor is it intended to impede the development of subsurface rights held by individuals, corporations, or by the state when not acquired with EVOS funds.

Nomination of Parcels

A parcel may be nominated by an individual, organization, or local government for consideration by The Trustee Council through a sponsoring agency. A sponsoring agency

is any state or federal agency that has the statutory authority to acquire and/or manage land and is willing to manage the proposed parcel. To ensure that a parcel is a viable nomination, the following Threshold Criteria must be met before any nomination will be further considered by the Trustee Council:

1. The parcel must be located within the oil spill area.
2. A parcel must have a willing seller. (A parcel may be nominated by another individual or organization but must have the consent of the owner of the property)
3. The seller acknowledges that the governments will only acquire property rights at or below fair market value.
4. The parcel must be linked to the restoration of one or more of the above listed resources and/or associated services.
5. The parcel can reasonably be incorporated into a sponsoring agency's existing land management systems.

Nomination forms are available from the Exxon Valdez Oil Spill Restoration Office. When nominating a parcel the sponsoring agency must be identified and its approval secured prior to preparing a proposal. Completed nomination forms must be submitted to the Exxon Valdez Oil Spill Restoration Office. A copy should also be provided to the sponsoring agency's EVOS liaison. The EVOS Restoration Office will maintain a record of all parcel nominations and provide an initial review of compliance with the Threshold Criteria.

Sponsoring Agencies:

- US Forest Service
- US Fish and Wildlife Service
- National Park Service
- Alaska Department of Natural Resources
- Alaska Department of Fish and Game

Trustee Council Proposal

If the nomination has met the Threshold Criteria a formal proposal will be developed with the sponsoring agency. The proposer should also work with the Restoration Office to schedule presentation of the proposal at an appropriate Trustee Council meeting. The proposal should be designed for presentation to the Trustee Council at a public meeting and should address the following evaluation criteria:

How is the parcel linked to injury?

- Occurrence – the parcel contains key habitats/sites that benefit the recovery of injured resources or service.
- Uniqueness – key habitats/sites on the parcel are unique in relation to key habitats/sites off-parcel or within the region.
- Connectedness – the habitats/sites linked to injured resources or services on the parcel are connected to other elements or habitats in the greater ecosystem.
- Quality – the parcel has high levels of production, diversity, use levels or other measures of habitat richness?

What is the restoration potential of the parcel?

- Key habitats or sites on the parcel are vulnerable to or potentially threatened by disturbance or habitat loss.
- Key habitats or sites on nearby lands are vulnerable to or potentially threatened by disturbance or habitat loss from development of the subject parcel.
- Key habitats or site on the parcel are protected from incompatible adjacent land uses.
- Recovery of the injured resources or services would benefit from protection in addition to that provided by the owner and applicable laws and regulations.

How will management of the parcel contribute to recovery?

- Acquisition of the parcel will allow for enhancement of injured resources and or services.
- The parcel has strategic value to protect or provide access to key habitats or sites that occur on or beyond the parcel's boundaries.

How will acquisition of the parcel benefit the public and the local community?

- The parcel contributes to the social and cultural values of the local community.
- Acquisition of the parcel contributes economic benefits to the community.
- Acquisition of the parcel provides enhanced public access to resources.
- Acquisition of the parcel supports traditional or subsistence use.

A proposal addressing as many of the above referenced issues, as appropriate, should be developed according to the following format:

Proposal Format

Header Information:

- Parcel Name
- Parcel Owner
- Physical Location
- Acreage
- Legal Description
- Sponsoring Agency, including contact information

Narrative:

- Describe the **physical characteristics** of the subject parcel, adjacent land ownership patterns, existing use of the subject parcel, and any potential threat to the subject parcel or the resources/services it supports.
- Describe the **linkage to restoration** of injured resources and services by addressing the evaluation criteria listed above as appropriate. Note that not all issues will be relevant to every parcel. Each parcel is unique and will have unique characteristics and differing restoration values.

- Describe **proposed management** of the subject parcel, including protection efforts and anticipated public use and access.

Attachments:

- Vicinity map of the subject parcel.
- Site map of the subject parcel.
- Appraisal summary if available.
- Other information deemed useful in presenting a clearer picture of the benefits of the subject parcel such as photographs or statements of support from members of the community or public at large.
- Draft budget estimating costs of acquisition such as appraisals, title insurance, closing costs, agency due diligence and cost of the parcel if there is a Trustee Council approved appraisal.

Most proposals will not have appraisals or complete title information at the time of submittal to the Trustee Council. However, the Council will likely be interested in developing an understanding of the anticipated cost of acquisition of the parcel being presented. The Council will, should it choose to pursue a particular parcel, provide funds to the sponsoring agency to cover the costs of appraisals, title insurance, title review, hazardous materials review and other tasks necessary for the state or federal governments to perform due diligence prior to accepting an interest in land. It is advisable to have a proposed budget developed for discussion at the Trustee Council presentation.

Authorization to Proceed with Negotiations

The Trustee Council will review the proposal and if supportive, authorize the state or federal government to enter into negotiations with the owner of the parcel. (Authorization to Proceed with Negotiations) The sponsoring agency will secure a preliminary commitment for title insurance (if not previously secured), conduct a preliminary site inspection looking for potentially hazardous materials, and secure an appraisal of the parcel being considered. Negotiations will proceed based upon the results of the appraisal, if preliminary title and HAZMAT review reveal no obvious difficulties for the acquiring agency.

Approval to Purchase

If agreement on a purchase price is reached through negotiations with the landowner, the proposal, including cost of the parcel, will be brought back before the Trustee Council for consideration. At this time, the Trustee Council will either approve by Resolution or reject the proposal. If approved, the sponsoring agency will take steps necessary to perform due diligence on behalf of either the state or federal governments, and move toward closing the acquisition.

Closing

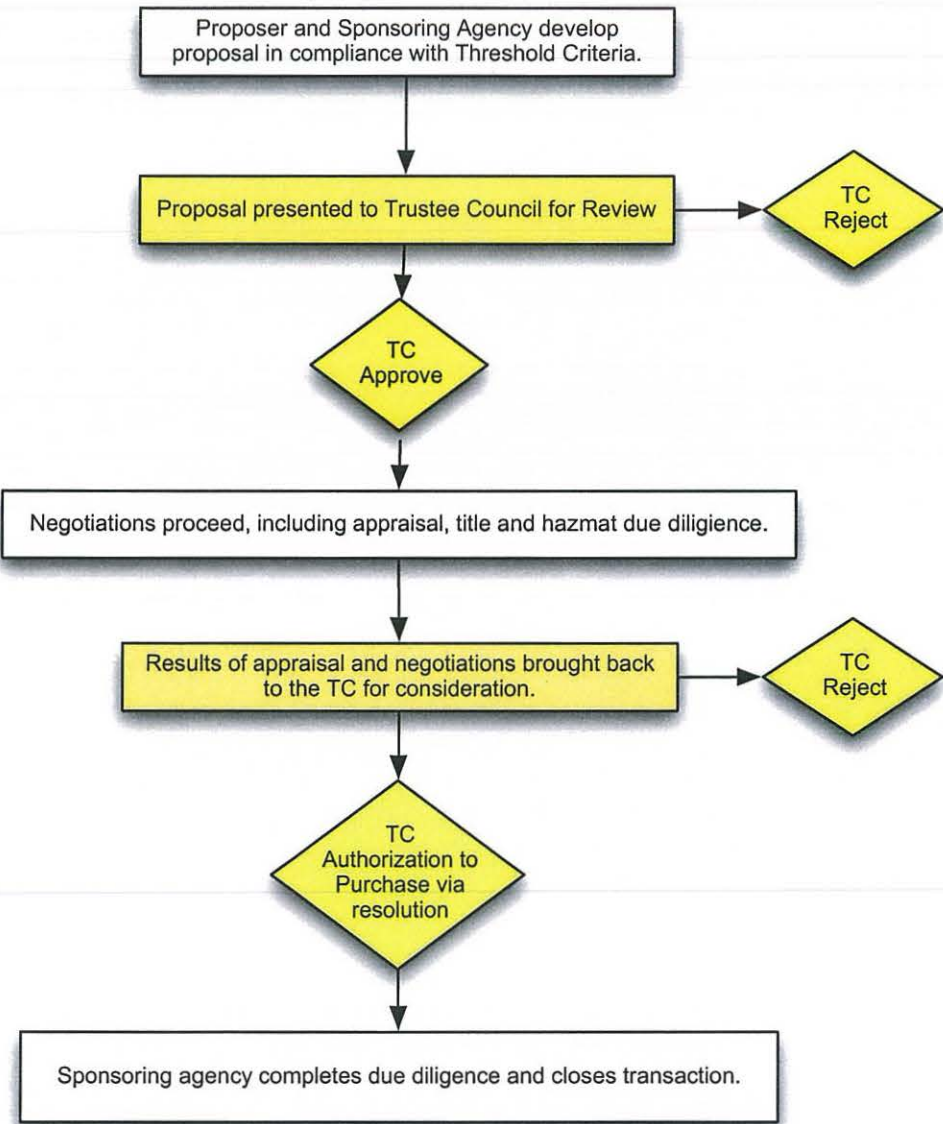
The following documents are required to complete the acquisition:

- A reviewed and approved appraisal conforming to USFLA and USPAP and Trustee Council appraisal instructions (Attached).

- Trustee Council Resolution authorizing purchase.
- Satisfactory evidence of clear title, including title insurance (required by acquiring agency)
- Satisfactory hazardous materials assessment (required by State and Federal land acquisition procedures)
- NEPA compliance
- Any other requirements set forth in the Trustee Council Resolution authorizing purchase of the subject parcel.

The EVOS Restoration Office will confirm and certify that all documentation is complete prior to requesting the Department of Law and the Department of Justice submit a request for the release of funds from the Court. Typically a title company will assist in closing the transaction. Following closing and recordation of documents, state and federal agencies will follow appropriate procedures to incorporate acquisitions into existing land management systems.

Exxon Valdez Oil Spill Trustee Council Small Parcel Process



DRAFT

**Exxon Valdez Oil Spill Trustee Council
Small Parcel Program
Parcel Nomination Form**

Part 1: Landowner Information

Landowner:	
Address:	
Phone:	
Email:	
Co-owner:	
Contact Information:	
Other contacts/agent:	
Contact Information:	
Subsurface owner:	

Part 2: Parcel Information

Legal Description of Property:

Approximate acreage of parcel:

General Description of Property:

Is your property located within or adjacent to a State or Federal Park ☐, Refuge ☐ or National Forest ☐ or other public land unit ☐?

If so, which?

Please describe any improvements or development on the parcel.

Are there any hazardous materials on the property such as waste oil, mine tailings, dump, etc? Yes ☐ No ☐ Unknown ☐

If yes, please describe.

Please explain why you are nominating this parcel.

Please provide additional documentation such as surveys, photos, maps, a copy of the deed, etc that you feel would provide additional information regarding your parcel nomination.

Part 3. Threshold Criteria

All sellers **MUST** be willing sellers.

Is your parcel located within the oil spill area (see attached map)? Yes ☐ No ☐

Are you willing to sell your parcel at fair market value? Yes ☐ No ☐

Are there any injured species or associated services that occur on or are affected by your property? Yes ☐ No ☐

If yes, please describe:

In order to proceed, a sponsoring agency, one that is able and willing to manage the parcel should it be selected for purchase, must be identified.

Sponsoring Agency:

Signature of Proposer: _____ Date: _____

Signature of Landowner: _____ Date: _____

Signature of Co-owner: _____ - Date: _____

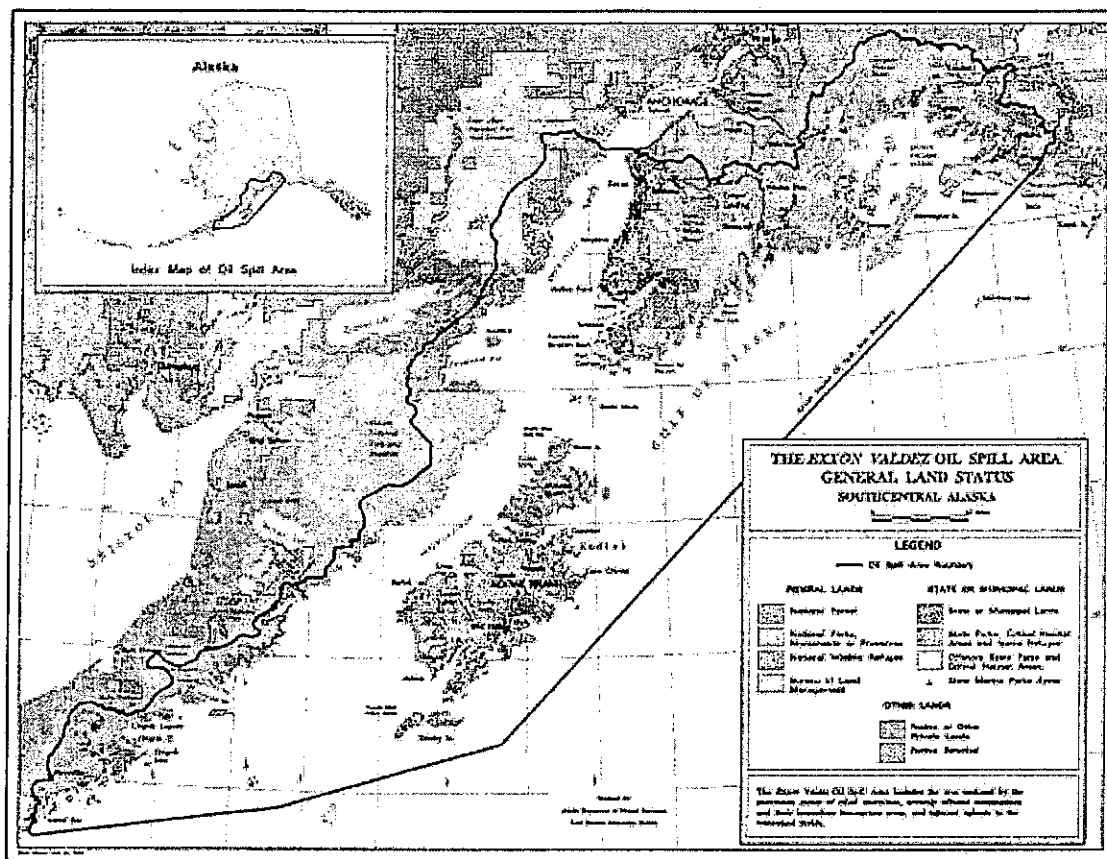
Signature of Sponsoring Agency: _____

Name: _____ Title: _____

NOTE: A nomination does not bind you to sell your land, nor does it bind the Trustee Council to purchase your land. Each parcel should be presented on a separate nomination form.

Please submit nomination forms to both the sponsoring agency and the Exxon Valdez Oil Spill Trustee Council 550 W. 5th Ave., Suite 500, Anchorage, AK 99501.

Map of Spill Affected Area:



Injured resources and associated services*

Injured Species:

Not Recovering	Recovery Unknown	Recovering
Common Loon	Cutthroat trout	Clams
Cormorant	Dolly Varden	Designated Wilderness
Harbor Seal	Kittlitz's murrelet	Intertidal communities
Harlequin duck	Rockfish	Killer whale (AB pod)
Pacific herring	Subtidal communities	Marbled murrelets
Pigeon guillemot		Mussels
		Sea otter
		Sediments

Associated injured services:

Recovering
Recreation
Commercial Fishing
Passive Uses
Subsistence

*As outlined in the injured resources and services list, 2002 (amended 2003)

Small Parcel Program Sponsoring Agencies:

Cyndie Wolfe
US Fish & Wildlife Service
1011 East Tudor Road
Anchorage, Alaska 99503
907-786-3463
cyndie_wolfe@fws.gov

Carol Fries
Alaska Department of Natural Resources
Commissioner's Office
550 West 7th Avenue, Suite 1400
Anchorage, Alaska 99501
907-269-8425
carolf@dnr.state.ak.us

Steve Shuck
Chief, Division of Realty
U.S. Fish & Wildlife Service
1011 East Tudor Road
Anchorage, Alaska 99503
Steven_schuck@fws.gov

Mark Kuwada
Alaska Department of Fish & Game
333 Raspberry Road
Anchorage, Alaska 99518-1565
907-267-2277
mark_kuwada@fishgame.state.ak.us

Steve Zemke
US Forest Service
Chugach National Forest
3301 C Street, Suite 300
Anchorage, Alaska 99503
907-743-9521
szemke@fs.fed.us

Status of Habitat Sub-Account

As of 11/30/04

\$	31,367,000	Amount in Habitat Sub-Account 11/30/04
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\$	31,367,000	Uncommitted balance
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Note: Balance of the Habitat Sub-Account is only available through November 30, 2004.
The December Report won't be out until after the 15th of January 2005.

RUNNING STATUS: Commitments from Habitat Investment Sub-Account
December 31, 2004

Initial balance 10/15/02

\$25,200,000

- | 1. | Expenditures from Habitat Sub-Account: | <u>Cost</u> | <u>Date Withdrawn from
Habitat Sub-Account</u> |
|----|--|-------------|--|
| A. | KAP 2042 / LBS Abston
TC made offer 7/5/00. Court noticed 10/11/02 (IFCN #3); deal closed 3/18/03. Not being purchased through grant.
<i>Contact: Steve Shuck, USFWS</i> | \$15,000 | 10/15/02 |
| B. | PWS 06 / Valdez Duck Flats
Court noticed 10/11/02 (IFCN #3); deal closed 4/03. TC made offer 12/4/00 and renewed offer 8/6/01. Parcel owned by Univ. Alaska. Not being purchased through grant (legislative authorization received 2002 session). Management rights will be assigned to ADF&G.
<i>Agency contact: Carol Fries, ADNR</i> | \$100,000 | 10/15/02 |
| C. | KEN 294 / Elliott (Anchor River)
Court noticed 10/11/02 (IFCN #3); deal closed 1/21/03. TC made offer 5/3/01. Feds. waived review of the appraisal. Not being purchased through grant though TCF was facilitated acquisition. (legislative authorization received 2002 session).
<i>Agency contact: Carol Fries, ADNR</i> | \$78,000 | 10/15/02 |
| D. | KEN 309 / Icicle Seafoods (Ninilchik River)
Court noticed 10/11/02 (IFCN #3); deal closed 1/21/03. TC made offer 2/25/02. Feds. waived review of the appraisal (per Ken Holbrook by phone 2/20/02). Not being purchased through grant though TCF facilitated acquisition. (legislative authorization received 2002 session).
<i>Agency contact: Carol Fries, ADNR</i> | \$113,000 | 10/15/02 |
| E. | ADNR support costs (FY 03)
Approved by TC 11/25/02 (Project 030126). Court noticed 12/10/02 (IFCN #4).
<i>Agency contact: Carol Fries, ADNR</i> | \$48,400 | 12/12/02 |
| F. | Koniag Easement Bridge Payment
This payment extended the non-development easement along the Karluk and Sturgeon rivers from Dec. 2001 until Oct. 2002, when the agreement to extend the easement 10 additional years was finalized. Funds for the 10-year extension (\$29,800,000) are in a separate account, the Koniag Investment Sub-Account.
<i>Contact: Barry Roth, DOI</i> | \$150,000 | 10/15/02 |
| G. | PWS 1010 / Jack Bay
Court noticed 3/4/03 (IFCN #5); deal closed 4/03. Acquisition handled by grantee (R. Hagenstein/TNC) on behalf of USFS; grantee's administrative costs are being covered by | \$1,130,000 | 3/6/03 |

grant, but acquisition cost will not be. Parcel acquired from Univ. Alaska. For history, see
Agency contact: USFS

- H. KEN 295 / Crowther \$200,000 6/11/03
Court noticed 6/11/03(IFCN #6); closed prior to December 12/03. Acquisition handled through UFWS under the Habitat Grant, the title transferred to the state (DNR), DNR will transfer the Management rights to ADFG.
- I. KEN 310 / Swartzes \$6,000 6/11/03
Court noticed 6/11/03(IFCN #6); closed prior to December 12/03. Acquisition handled through USFWS under the Habitat Grant, the title transferred to the state (DNR) DNR retained the Management rights.
- J. KEN 1101 / Knol \$80,000 4/30/04
Court notice (Errata #9) 5/04/04; acquisition handled by grantee (TNC) on behalf of the USFWS under the Habitat Grant, the title will transfer to the state (DNR), DNR will transfer management rights to ADFG
- K. KEN 1102 / Nakada \$0 4/30/04
Court notice (Errata #9) 5/04/04; (Nature Conservancy donated property to the state) acquisition handled by grantee (TNC) on behalf of the USFWS under the Habitat Grant, the title will transfer to the state (DNR), DNR will transfer management rights to ADFG
- L. KEN 1103 / Thompson \$90,000 4/30/04
Court notice (Errata #9) 5/04/04; acquisition handled by grantee (TNC) on behalf of the USFWS under the Habitat Grant, the title will transfer to the state (DNR), DNR will transfer management rights to ADFG

Offers TC chose not to extend or pursue

- M. Grant to The Nature Conservancy/The Conservation Fund
Grant expired 9/03. The Council did not extend the grant.
- N. Northern Afognak/Perenos Bay
OFFER EXPIRED November 8 2004. TC chose not to extend the offer.
(\$10,450,000) TC has committed, as matching funds, \$10.45 million to a group of private landholders for acquisition of 17,000 acres of land, and the timber estate on an additional 2,300 acres (Pauls and Laura Lakes), in the Perenos Bay area on northern Afognak Island (see Resolution 03-01, 11/8/02). The approved value of these parcels is \$20,924,000 – the TC has offered to pay half, with the balance of funds to be obtained by a group called the Afognak Conservation Partners, which consists of the Kodiak Brown Bear Trust, the Rocky Mountain Elk Foundation, and the American Land Conservancy. The Council's offer is good until November 8, 2004, which gives the partners 2 years to obtain the matching funds. The lands, which are owned by a number of Alaska Native corporations, including Koniag, Inc., lie within and near lands purchased by the Council some years ago that are now within Afognak Island and Shuyak Island state parks. The Council earlier sought to acquire these additional lands but had insufficient funds available to purchase them at that time. Appraisal has been done, and reviewed by state; as of 4/03, feds. (USFWS) considering whether to review, or waive review of, appraisal.
Agency contact: Alex Swiderski, ADOL

- O. PWS 05 / Valdez Duck Flats
TC chose not to extend the offer. \$ 125,000
Offer expired 12/31/02. Grantee (R. Hagenstein/TNC) continues to pursue acquisition on behalf of USFS, and will ask TC to extend offer 2/10/03. Grantee's administrative costs are being covered by grant, but acquisition cost will not be. Parcel owned by Univ. Alaska.
Agency contact: USFS
- P. Port Graham Corporation lands
TC discussed in 11/25/02 executive session Port Graham's proposal (submitted through NPS) for conservation easements on lands within Kenai Fjords National Park. TC decided to take up again when new Trustees appointed (i.e., Gov. Murkowski's appointees). One concern: small parcels have always been fee acquisitions large parcel program has included some conservation easements but in packages in which at least half of the lands were sold in fee (12/2/02 letter on file Molly to W. Meganack). NPS especially interested in Aialik (2,600 ac.) and NW Harris (3,900 ac.) bays
- E. Karluk Village IRA Council lands
TC 3/16/00 authorized ADNR to move forward with an appraisal, hazardous materials survey, and title search of approximately 1,850 acres owned by the Karluk Village IRA Council. The appraisal, which was completed and approved in February 2001, is \$2.2 million for a total of 2,191 acres. This consists of 1,008 acres within the Karluk River drainage (including the 5-acre Karluk weir site which was first evaluated as KAP 150 in 1994) and 1,183 acres within the Kodiak National Wildlife Refuge around Sturgeon, Grant, and Halibut lagoons (these lands are within large parcels -- KON 05 and KON 06 -- that were previously evaluated). The landowner is now considering what type of protection/acquisition package they could support.
Agency contact: Alex Swiderski, ADOL
- F. Native Village of Woody Island KAP 145/Termination Point, KAP 1058/Long Island (formerly referred to as Lesnoi lands),
TC made offer 6/8/98 (\$1,865,000) for Termination Point -- rejected by landowner. A more comprehensive package including Termination Point, Long Island, American and Olds rivers, Myrtle Creek and Roslyn beaches, and Cape Chiniak has been prepared and is strongly supported by the Kodiak Borough and Kodiak residents. Litigation over title to Lesnoi's lands settled early 2003.
Agency contact: Alex Swiderski, ADOL
- G. KEN 1104 / McGee \$40,000
- H. TC authorized TNC to pursue negotiations with landowner.

Offers and earmarks for the Habitat Sub-Account

NONE

Of possible interest:

The ED is recommending that all parties interested in offering a parcel for the TC to consider, wait until an acquisition program is adopted by the council. The Council is being presented with a proposal on February 4, 2005.

Small Parcel Acquisition Program Working Group

Cyndie Wolfe
US Fish & Wildlife Service
1011 East Tudor Road
Anchorage, Alaska 99503
907-786-3463
cyndie_wolfe@fws.gov

Mark Kuwada
Alaska Department of Fish & Game
333 Raspberry Road
Anchorage, Alaska 99518-1565
907-267-2277
mark_kuwada@fishgame.state.ak.us

Carol Fries
Alaska Department of Natural Resources
Commissioner's Office
550 West 7th Avenue, Suite 1400
Anchorage, Alaska 99501
907-269-8425
carolf@dnr.state.ak.us

Paula Banks
Administrative Manager EVOS
441 West 5th Avenue, Suite 500
Anchorage, Alaska 99501
907-278-8012
paula_banks@evostc.state.ak.us

Alex Swiderski
Department of Law
Attorney General's Office
1031 West 4th Avenue, Suite 300
Anchorage, Alaska 99501
907-269-5274
alex_swiderski@law.state.ak.us

Stacy Studebaker
PAC Member
P.O. Box 970
Kodiak, Alaska 99615
907-486-6498
tidepoolak@ak.net

Jonne Slemons
DEC Program Manager
555 Cordova Street
Anchorage, Alaska 99501
907-269-7508
jonne_slemons@dec.state.ak.us

Steve Shuck
Chief, Division of Realty
U.S. Fish & Wildlife Service
1011 East Tudor Road
Anchorage, Alaska 99503
Steven_schuck@fws.gov

Steve Zemke
US Forest Service
Chugach National Forest
3301 C Street, Suite 300
Anchorage, Alaska 99503
907-743-9521
szemke@fs.fed.us

Gail Phillips
Executive Director, EVOS
441 West 5th Avenue, Suite 500
Anchorage, Alaska 99501
Gail_Phillips@evostc.state.ak.us

Pete Hagen
NOAA Auke Bay Lab
11305 Glacier Highway
Juneau, Alaska 99801
907-789-6096
pete_hagen@noaa.gov

Brett Huber
Exxon Valdez Restoration
Alaska Department of Fish & Game
441 West 5th Avenue, Suite 500
Anchorage, Alaska 99501
907-278-8012
brett_huber@fishgame.state.ak.us

UC Davis Invoice

STATE OF ALASKA

FRANK MURKOWSKI, GOVERNOR

DEPARTMENT OF FISH AND GAME

EVOS RESTORATION PROGRAM

555 Cordova Ave., Suite 602
Anchorage, AK 99501-2617
PHONE: (907) 269-5028
FAX: (907) 269-3061

MEMORANDUM

TO: Paula Banks, Admin Manager
EVOS Trustee Council

FROM: Brett W. Huber, Coordinator
ADFG EVOS Restoration Program

DATE: 12 January 2005

SUBJECT: EVOS Project #030462 Late Invoice

By this memo, I am requesting your help in garnering the necessary approval to pay the final invoice from the University of California, Davis for the EVOS project #030462. By way of background, this project has been ongoing since 1999. While all of the proposal, budgetary, and contractual work was in place prior to my assuming my position, I have tried to reconstruct the sequence of events. However, because of the condition of the actual project file, I cannot be certain of the detailed chain of events. It does appear, however, that a change in policy regarding the GA amount and several budget amendments negotiated between the TC staff and the PI, coupled with a contract extension of the 2003 funds, resulted in a situation where we at ADF&G failed to encumber all of the appropriated funds for the last phase of the project.

This omission has resulted in the final invoice from UC Davis, in the amount of \$6661.38, exceeding the amount we have encumbered for the project and available to pay of \$4,318.23 by \$2,343.15. While this shortfall is within the amount not encumbered but previously approved by the Council (\$2,845), that balance has already lapsed. It appears to me that Trustee Council policy and procedures do allow for the payment of an invoice received after the close-out and lapse period such as this, but require Council approval for the transaction. Since payment of this invoice still keeps the total expenditure for the project within the amount previously approved by the Council and noticed to the court, and sufficient funds exist in the GeFONSI account lapse balance, no additional transfer of funds or court notice should be necessary. I believe that the Council need only approve payment of the balance of the invoice from the GeFONSI lapse balance.

Thank you for your assistance with this matter. I am hopeful that this can be added to the agenda for the Council meeting of February 4 and will be available to speak to the issue if needed.

Defer Science Plan

Exxon Valdez Oil Spill Trustee Council

441 W. 5th Ave., Suite 500 • Anchorage, Alaska 99501-2340 • 907/278-8012 • fax 907/276-7178



MEMORANDUM

TO: Trustee Council

DATE: January 19, 2005

FROM: Gail Phillips

Executive Director

RE: Deferral of Science Plan

In 2004, the Council proposed multi-year funding for a number of GEM-related projects. During this time frame (2004-2007), it was expected that the GEM Science Plan would be updated and the process of building and changing the Science Plan would be deliberate and carefully accomplished.

The Council has also determined, over the next eighteen months, the need to realign priorities and restorative activities, placing focus on critical work required to reach closure in areas of restoration related to lingering oil and injured species and resources. Once the outcome of these prioritized studies is determined, the Council will be better prepared to fully meet the goals outlined in the 1994 Restoration Plan inclusive of the long-term requirements of the Gulf Ecosystem Monitoring Program (GEM).

In order to accommodate the timeline for this reevaluation and provide further baseline information for the continuance of research as well as restoration needs, it appears that it would be appropriate to defer the work on the Science Plan until the lingering oil projects and the Spies synthesis book are available for review. With the information gained from the projects underway and the additional lingering oil projects, it will be much easier to identify the needed changes and updates required for the Science Plan.

We briefly discussed this the last time we met and I am now making the recommendation for action. The motion will read:

**DEFER CHANGES AND REVISIONS TO THE FY 06 SCIENCE PLAN
UNTIL FY 07 IN ORDER TO REEVALUATE THE STATUS OF THE
INJURED RESOURCES AND SERVICES AND COMPLETE ADDITIONAL
LINGERING OIL STUDIES.**

Konar Project



Gail Phillips

From: Brett [brett_huber@fishgame.state.ak.us]
Sent: Wednesday, February 02, 2005 3:59 PM
To: gail_phillips@evostc.state.ak.us
Cc: doug_mecum@fishgame.state.ak.us; gregg_renkes@law.state.ak.us; "Kurt Fredriksson"
Subject: konar project funds

Hi Gail:

A little while back you asked me to forward you my recommendation for funding of the "late" FY05 Konar Project proposal. As you know, this proposal came in out of cycle at the request of the EVOS Science staff so did not go through the review process with other 05 projects but was instead sent to the STAC and PAC following the discussion at the last TC meeting. As the Project Manager for this UAF project, it was not clear to me why this proposal came in or what was different in the 05 proposal from the deliverables outlined in their 04 project (previously funded and by all accounts up to then proceeding on schedule). In order to run this issue to ground I went to Fairbanks and visited with the PIs where I learned of the need for additional support to finish the analysis of the invertebrate specimens gathered under the project in 03 and 04. While it is the intent of the PIs to complete this project either with or without additional support, they would not complete the invertebrate analysis or include it in their final report.

Therefore I have recommended to the state trustees that they consider adopting option two from your January 19th memo amended to exclude the travel costs (the trips have already occurred). This would require funding approval in the amount of \$17,712.50 (14,345 for the tech, 3,585 in UAF F&A and 1,614 in ADFG GA) I have also conveyed this recommendation to the federal trustees through their agency liaisons.

I have spoken with the project PIs, and they are comfortable with this level of support and are confident that they, with this additional help, can finish the project inclusive of the algal and invert analysis.

Brett

Brett W. Huber, Sr.
EVOS Restoration Program Coordinator
Alaska Department of Fish and Game
555 Cordova St., #602
Anchorage, AK 99501
(907) 269-5028 phone
(907) 269-7600 fax
(907) 252-9358 cell

Exxon Valdez Oil Spill Trustee Council

441 W. 5th Ave., Suite 500 • Anchorage, Alaska 99501-2340 • 907/278-8012 • fax 907/276-7178



MEMORANDUM

TO: Trustee Council

DATE: January 19, 2005

FROM: Gail Phillips
Executive Director

RE: Konar Proposal

SUBJECT: Approval of "Alaska Natural Geography in Shore Areas: Completion of the Biodiversity Census" (Konar Proposal)

This project was presented to the Trustee Council at the December 10th meeting. Because of questions regarding the project, the Council requested that this proposal be sent out to the PAC and STAC for further review and brought back for consideration at the February meeting.

Science Director Mundy described this project as follows: "The purpose of this project is to allow us to get additional information on species composition and relative abundance of nearshore organisms by providing the principal investigator and technician time for working up samples. We will receive a report from Konar and Iken covering their work in FY 2003-2004 even if this project is not funded; however I invited the PIs to solicit additional funding so that they can wring the maximum information from the samples. This project represents the only recent survey of intertidal and near subtidal resources in the oil spill affected areas and both of these communities are currently listed as injured resources by the Trustee Council, so my purpose in asking for this proposal was to have the additional information to aid revision of the injured resources list in FY 2006.

STAC member Ron O'Dor and PAC member John Gerster responded to our request for review and input on this project. Both of their recommendations are attached. No other comments were received; however, Brett Huber from Fish & Game traveled to Fairbanks to meet with Dr. Konar and will be sending a report of his visit.

You have several alternatives to consider:

1. Fund the entire \$49,758 which includes UAF's overhead (F&A), for the PI and technician. A technician is needed to complete the sorting of the 2004 samples and the enumeration of the individuals they contain after they have been identified by taxonomists. The technician will have a background in invertebrate zoology.

2. Fund \$21,000 for the cost of the technician and travel costs. This also includes the University's overhead costs (F&A).
3. Fund \$37,312 for the work done by the PI, the technician and travel costs only. This does not include money for University overhead.
4. Do not fund.

You have stated your desire to establish baseline data that can be used in years to come. It would appear that the additional funding for this project will do just that, plus it enhances the value of work that we have already paid for. This project will also provide additional information to aid revision of the injured resources list in FY 2006.

I find John Gerster's comment about not paying the University's overhead when he was on the Alaska Science and Technology Foundation board interesting and I would tend to agree with this practice.

Therefore, my recommendation would be option #3: fund the project for \$37,312 to cover the work by both the PIs and the technician.

Attachments

By: Ron O'Dor, STAC

I reviewed the full Konar proposal earlier and rated it very highly as a potential low cost means of repeated monitoring for biodiversity change in the nearshore. This potential arises from having a well analyzed set of samples with a broad spectrum of organisms, collected with a standardized, easily repeated protocol. The most efficient approach for the future will be to analyze repeat sampling using the DNA technologies currently being developed under the Barcode of Life. This sample set is not only the only recent nearshore sampling done in the EVOS region, it is the only sampling done with protocols specifically designed to allow these DNA approaches, so it really is uniquely valuable to have it fully worked up.

The COML NaGISA project around the world are collecting comparable samples using the same protocols and recording the data in a uniform database, so there will important economies of scale once this phase of the project is complete. There is no real loss from delaying repeat sampling (except for not having a demonstration of trends or the reduced protocols developed specifically in response to the Bodkin and Dean Report), but the importance of having initial sampling done was demonstrated recently in Thailand. NaGISA sample had been taken there before the tsunami, so beginning in February, there is already a plan to repeat the protocols to assess the damage and follow the recovery. I would have thought that Alaska, with its history of tsunamis and oil spill would be very aware of the urgency of setting baselines before the next catastrophe happens.

I think this proposal is an even higher priority than the earlier one and that it dramatically reduce the value of the work already paid for if there is not funding for this follow up.

Cherri Womac

From: jgerster@alaska.net
Sent: Wednesday, December 15, 2004 11:39 PM
To: richard_dworsky@evostc.state.ak.us
Subject: Re: Extended Konar Project

Richard:

I support this project. I read through it, and, it looks like a good use of data, and, the PI's are qualified. However, when I was on the Board of the Alaska Science & Technology Foundation, we flatly refused to pay the 25% 'overhead' "F&A" to UAF for grants. I suggest we do the same. The technical proposal looks good to fund.

jg

From: Dr. John Gerster <jgerster@alaska.net>
EVOS Public Advisory Board
North Pacific Research Board
(907) 770-6070 Fax: (907) 770-6650

Cherri Womac

From: Gail Phillips
Sent: Thursday, January 20, 2005 2:47 PM
To: 'richard_dworsky@evostc.state.ak.us'; Cherri Womac
Subject: FW: Extended Knoar Project

Please attach Brenda's message also to the Konar proposal in the packet. Thanks, Gail

-----Original Message-----

From: Brenda L. Norcross [mailto:norcross@ims.uaf.edu]
Sent: Thursday, January 20, 2005 2:12 PM
To: richard_dworsky@evostc.state.ak.us; Torie Baker; Bob Patterson; Charles P. (Chuck) Meacham; Douglas L. (Doug) Mutter; Ed Zeine; Edward Page; Gary Fandrei; Jason Brune; John Gerster; Larry Evanoff; Lisa Ka'aihue; Martin Robards; Mead Treadwell; Pat Norman; Patrick Lavin; Randy Hagenstein; Stacy Studebaker; Ron Peck; Andy Teuber, Jr.; Robert J. Kopchak; Thomas C. Royer; Charlie Miller; Leslie Holland-Bartels PhD; Phil Mundy; Ronald O'Dor; Stephen R Braund
Cc: Tony DeGange; Brett Huber; Carol Fries; Dede Bohn; Doug Mecum; Kurt Fredriksson; Larry Dietrick; Peter Hagen; Ron Klein; Steve Zemke; michael_baffrey@ios.doi.gov; cam_toohey@ios.doi.gov; Carrie Holba; Rob Bochenek; Brenda Ramos; Cherri Womac; Elizabeth Goodrich; Gail Phillips; Michael Schlei; Paula Banks; Richard Dworsky
Subject: Re: Extended Knoar Project

Richard-

Not sure if I replied to this. I have reviewed this proposal and definitely think it is in the best interest of EVOS to fund this. The PIs encountered more diversity than they expected, thus the need for more sorting time in the lab, and hence more funds. It is exciting that they found so much. This is a critical piece of science for PWS, and for EVOS.

Brenda Norcross

**Investment Fees
Amendment**

Exxon Valdez Oil Spill Trustee Council

441 W. 5th Ave., Suite 500 • Anchorage, Alaska 99501-2340 • 907/278-8012 • fax 907/276-7178



MEMORANDUM

TO: Trustee Council

DATE: January 21, 2005

FROM: Gail Phillips
Executive Director

RE: Recommendation to
Change Investment Fees

In December, we received notification from the Department of Revenue (the manager of our investment accounts) that they were going to need to adjust and raise the investment management and accounting fees they are currently charging EVOSTC.

We asked Betty Martin from Revenue if this could wait to be addressed at your February meeting, and she confirmed that this would be fine.

Paula Banks has prepared an extensive explanation (attached) as to the make-up of fees, the history of our management fees and the comparison of our maintaining our relationship with the Department of Revenue rather than going to an outside vendor for the management of our accounts.

I asked Gary Bader, the Chair of our Investment Working Group committee, for his input on Revenue's request, and his response is also attached.

Based upon the professional service we receive from the Department of Revenue and the certainty of major increase in fees if we were to utilize outside services, I would recommend that the Trustee Council approve changing the current policy regarding our investment management fees to combine the custody and internal fees to a flat fee of 6 basis points.

Attachment: Paula Bank's Memo re Investment Fund Fees – Revised
E-mail correspondence with Betty Martin, Department of Revenue
E-mail correspondence with Gary Bader, IWG Chair

Exxon Valdez Oil Spill Trustee Council

441 W. 5th Ave., Suite 500 • Anchorage, Alaska 99501-2340 • 907/278-8012 • fax 907/276-7178



MEMORANDUM

TO: Trustee Council

THRU: Gail Phillips *Gail*
Executive Director

FROM: Paula Banks
Administrative Manager

RE: Investment Fund Fees - **REVISED**

DATE: January 20, 2005

Background

At the July 5, 2000 meeting, the Trustee Council approved the "Resolution of the Exxon Valdez Oil Spill Trustee Council Pertaining to the Transfer of the Joint Trust Funds and Fees on the Investment Fund". In this resolution fixed flat fees and specific fee rates (basis points) per service or per type of asset class were detailed. In August of 2002, the Trustee Council approved a motion that superseded the July 2000 resolution. This motion allowed for a variable rate which is based upon the total amount the Alaska Division of Treasury has invested in each asset class, resulting in a fee fluctuation.

Since the approval of the 2002 motion we have learned that Treasury has reviewed its cost allocation plan and has determined that they were inconsistent in the way they were allocating personal services and custody costs. Their previous methodology, which charged funds as a percentage of personal services and a partial fixed and variable custody fee, was resulting in the smaller funds paying a very high fee relative to mid-size and larger funds. The smallest funds paid over 60 basis points while funds such as EVOS were paying disproportionately lower fees (under 3 basis points). To correct this imbalance, Treasury has adopted a fee methodology that is based upon the size of the assets managed.

Issue

The Custody and internal management fees that EVOS have been paying are exceptionally low. The new combined fee of 6 basis points is still lower than anything the private sector would offer. For an example the Alaska State Pension Investment

Board has a billion dollar account with an external fixed income manager and the fee is over 10 basis points. EVOS wouldn't get anything close to that as their account size is significantly lower. The Bond Bank has about \$20 million with an external manager and they pay them 25 basis points. It is difficult to make a comparison with the Court Registry Investment System (CRIS) fees, because they were based on 10% (1000 basis points) of the interest earned, rather than the fund balance; the total fee for FY 05 using the CRIS fee rate, would be approximately \$1.4 million verses the existing and proposed rate which would be \$175,400.

The new scale is : Very large funds with billion dollar balances are charged 3.75 basis points (.0375%), funds over 10 million (but under a billion) are charged 6 basis points (.06%)(EVOS fund category); and funds under 10 million are charged 35 basis points (.35%). These charges cover internal investment management, accounting, custody, and all overhead costs of the division including travel to board meetings, etc. They do not cover any charges for external investment management. If EVOS chooses to put part of their assets into the Russell 2000 and or the International equity fund, then those fees would be over and above Treasury's fee.

Based upon the above and using the 6/30/04 market values (projected to grow at median rates of return through 6/05), EVOS' total estimated FY 05 fees would be \$175,400 broken down as follows:

- Treasury costs at 6 basis points equal \$104,000 (This is a cap for the year. If the asset significantly decreases they will adjust the fee down accordingly)
- Russell 3000 (domestic equity) fees are estimated at \$10,500 (This will be billed based at the actual current contract amount of 1.4 basis points. It assumes assets grow over the year at median expect returns. Significant performance differences would affect this amount.); and
- International equity fees are estimated at \$60,900 (This will be billed based on actuals at the current contract amount of 17.5 basis points. It assumes assets grow over the year at median expect returns. Significant performance differences would affect this amount.)

Total estimated FY 05 Fees would be \$175,400.

The Alaska Division of Treasury negotiates the management fee contracts for the Alaska State Pension Investment Board (ASPIB). The Council's Investment Fund "piggybacks" on these fee contracts, especially for the International and Domestic Equity pools of the Investment Fund. This fee increase combines the custody and internal fees totaling a flat fee of 6 basis points. The current custody fee rate is based on 1 basis points .01%, and the internal fees are calculated based on .05% of Treasury's personnel costs. The new fee rate is commensurate with the size of the EVOS fund, and the methodology to calculate the fee range is more consistent with the

other funds Treasury manages. Although Treasury will implement these changes regardless of Trustee Council action, Trustee Council approval is required in order to comply with EVOS's Investment fee policies. If the Council chooses not to approve the fee increase it will require the EVOS funds be managed outside the Treasury's custody, resulting in substantially higher fees.

Recommendation

Recommend that the Trustee Council approve changing the current policy on Investment management fees to combine the custody and internal fees to a flat fee of 6 basis points.

Cherri Womac

From: Gail Phillips
Sent: Friday, January 21, 2005 10:35 AM
To: Cherri Womac
Subject: FW: EVOS billings for FY05

Attachment to be included in TC packet - under the tab for In Investment Fees Revision (memo from Paula). Thanks, Gail

-----Original Message-----

From: Betty Martin [mailto:betty_martin@revenue.state.ak.us]
Sent: Wednesday, December 15, 2004 8:28 AM
To: Paula Banks
Cc: Gail Phillips
Subject: Re: EVOS billings for FY05

Yes, it can wait until February. We'll just bill the first quarter on the existing rates.

The domestic and international fees have not changed. The 1.4 is still a max and the 25 is still a max on international.

The problem we are trying to correct is that EVOS and 2 or 3 other funds have been getting a disproportionally low rate for everything else. It has amounted to less than 3 basis points while the GF/CBRF pay close to 4 basis points and some of the smaller funds pay almost 60 basis points. After allocating our costs, the fees on a basis point level should drop according to the size of the fund. Under the new policy, GF/CBRF is about 3.75%, the next tier which includes EVOS is 6 basis points and the final tier for funds under \$10 million is 35 basis points.

The fee you have been paying has been exceptional. The 6 is lower than anything the private sector would offer. ASPIB has a billion dollar account with an external fixed income manager and the fee is over 10 basis points. Obviously EVOS would get anything close to that as their account size is significantly lower. The Bond Bank has about \$20 million with an external manager and they pay them 25 basis points.

I'll put together a memo. We'll bill under the existing fee for September and December. We can make the new schedule effective January 1 (retro after the board approves) so it will just effect quarters ending March and on. If it works for you I will process an RSA for just the 1st 6 months under the existing fee scenario.

Thanks,
Betty

Paula Banks wrote:

>Betty,

>
>What happened to the deal where our funds are commingled with the
>general fund in order to take advantage of the lower rates? This is a
>substantial increase over FY 04. According to EVOS policy, if the fees
>exceeds 150,000.00 TC approval of the fees is required. The current
>fee formula was adopted by the council in August of 2002 (See the
>attached), and if changed a new fee formula would have to be adopted
>and would require a unanimous vote.

>If I am reading this right there is a fee increase on the Domestic to
>1.4, however in the contract the BP was only to reach 1.4 if the other
>participants were to exit this fund class.

>
>The international fees are with in the 15-25 bp range (no change).
>
>Is the Treasury costs BP of 6 a combination of the custody fee and the
>internal fee? Which is currently 1BP Custody and .5BP Internal fee, is
>so this reflects an increase of 4.5BP. Am I reading this right?
>
>We will likely need to go to the council to adopt a new fee schedule.
>A Memo (like the one attached) will need to be drafted for the Council
>to approve. They are not scheduled to meet until February. Does this
>need to be in place prior to February?
>
>
>Paula
>
>-----Original Message-----
>From: Betty Martin [mailto:betty_martin@revenue.state.ak.us]
>Sent: Tuesday, December 14, 2004 11:20 AM
>To: Paula Banks
>Subject: EVOS billings for FY05
>
>
>Paula:
>
>Are you going to have a white Christmas? All it has done is rain, rain,
>rain here. It is so depressing!
>
>Quite a while I ago I mentioned that Treasury was reviewing its cost
>allocation plan. We determined that we were being inconsistent in the
>way we were allocating personal services and custody costs. The
>methodology we were using (That is a percent of personal services and a
>partial fixed and variable custody fee) was resulting in the smaller
>funds paying very high fees when looked at on a basis point level - some
>up to 60 basis points. Bigger funds such as EVOS were paying
>disproportional fees - under 3 basis points.
>
>We have come up with a more balanced approach that mirrors the way fees
>are charged by the industry. That is, funds are charged based on their
>size. The new scale is this:
>
>Very large funds (like the general fund and the CBRF) with billion \$
>balances are charged 3.75 basis points (.0375%)
>Funds over \$10 million (but under a billion) are charged 6 basis points
>(.06%)
>Funds under \$10 million are charged 35 basis points (.35%)
>
>These charges cover investment and accounting, custody, all overhead
>costs of the division, any travel to board meetings, etc. They do not
>cover any charges for external investment management. So if a fund (such
>as EVOS) has an asset allocation that puts part of their assets into the
>Russell 2000 and or the International equity fund, than those fees are
>over and above Treasury's fee.
>
>Based upon the above (and using the 6/30/04 market values projected to
>grow at median rates of return through 6/05), EVOS' FY05 fees will be:
>
>Treasury costs at 6 basis points = \$104,000 (This is a cap for the
>year.
>If your assets significantly decrease we will adjust down accordingly)
>Russell 3000 (domestic equity) = \$10,500 (This will be billed based on
>actuals at the current contract amount of 1.4 basis points. It assumes
>assets grow over the year at median expect returns. Significant
>performance differences would affect this amount.) International equity =
>\$60,900 (This will be billed based on actuals at
>the current contract amount of 17.5 basis points. It assumes assets grow
>over the year at median expect returns. Significant performance
>differences would affect this amount.)

>Total estimated FY 05 Fees = \$175,400

>

>As this is a change I'm not sure if you want or need to discuss with
>your board before we send you the first bill. Call me with questions and
>let me know when we can process the RSA and first quarter billing.

Thanks,

>Betty

>

>

>

>

>

--
Betty Martin

State Investment Officer III/Comptroller

Department of Revenue Treasury Division

Alaska State Pension Investment Board

Alaska Municipal Bond Bank Authority

Unclaimed Property

P.O. Box 110405

Juneau, AK 99801

907-465-2352

fax 907-465-2394

Cherri Womac

From: Gail Phillips
Sent: Friday, January 21, 2005 10:38 AM
To: Cherri Womac
Subject: FW: Investment management and accounting fees

Please also attach this message from Gary Bader to the memo on the Revised Investment Fees (from Paula).

To complete the material under this tab, you should include:

1. Betty Martin's original message to us
2. Gary Bader's response to my request for his comments
3. The 3-page memo from Paula outlining the request for the revision
4. My cover memo to the TC

Thanks, Gail

-----Original Message-----

From: Gary Bader [mailto:gary_bader@revenue.state.ak.us]
Sent: Tuesday, January 04, 2005 9:36 AM
To: Gail Phillips
Cc: Paula Banks; Tom Boutin
Subject: Investment management and accounting fees

Hello Gail:

You have asked for my comments concerning the email sent to you by Betty Martin related to investment management fees. I believe the fee structure Ms. Martin presented is reasonable in terms of how Treasury's allocates costs among the various investment accounts it manages. I believe it is consistent with the principles of cost allocation without being unnecessarily complex. It allows EVOS to benefit from the economies of scale available to the State of Alaska.

The fee structure is also a bargain when compared with what might be charged for similar services by the private sector both inside and outside of Alaska. Nobody likes increased fees, and I know you must question changes in the fee structure, but I feel confident that even with the increase EVOS will be paying less than half of what it would be paying for services if the Treasury were not available.

Regards, Gary

To: Gail Phillips, Executive Director
Exxon Valdez Trustee Council

From: Robert B. Spies, Ph.D.
Applied Marine Sciences

Re: Evaluation of proposals for work on the potential effects of lingering oil

As per your request, here are the reviews of two proposals for continuing research and two scopes of work for solicitations. The proposals and scopes of work that you sent out have been sent to independent scientists for evaluation. They have returned the reviews which I have used to form these recommendations

1. Expert Review—Pacific Herring Populations in Prince William Sound: As stated in the scope of work, "The Exxon Valdez Oil Spill (EVOS) Trustee Council is seeking an expert to synthesize information concerning the collapse of Pacific herring populations in Prince William Sound Alaska in possible relation to the *Exxon Valdez* oil spill and other environmental factors."

The reviewers and I found this to be a good scope of work— well thought out and comprehensive. There are only a few suggestions for change:

- A. The scope of work should include a comparative evaluation of the population dynamics of Pacific herring in Sitka Sound to those in Prince William Sound. Data from Sitka Sound are available for the post-spill years during which Prince William Sound herring were studied.
- B. The list of likely factors in the herring decline should include the roe-on-kelp fishery. This fishery involves placing herring in net pens, which crowds and stresses them, which can lead to increased disease severity by facilitating its transmission. This may be implied under the diseases header, but it deserves special mention.
- C. NOAA Fisheries in Seattle is completing a second round of Biological Opinion, addressing a surprisingly similar decline of a herring population at Cherry Point Washington. Past Biological Review Team (BRT) work included an extensive review of Pacific herring populations around the entire Pacific Rim, with a lot of data on stock behavior and genetics coming from British Columbia colleagues. That synthesis work does not need to be repeated, but it should be included as part of this project. Of special note is the format of the BRT report and how it set a perspective for looking at a local population in the context of the larger DPS (Distinct Population Segments). Primary contact is Rick Gustafson of the Northwest Fisheries Science Center, Seattle.
- D. It is strongly suggested that the result of this work be submitted to peer reviewed scientific literature in order to better establish its credibility.
- E. This is a substantial amount of work and a 1-year period is a challenge. If possible, it may be better to allow 18 months.

2. Identify and Evaluate Oil Remediation Technologies Applicable to Lingering Oil in Prince William Sound

The scope of work states "The *Exxon Valdez* Oil Spill (EVOS) Trustee Council is seeking technical support to identify and evaluate currently available oil remediation technologies that are applicable to lingering oil in Prince William Sound (PWS), Alaska."

The reviewers also found this to be a clear scope of work NS I agree with them. We have a few suggestions for revision.

It is an appropriate time to gather the potential options for further clean up, evaluate them for effectiveness, and economic and environmental costs. The public needs to know what can and cannot be done. The question is whether there is a clean up strategy that can feasibly be implemented for the 20 acres of sub-surface oil in Prince William Sound, that would be better than waiting for nature to finish the job. There are several key considerations that will go into a decision to clean up that involve balancing the amount of oil that can feasibly be removed, the damage that will occur, and the economic costs. Therefore, some sense of what is technically possible, and the costs and risks over a range of cleanup options would help greatly. I suggest that the scope of work be modified to emphasize the clarification of these tradeoffs. Waiting for natural processes to finish the job should not be eliminated as an option.

The Trustee Council may wish to consider the following additional comments:

A. Should this RFP include investigator qualifications analogous to the Pacific herring scope of work?

B. Again, a time frame of 1.5 yr would come closer to what the effort requires. This may not fit Trustee plans or the demands of public appeals for action.

3. Lingering Oil and Sea Otters: Critical Needs. This proposal is a supplementary request to the work already funded by the Trustee Council for FY05. The objectives of this proposal are three additional research components critical to interpretation of data from the overall sea otter/lingering oil research effort and continuation of monitoring of sea otter population recovery status. These objectives are: (1) re-analysis of cytochrome P4501A in archived samples, (2) DNA adduct assays on archived samples, and (3) evaluation of population status through estimation of survival rates and aerial surveys of sea otter abundance at northern Knight Island. The first objective is absolutely necessary to assure that data sets taken with two different techniques can be compared. Since the data to be compared relate directly to the recovery of sea otters from oil exposure this is extremely important work and of the highest priority. The second objective will attempt to forge a link between an indicator of exposure (P4501A induction) and its immediate negative consequences—reaction of the oil compound metabolite with the sea otter's DNA. Such work will help shed additional light on whether negative trends in sea otter

populations in the heaviest oiled area in PWS may be linked to oil exposure. This work should be pursued in order to clarify the recovery of sea otters from oil exposure and its consequences. The third objective of sea otter population surveys will help determine the population trend of sea otters in the oiled area. Since cessation of oil exposure is likely not the same as population recovery, an understanding of population trends in the oiled areas of Prince William Sound is. The third objective is therefore also quite important.

In summary, the reviewers and I found that all the objectives are appropriate and recommend that the supplementary request be funded.

4. Quantifying Temporal Variation in Harlequin Duck Exposure to Exxon Valdez Oil .

The objective of this work is to "Concurrently analyze all contemporary and archived harlequin duck liver samples using EROD activity to provide P450 data that can be confidently compared within and between years."

This is a very straightforward proposal for re-analysis of harlequin duck tissues for the oil exposure indicator EROD activity. EROD activity is catalyzed by the enzyme P4501A. This enzyme is induced by contaminants such as those found in oil. Previous analyses have shown significant variations in EROD activity in the control or comparison samples from year to year. The requested funds would fund reanalysis of all of the previous samples so that comparisons between years will be valid. This is very necessary work to determine if the apparent recovery of harlequin ducks to oil exposure has in fact occurred. The reviewers supported funding of this proposal.

If you have any further questions I would be happy to answer them. I will be available by phone on February 5th for the Trustee Council Meeting.

Cc: Craig Tillery

Scope of Work

Expert Review—Pacific Herring Populations in Prince William Sound

The Exxon Valdez Oil Spill (EVOS) Trustee Council is seeking an expert to synthesize information concerning the collapse of Pacific herring populations in Prince William Sound Alaska in possible relation to the Exxon Valdez oil spill and other environmental factors. Qualified scientists should hold a Ph.D. in fisheries science or a related discipline; have achieved eminent scientist status; and have published widely in at least several of the following fields of study with additional collaborative experience in others:

- Population biology and ecology
- Fishery and conservation biology
- Ecosystem management and modeling
- Fish genetics – Genomics
- Toxicology – Oil and related substances
- Pathobiology – Viral hemorrhagic septicemia virus in wild populations.

Additional background information and the anticipated scope of work are provided below for this project.

Background Information

Within a week of the Exxon Valdez oil spill (EVOS) in March 1989, Pacific herring (*Clupea pallasii*) and eggs deposited on beaches were exposed to the spreading oil slick in open water and along the shoreline of Prince William Sound (PWS). Although egg mortality and larval deformities were documented, the population level effects of these injuries were not clearly established. However, in 1993, the Pacific herring population in Prince William Sound declined dramatically. The EVOS was identified as one possible causative agent partly responsible for this dramatic decline.

Based on this unprecedented decline, and the possible relationship between this decline and Exxon Valdez oil, the EVOS Trustee Council established a recovery objective and defined a restoration strategy for Pacific herring in PWS. The recovery objective is presently defined as recruitment of a highly successful year class into the population that is concurrent with population health indicators (e.g., biomass, size-at-age, and disease expression) that are within normal bounds in PWS. Research into the cause(s) of the Pacific herring decline, monitoring, and habitat protection were adopted as the restoration strategies that would be implemented to meet the recovery objective. Based

upon its most recent assessment in 2002, the Trustee Council has classified Pacific herring as a "not recovering" injured resource, meaning that Pacific herring in PWS are showing little or no clear improvement since spill injuries occurred.

Pursuant to the recovery objective and restoration strategy, the EVOS Trustee Council has sponsored 18 monitoring and research projects of Pacific herring populations in PWS. These studies range from investigations of thresholds of developmental toxicity in Pacific herring eggs and embryos to regional assessments of the genetic composition of Pacific herring stocks in the Gulf of Alaska.

The Trustee Council is seeking an independent evaluation of this information to assess the recovery status of Pacific herring in PWS in relation to EVOS and other possible causative factors.

Scope of Work and Project Duration

Activities and deliverables for this project include the following:

- Review pertinent research and monitoring reports generated by the EVOS Trustee Council
- Review additional research and background information sponsored by other institutions or investigators that is pertinent to understanding of the Prince William Sound Pacific herring population. This should include a comparative evaluation of the population dynamics of Pacific herring in Sitka Sound to those in Prince William Sound. Data from Sitka Sound are available for the post-spill years during which Prince William Sound herring were studied. The synthesis work performed by NOAA's Northwest Fisheries Science Center in Seattle regarding a similar decline in herring at Cherry Point, WA, should also be reviewed and cited.¹
- Perform a critical evaluation of all possible direct and indirect causative factors responsible for the initial 1993 decline and the continuing reduced recruitment observed since 1988. Causative factors include but are not limited to the EVOS, viral and other diseases/infections, reduced food supply, the roe-on-kelp fishery², and increased competition for food. This evaluation will culminate with an understanding of the contributing role of the EVOS relative to other possible causative factors responsible for the current "not recovering" status of Pacific herring. This evaluation will be presented in a technical report that additionally

¹ Contact Rick Gustafson of the Northwest Fisheries Science Center for details. Past Biological Review Team (BRT) work included an extensive review of Pacific herring populations around the entire Pacific Rim, with much of the data on stock behavior and genetics coming from British Columbia colleagues. Of special note is the format of the BRT report and how it set a perspective for looking at a local population in the context of the larger Distinct Population Segments.

² The roe-on-kelp fishery involves placing herring in net pens, which crowds and stresses them, which can lead to increased disease severity by facilitating its transmission.

provides an assessment of the recovery status of Pacific herring in PWS in relation to EVOS and other possible causative factors.

- Attend meetings with the Alaska Department of Law and the EVOS Trustee Council to discuss progress and present findings
- Present the findings of the report to technical and lay audiences
- Publish the results of this review effort in peer-reviewed scientific literature
- Prepare fact sheets and other summary materials for distribution to the public and other stakeholders.

The duration of the project is approximately one year commencing in March 2005.

Scope of Work

Identify and Evaluate Oil Remediation Technologies Applicable to Lingering Oil in Prince William Sound

The Exxon Valdez Oil Spill (EVOS) Trustee Council is seeking technical support to identify and evaluate currently available oil remediation technologies that are applicable to lingering oil in Prince William Sound (PWS), Alaska. Qualified individuals should have broad knowledge of oil remediation technologies and their applicability to shoreline environments, including recent developments, promising technologies, and potential adverse environmental effects.

Additional background information and the anticipated scope of work are provided below for this project.

Background Information

Based on NOAA's most recent published findings, approximately 28 acres (approximately 56 tons) of lingering oil is estimated to persist in intertidal sediments of beaches in PWS (Short et al. 2004). Although this is a small fraction of the total area oiled in 1989, it nevertheless remains a potential concern for ongoing exposure to resources that have not recovered from injury caused by the initial spill.

Based on the work of Short et al. (2004), Page et al. (2002) and others (e.g., Michel and Hayes 1999, Hayes and Michel 1999) lingering oil in surface sediments occurs primarily in the form of highly weathered, solid asphalt-like material sporadically present in the upper-intertidal of sheltered areas. This form of oil is not the target for potential remedial efforts. In contrast, Exxon Valdez oil (EVO) oil that penetrated the intertidal matrix of cobbles, gravel, and finer sediments to subsurface depths is less susceptible to weathering processes and is generally more persistent. In addition, unlike surface EVO, subsurface EVO was not directly subjected to sustained cleanup efforts performed by Exxon. This form of oil is considered more bioavailable than surface weathered oil, and where accessible, has resulted in ongoing exposure to intertidal resources. This oil is the focus of potential remedial efforts. Subsurface EVO appears particularly evident in moderate to highly sheltered shorelines that were heavily oiled soon after the initial spill.

Given the recent findings on lingering oil, it is an appropriate time to identify potential options for further clean up, evaluate them for effectiveness, economic cost, environmental benefits, and environmental impacts. The fundamental question: Is there is a clean up strategy that can feasibly be implemented for the 28 acres of subsurface oil in Prince William Sound that would be better than natural recovery?

Scope of Work and Project Duration

Activities and deliverables for this project include the following:

- Communicate with knowledgeable parties and review relevant literature to identify potentially applicable and appropriate oil remedial technologies
- Identify conditions in PWS and characteristics of lingering oil that are relevant to oil remedial technologies
- Compile and characterize technologies, including methods for application and cost
- Evaluate and screen technologies for applicability to subsurface EVO and eliminate those that cannot be practically and feasibly implemented in PWS. Evaluation criteria should include effectiveness, implementability, and cost.¹
- Fully assess the costs and benefits of active remediation (e.g., removal, treatment) and natural recovery. Key considerations should include the amount of oil that can feasibly be removed, the environmental impacts and benefits of remediation, the environmental impacts and benefits of natural recovery, and costs.
- Prepare a report describing candidate oil remedial technologies and process option that are applicable to lingering oil in PWS (including natural recovery), the evaluation process, and cost-benefit considerations.
- Attend two meetings with the EVOS Trustee Council and the Alaska Department of Law to discuss progress and present preliminary findings
- Present the findings of the report to technical and lay audiences
- Prepare fact sheets and other summary materials for distribution to the public and other stakeholders.

The duration of the project is approximately one year commencing in March 2005.

References

Hayes, M.O., and J. Michel. 1999. Factors determining the long-term persistence of Exxon Valdez oil in gravel beaches. *Mar. Pollut. Bull.* (38): 92-101.

Michel, J., and M.O. Hayes. 1999. Weathering patterns of oil residue eight years after the Exxon Valdez oil spill. *Mar. Pollut. Bull.* (38): 855-863.

Page, D.S., P.D. Boehm, W.A. Stubblefield, K.R. Parker, E.S. Gilfillan, J.M. Neff, and A.W. Maki. 2002. Hydrocarbon Composition and Toxicity of Sediments Following the

¹ The evaluation process should be comparable in rigor to the evaluation of process options performed under CERCLA (EPA 1988)

Exxon Valdez Oil Spill in Prince William Sound, Alaska, USA. *Environ. Toxicol. and Chem.* 21(7):1438-1450.

Short, J., M. Lindeberg, P. Harris, J. Maselko, J. Pella, and S. Rice. 2004. Estimate of Oil Persisting on the Beaches of Prince William Sound 12 Years after the Exxon Valdez Oil Spill. *Environ. Sci. and Tech.* 38(1):19-25.

U.S. EPA. Guidance for Conducting Remedial Investigations and feasibility studies under CERCLA. EPA/540/G-89/004. OSWER Directive 9355.3-01. Office of Emergency and Remedial Response. U.S. Environmental Protection Agency. Washington D.C.

Trustee Council Use Only

Project No: _____

Date Received: _____

GEM PROPOSAL SUMMARY PAGE

Project Title: Lingerin Oil and Sea Otters: Critical Needs (amendments to project 050775)

Project Period: FY 05- FY 06

Proposer(s): Brenda E. Ballachey and James L. Bodkin, Alaska Science Center, USGS,
1011 E. Tudor Road, Anchorage, Alaska, 99503 (907) 786-3550

Study Location: Prince William Sound

Abstract: Some of the strongest evidence of continuing effects of lingering oil from the Exxon Valdez oil spill comes from long term monitoring of sea otter populations and their exposure to hydrocarbons. Population recovery remained incomplete as of 2004, and through 2003, individual sea otters continue to exhibit elevated levels of the cytochrome P4501A biomarker in areas with greatest quantities of lingering oil. Under Projects 050775 and //620, we are continuing to monitor both abundance, movements and foraging patterns, and oil exposure of sea otters in WPWS. In this proposal, we identify three additional research components that we consider critical to interpretation of data from the overall sea otter/lingering oil research effort and continuation of monitoring of sea otter population recovery status. These are: (1) reanalysis of cytochrome P4501A in archived samples, (2) DNA adduct assays on archived samples, and (3) evaluation of population status through estimation of survival rates and aerial surveys of abundance at northern Knight Island. We present these components as amendments to Project 050775.

Funding: EVOS Funding Requested: FY 05 \$ 79,800
FY 06 \$ 34,900
TOTAL\$ 114,700

Non-EVOS Funds to be Used: FY 05 \$ 13,500
FY 06 \$
TOTAL \$ 13,500

Date: 7 January, 2005

GEM PROPOSAL SIGNATURE FORM

THIS FORM MUST BE SIGNED BY THE PROPOSED PRINCIPAL INVESTIGATOR AND SUBMITTED ALONG WITH THE PROPOSAL. If the proposal has more than one investigator, this form must be signed by at least one of the investigators, and that investigator will ensure that Trustee Council requirements are followed. Proposals will not be reviewed until this signed form is received by the Trustee Council Office.

By submission of this proposal, I agree to abide by the Trustee Council's data policy (*Trustee Council/GEM Data Policy**, adopted July 9, 2002) and reporting requirements (*Procedures for the Preparation and Distribution of Reports*** , adopted July 9, 2002).

PROJECT TITLE: Lingerin Oil and Sea Otters: Critical Needs

Printed Name of PI: Brenda Ballachey

Signature of PI: _____ Date Jan. 7, 2005

Printed Name of co-PI: James Bodkin

Signature of co-PI: _____ Date Jan. 7, 2005

Printed Name of co-PI: _____

Signature of co-PI: _____ Date _____

* Available at <http://www.oilspill.state.ak.us/pdf/admin/datapolicy.pdf>

** Available at <http://www.oilspill.state.ak.us/pdf/admin/reportguidelines.pdf>

GEM RESEARCH PLAN

Lingering oil and sea otters: Critical Needs

Amendments to Project 050775

Lingering oil and sea otters: Pathways of Exposure and Recovery Status

James Bodkin and Brenda Ballachey

I. NEED FOR THE PROJECT

A. Statement of Problem

Lingering oil from the *Exxon Valdez* oil spill persists in intertidal habitats in western Prince William Sound (PWS), and is particularly evident in those bays and passages where oiling was most severe in 1989. Evidence throughout the nearshore trophic web indicates an invertebrate pathway of exposure to upper trophic levels, including sea otters and sea ducks, with chronic effects resulting in delayed ecosystem recovery (Dean et al. 2000, Trust et al. 2000, Esler et al. 2000, Fukuyama et al. 2001, Bodkin et al. 2002, Esler et al. 2002). Studies conducted in 2001-2004 (02/030585, 03/040620, 050775) have documented the extent of residual oiling throughout the western Sound and the bioavailability of the oil to predators and their prey populations. Aerial surveys of sea otter abundance through 2003 fail to demonstrate population recovery in heavily oiled areas, and through 2003, the biomarker of exposure to aromatic hydrocarbons, cytochrome P4501A (CYP1A), remains elevated among sea otters where recovery has not occurred. Radio-telemetry and time-depth recorder studies initiated in 2002 are documenting home ranges and foraging depths of sea otters in heavily oiled areas of western PWS. In summer 2005, we will recapture and resample CYP1A in sea otters instrumented with radios and TDRs over the last 2 years to recover instruments and obtain an additional measure of CYP1A (work funded under 050775). We also plan to conduct an aerial survey of sea otters in western PWS.

As we initiate our final year of work, we have identified three additional "critical" components needed to fully interpret the results gained over the last decade and assess the current recovery status of sea otters in PWS: (1) a retrospective analysis of hydrocarbon exposure in sea otters, comparing two methods for assessing the CYP1A biomarker in archived samples; (2) analysis of DNA adducts in sea otters as an alternative biomarker to measure an effect from exposure to hydrocarbons, and (3) assessing current status of sea otter populations at Knight Island through estimation of survival rates (using carcass data) and by conducting a survey of abundance at northern Knight Island. These three components are described herein.

B. Relevance to GEM Program Goals and Scientific Priorities

Recovery of the Prince William Sound ecosystem from the *Exxon Valdez* oil spill may not be considered complete until individuals are no longer exposed to spilled oil and when populations reach pre-spill levels of abundance. Sea otters have not attained these recovery goals, and exposure to lingering oil is still a concern. The proposed work will enhance our ongoing evaluation of affected sea otter populations, through continued estimates of sea otter population size in the most heavily oiled area of PWS (northern Knight Island), and through improved quantification of biomarkers of hydrocarbon exposure.

II. PROJECT DESIGN

A. Objectives

Objective 1. Conduct a retrospective analysis of relative levels of exposure of sea otters to lingering *Exxon Valdez* oil, through a comparison of past methods of measuring the cytochrome P450 1A biomarker.

Sea otters in Prince William Sound (PWS) have been sampled for the cytochrome P4501A (CYP1A) biomarker, an indicator of exposure to hydrocarbons, over multiple years (1996-98, 2001-2004, with an additional year of sampling scheduled for 2005). Quantification of CYP1A has been accomplished with two molecular methods: (1) the quantitative reverse transcriptase PCR assay, used from 1996-98 and in 2001, and (2) the real-time PCR assay, a more recently developed assay with greater precision and efficiency, used in 2002 and 2003, and planned for the 2004 samples (analyses pending) and the 2005 samples. Although the assays both use molecular PCR techniques, the measured endpoint differs, and the results are not directly comparable.

The CYP1A data from 1996-2001 demonstrated that sea otters at northern Knight Island, an area that received heavy oil in 1989, were suffering from continued hydrocarbon exposure, relative to sea otters in a nearby unoiled area. There was some indication of a decline in exposure over this period (Ballachey et al. 2001, Bodkin et al. 2002; Figure 1). In 2002, with the newer PCR method, differences between areas persisted, but by 2003, there was further suggestion that exposure in the oiled area was declining, as the difference between mean CYP1A values in the heavily oiled (N. Kni 2003) vs. unoiled (Mon 2002) areas was only marginally significant (Figure 2; USGS unpubl. data).

Although within year comparisons are all valid, to properly assess the apparent declines in CYP1A levels over the 10-year period, it is necessary to analyze a subset of archived samples by the real-time PCR assay. Subsequently, we will be able to determine the relationship between results of the two assays and compute a correction factor for the older (1996-2001) data sets so that all years of data can be directly compared. This will greatly enhance our understanding of the relative levels of oil exposure over the past decade, and allow us to quantify the decline.

Work for this component will be done at Purdue University, in the laboratory of Dr. Paul Snyder, where all previous sea otter CYP1A assays have been conducted.

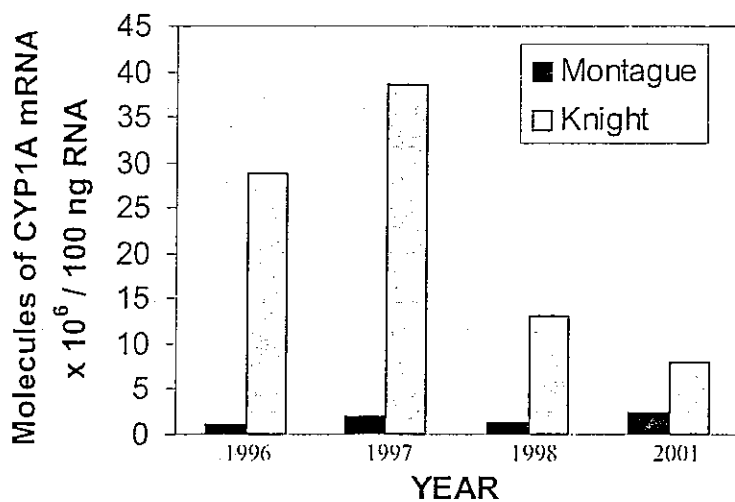


Figure 1. Cytochrome P450 values of sea otters in unoiled (Montague) and oiled (Knight) areas of Prince William Sound. CYP1A measured by reverse-transcriptase PCR and expressed as molecules of CYP1A mRNA x 10⁶ per 100 ng RNA.

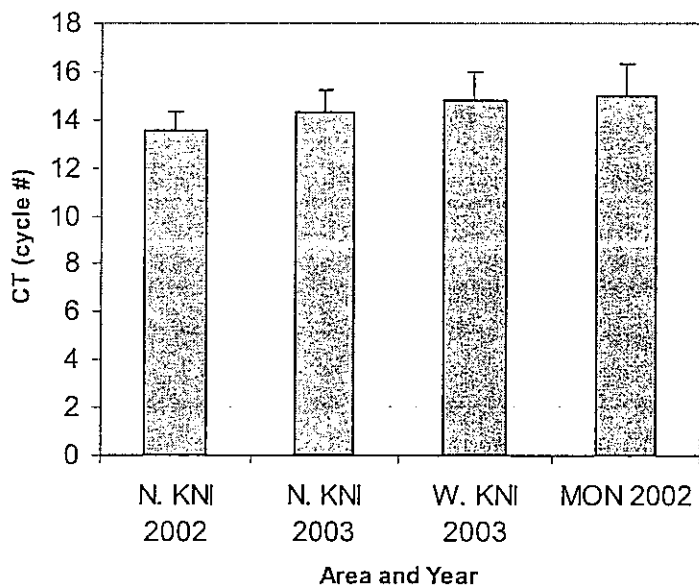


Figure 2. Cytochrome P450 values of sea otters from northern Knight (N. KNI), western Knight (W. KNI) and Montague (MON) islands. CYP1A measured by real-time PCR and expressed as cycle of threshold (CT). Note that with these results, higher CT values correspond to *lower* induction of CYP1A.

Objective 2. Measure DNA adducts in archived sea otter tissue samples as an alternative biomarker of PAH exposure.

Exposure of sea otters and other nearshore vertebrate species in western PWS was demonstrated during the 1995-99 NVP study, and in subsequent work through 2002, by induction of the CYP1A biomarker. However, although CYP1A induction clearly indicates exposure, it does not necessarily indicate a significant biological effect on the individual animals. Thus we are proposing to measure an additional biomarker, DNA adducts, that is a strong indicator of deleterious effects from hydrocarbon exposure. DNA adducts, which occur when PAH reactive metabolites bind to the DNA (thus forming "adducts"), have been demonstrated in humans and fishes exposed to occupational and environmental levels of PAH contamination (Hemminki et al. 1990, Reichert et al. 1994). These adducts can disrupt normal gene function, leading to DNA mutations and potentially, formation of tumors (Harvey, 1991; Shugart et al. 1992). Additionally, DNA adducts are indicative of relatively long-term, cumulative exposure, which is applicable to sea otters and other nearshore species in heavily oiled areas of western PWS. Quantification of DNA adducts may provide insight into a potential mechanism for the elevated mortality rates observed in sea otters and harlequin ducks from western PWS in the 1990's.

Archived sea otter blood cell samples from 1996-98 and 2001 will be the focus of the DNA adduct assays, as this is the period during which the P450 inductions showed highest PAH exposures. Work for this component will be done collaboratively with Dr. Paul Snyder at Purdue University (present location of archived samples) and Dr. William Baird, in the Environmental and Molecular Toxicology Department at Oregon State University.

Objective 3. Evaluate the population status of sea otters in the Knight Island area.

3(a). Estimate sea otter survival rates using carcass data.

3(b). Conduct surveys of sea otter abundance at northern Knight Island.

(a) Fifteen years have passed since the *Exxon Valdez* oil spill, and it is likely that very few animals alive at the time of the spill remain alive today. However, cohorts born since the spill were exposed to residual oil, with levels of exposure declining over time, based on CYP1A biomarker data (see above). Previously, we documented elevated rates of mortality in sea otters residing in oiled areas (Monson et al. 2000, Ballachey et al. 2003). One of the most biologically relevant indicators of recovery from lingering oil effects will be attaining mortality patterns in the oiled area of western PWS that are indistinguishable from pre-spill mortality rates in that area.

Prior work utilized age distributions of sea otters (*Enhydra lutris*) found dead on beaches of western PWS between 1976 and 1998 to construct a model of how sea otter mortality patterns changed following the spill (Monson et al. 2000). The results of our analysis were striking, indicating that sea otters that survived the spill later suffered reduced survival rates, with the greatest effect initially observed in the younger age classes, but increasing over time for the older cohorts. Otters born after 1989 showed less pronounced but continuing negative effects through at least 1998 (the last year for which carcass data were available at the time of the initial modeling analysis). As cohorts living at the time of the spill died out, overall mortality rates appeared to be approaching pre-spill levels. This may be consistent with the gradual declines in

average CYP1A values of sea otters in the oiled area, suggesting diminishing exposure to oil. However, through 2004, sea otter numbers continue to remain below estimated pre-spill levels at the heavily impacted northern Knight Island area.

We have collected an additional 6 years (1999-2004) of age-specific mortality information (approximately 150 carcasses) from western PWS since the original modeling analysis of mortality patterns was completed. We propose to update that analysis, and modify it specifically to determine if, or when, sea otter mortality patterns returned to pre-spill levels in the western Sound. The modeling work will be done in collaboration with Dr. Dan Doak, a population ecologist at the University of California, Santa Cruz.

(b) Estimates of sea otter population size provide perhaps our best measure of the current status of sea otter populations affected by the *Exxon Valdez* oil spill. Aerial surveys of sea otter abundance in western PWS have been conducted annually since 1993, with the exception of 2001 (Figure 3). Additionally, we have conducted annual surveys at intensive study areas at northern Knight Island (the focus of much of our sea otter research over the last decade), and at an unoiled reference area at Montague Island, since 1995 (Figure 4). The survey of overall western PWS suggests recovery of the sea otter population to pre-spill numbers (Figure 1). However, when we examine the sea otter population at northern Knight, the area most heavily impacted by oil in 1989, we find that sea otters remain well below their estimated pre-spill abundance (Figure 2), indicating that recovery in this area is not yet complete. The continuous collection of these abundance data provides an essential tool to evaluate the status of the sea otter population, particularly in conjunction with the CYP1A biomarker and carcass modeling data described above. Continued surveys likely will provide our most direct measure of population recovery.

For 2005, aerial surveys of sea otter abundance in western PWS are already scheduled as a component of Restoration Project 050775. However, 2005 surveys of the intensive study areas at northern Knight and Montague islands are not included in that project, and thus we are requesting funds to conduct the intensive surveys at Knight and Montague in 2005, concurrent with the overall western PWS aerial survey.

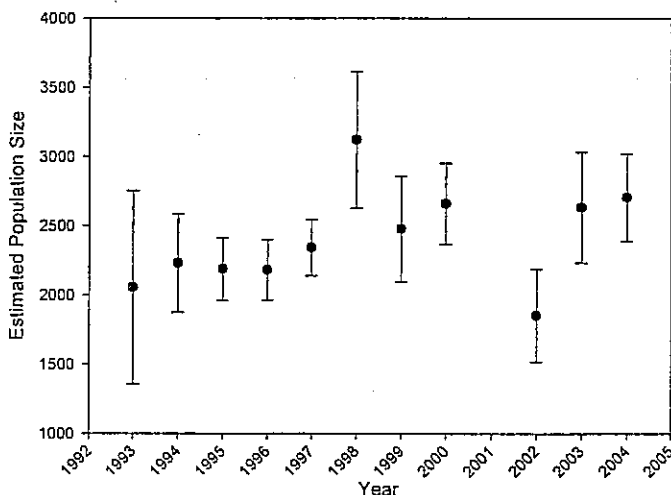


Figure 3. Sea otter population trends in western Prince William Sound, 1993-2004.

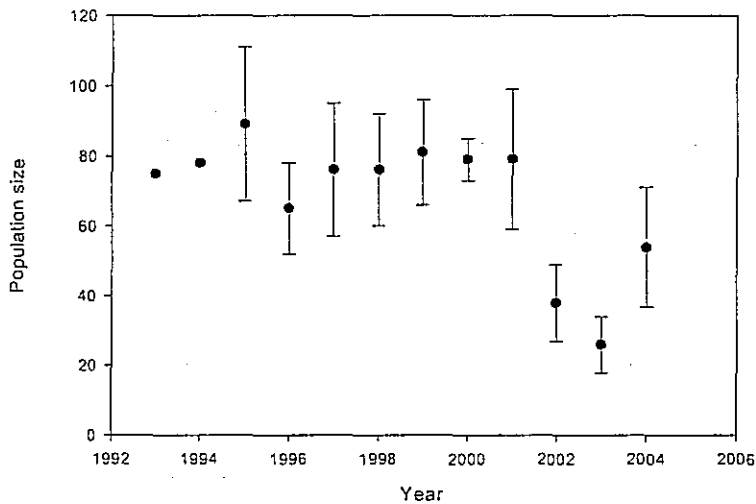


Figure 4. Sea otter population trends at heavily oiled northern Knight Island, 1993-2004.

B. Procedural and Scientific Methods

Objective 1. Reanalysis of sea otter samples for CYP1A, to compare methods.

A subset of archived peripheral blood mononuclear cell (PBMC) samples (n=40) collected during previous studies (NVP, 01423) that were previously analyzed by the reverse-transcriptase PCR technique (used on samples from 1996-2001; Ballachey et al. 2003) will be reanalyzed by the real-time PCR technique (used on samples from 2002-2004).

Objective 2. DNA adducts in archived samples.

Archived PBMC samples will be prepared at Purdue University (DNA extractions, laboratory of P. Snyder) and sent to Oregon State University (laboratory of W. Baird) for the actual DNA adduct assays, using a technique that combines ^{33}P postlabeling and HPLC (Baird 2004). With Dr. Snyder's oversight, a laboratory technician from Dr. Snyder's lab will be responsible for work at Purdue, and will travel to OSU to collaborate with personnel in the lab when the adduct assays are run.

Objective 3(a). Survival rate estimation

Carcasses have already been collected (over period from 1999 to 2004), teeth recovered and submitted for age estimates, and all age data are now in hand. We are ready to initiate the population modeling component of this objective (D. Monson of the USGS will have the lead and will coordinate with D. Doak at UC Santa Cruz; computer work will be done at UCSC).

Objective 3(b). Aerial Surveys

We will continue to use previously developed aerial survey techniques which employ standardized strip transect counts along survey lines, and intensive search units (ISU's) to estimate a correction factor for each survey (Bodkin and Udevitz 1999). We will conduct a single survey of the entire western Sound in 2005, already scheduled as part of Project 050775. During the same time period, we will also conduct replicate surveys (3-5 replications per survey) of the heavily oiled northern Knight Island study site (previously sampled in the Nearshore Vertebrate Predators project and projects 02423 and 03/040620). Results of proposed surveys provide unbiased estimates of population size and density. Proportional standard errors of past surveys in Prince William Sound range from 0.09-0.18.

C. Data Analysis and Statistical Methods

All data generated as part of this proposal will be managed and archived as outlined in the data management plan developed for Project 050775.

CYP1A data on a subset of sea otters will be obtained by both the reverse transcriptase and the real-time PCR assays. The correlation between the two methods will be determined and an adjustment factor computed and applied to existing data so that results from the two methods can be directly compared. Further analyses (2005) will be by the real-time PCR technique.

Population modeling to estimate survival rates over time will use methods similar to those in the earlier study (Monson et al. 2000).

Aerial survey data will be collected and analyzed following procedures described in detail in Bodkin and Udevitz (1999). The observer, pilot, and plane will be the same as in prior years (1994-2004).

D. Description of Study Area

Archived samples for biomarker assays (CYP1A and DNA adducts) are from the northern Knight Island area, with reference samples from Montague Island. The aerial surveys will be conducted in western Prince William Sound (project 050775) and concurrently, we will fly intensive replicate surveys at northern Knight Island.

E. Coordination and Collaboration with Other Efforts

The proposed work builds on the long history of EVOS and Department of Interior study of sea otters in Prince William Sound (Nearshore Vertebrate Predator project, Doroff et al. 1994, Ballachey et al. 1994, Bodkin et al 1999, Monson et al. 2000, Bodkin et al 2002). Prior project numbers include 99025, 02423, 02/03585, and 03/04620 and 050775 (projects //620 and //775 are still active). The scope of prior work includes annual sea otter population size estimates since 1993, estimates of reproduction, survival and mortality, diet, size and condition, and movements and home ranges. Assays of the CYP1A biomarker have been conducted since 1996 (no samples were collected in 1999 or 2000). Surveys of sea otter abundance will be plotted with historic data to evaluate progress toward a recovery endpoint defined by estimated pre-spill abundance. Determining comparability of the two methods of CYP1A biomarker assays will allow in depth evaluation of trends observed from 1996-2003, which suggest a decline in the magnitude of the difference between oiled and unoled habitats.

III. SCHEDULE

A. Project Milestones

- Objective 1. CYP1A reanalysis for methods comparison
Laboratory analyses to be completed by May 2005
Preliminary data analysis to be completed by September 1, 2005
Full analysis of data by December 31, 2005
- Objective 2. DNA adducts
Laboratory analyses to be completed by May 2005
Preliminary data analysis to be completed by September 2005
Full analysis of data by December 31, 2005
- Objective 3. (a) Surveys
Data acquisition to be completed by July 2005
Data analysis to be completed by October 2005
(b) Modeling of survival rates
Data acquisition completed
Data analysis to be completed by May 2005

B. Measurable Project Tasks

- FY 05, 2nd quarter (January 1, 2005-March 31, 2005)
Initiate analysis of survival rates and modeling work. Select archived samples for CYP1A reanalysis and DNA adduct assays.
- FY 05, 3rd quarter (April 1, 2005-June 30, 2005)
Complete modeling of survival rates. Conduct laboratory assays on archived samples.
- FY 05, 4th quarter (July 1, 2005-September 30, 2005)
Surveys at northern Knight Island. Analysis of data on archived samples. Submit annual report.
- FY 06, 1st quarter (October 1, 2004-December 31, 2004)
Continue data analysis; finalize by December 31, 2005.
- FY 06, 2nd quarter (January 1, 2006-March 30, 2006)
Prepare and submit final report to Trustee Council Office

IV. RESPONSIVENESS TO KEY TRUSTEE COUNCIL STRATEGIES

A. Community Involvement and Traditional Ecological Knowledge (TEK)

We will be available to interact with local communities in meetings to explain and discuss ongoing restoration projects (this effort coordinated with similar activities for project 050775).

Contractual arrangements have been made with Cordova Air Service (907-424-3289) in Cordova to provide aerial support for survey work.

B. Resource Management Applications

Results of the proposed work will allow managers to identify progress toward reclassification of sea otters and other nearshore resources as "recovered" from the 1989 *Exxon Valdez* oil spill.

Sea otter populations throughout the Aleutian Archipelago, the Alaska Peninsula, and as far east as Kodiak Island, have experienced declines in abundance ranging from about 50-90% since about 1985 (Estes et al. 1998). Although cause of the decline is unclear, predation is thought to be a contributing factor, at least in the Aleutians. The proposed survey efforts in western Prince William Sound will continue the longest annual sea otter population data set in Alaska and will be of benefit to the Fish and Wildlife Service, Marine Mammals Management (Rosa Meehan, 907-786-3349) who is responsible for sea otter management in Alaska.

V. PUBLICATIONS AND REPORTS

An annual progress report will be submitted to the Trustee Council in September 2005 and a final report will be submitted by 30 March 2006. The results of the biomarker studies will provide an unprecedented view of the duration and relative magnitude of exposure to a top-level nearshore predator following a large-scale oil spill. Because the persistence of *Exxon Valdez* lingering oil was unanticipated and unprecedented, the linkage between lingering oil and pathways of exposure to higher trophic levels will also provide an original contribution to the primary literature on oil spill effects.

VI. PROFESSIONAL CONFERENCES

No attendance at conferences is planned as part of the work proposed herein.

REFERENCES

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Reichert, W.L., J.E. Stein and U. Varanasi. 1994. DNA adducts in fish as molecular dosimeters of exposure to genotoxic compounds. In: Park, L.K., P. Moran, and R. S. Waples (editors). Application of DNA technology to the management of Pacific salmon: Proceedings of the workshop. U.S. Dept. Commer. NOAA Tech. Memo. NMFS-NWFSC-17, 178 p.

Shugart, L., J. Bickham, G. Jackim, G. McMahan, W. Ridley, J. Stein, and S. Steinert. 1992. DNA Alterations. Chapter 3 in Huggett, R.J., Kimerle, R.A., Mehrle, P.M. Jr., and Bergman, H.L., editors. Biomarkers: Biochemical, Physiological, and Histological Markers of Anthropogenic Stress. Lewis Publishers, Chelsea, MI.

CURRENT AND PENDING SUPPORT FORM

The following information must be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.

Investigator: J. Bodkin/B. Ballachey	Other agencies to which this proposal has been/will be submitted:
Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: The Effect of Sea Otter Foraging Behavior and Activity on Population and Habitat Assessment	
Source of Support: Alaska Science Center, USGS Total Award Amount: \$144,000 Total Award Period Covered: FY04-FY06 Location of Project: Prince William Sound, AK Months of Your Time Committed to the Project: FY 05 FY06 Sumr:	
Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: Lingering oil and sea otters: Pathways of exposure and recovery status Project # 050775	
Source of Support: EVOSTC Total Award Amount: \$126,900 Total Award Period Covered: FY05 Location of Project: PWS, AK Months of Your Time Committed to the Project: FY FY 05 FY 06 Sumr:	
Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: Lingering oil and sea otters: Pathways of exposure and recovery status Project # //0620	
Source of Support: EVOSTC Total Award Amount: \$32,700 Total Award Period Covered: FY06-07 Location of Project: PWS, AK Months of Your Time Committed to the Project: FY FY 06 Sumr:	
Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title:	
Source of Support: Total Award Amount: \$ Total Award Period Covered: Location of Project: Months of Your Time Committed to the Project: FY FY 05 FY 06 Sumr:	
*If this project has previously been funded by another entity, please list and furnish information for immediately preceding funding period.	

(USE ADDITIONAL SHEETS AS NECESSARY)



**EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
DETAILED BUDGET FORM FY 05 - FY 07**

Budget Category:	Proposed FY 05	Proposed FY 06	Proposed FY 07	TOTAL PROPOSED
Personnel	\$28.0	\$32.0	\$0.0	\$60.0
Travel	\$3.0	\$0.0	\$0.0	\$3.0
Contractual	\$42.2	\$0.0	\$0.0	\$42.2
Commodities	\$0.0	\$0.0	\$0.0	\$0.0
Equipment	\$0.0	\$0.0	\$0.0	\$0.0
Subtotal	\$73.2	\$32.0	\$0.0	\$105.2
General Administration (9% of subtotal)	\$6.6	\$2.9	\$0.0	\$9.5
Project Total	\$79.8	\$34.9	\$0.0	\$114.7

Cost-share Funds:

In this box, identify non-EVOS funds or in-kind contributions used as cost-share for the work in this proposal. List the amount of funds, the source of funds, and the purpose for which the funds will be used. Do not include funds that are not directly and specifically related to the work being proposed in this proposal.

USGS Cost-Share:

Salary: Bodkin 1.0 months FY05: \$8.8K

Equipment and facilities, FY 05 and FY06: \$5K

**FY 05-
07**

Project Number:
Project Title: Lingering oil and sea otters: Critical needs
Agency: USGS

**FORM 3A
TRUSTEE
AGENCY
SUMMARY**

Date Prepared:

**EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
DETAILED BUDGET FORM FY 05 - FY 07**

Personnel Costs:		GS/Range/ Step	Months Budgeted	Monthly Costs	Overtime	Personnel Sum
Name	Description					
D. Monson	Salary		4.0	7.0		28.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
Subtotal			4.0	7.0	0.0	
Personnel Total						\$28.0

Travel Costs:		Ticket Price	Round Trips	Total Days	Daily Per Diem	Travel Sum
Description						
Travel to CA for D. Monson, to meet with modelling team		1.0	1	10	0.1	2.0
Travel for lab technician from IN to OR (Collaborate on DNA adduct assays)		0.5	1	5	0.1	1.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
Travel Total						\$3.0

FY 05

Project Number:
Project Title: Lingering oil and sea otters: Critical needs
Agency: USGS

FORM 3B
Personnel
& Travel
DETAIL

EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
DETAILED BUDGET FORM FY 05 - FY 07

Contractual Costs:		Contractual
Description		Sum
Purdue University: reanalysis of CYP1A, archived sea otter samples (40@ \$300 each)		12.0
Purdue University: Salary support for lab technician, 1 month plus benefits		4.6
Purdue OH at 52%		8.6
Analysis of DNA adducts in archived sea otter samples (40 at \$100 each)		4.0
OSU OH at 50%		2.0
Aircraft time for surveys (50 hours @ \$220/hr)		11.0
If a component of the project will be performed under contract, the 4A and 4B forms are required.		
Contractual Total		\$42.2
Commodities Costs:		Commodities
Description		Sum
Commodities Total		\$0.0

FY 05

Project Number:
Project Title: Lingering oil and sea otters: Critical needs
Agency: USGS

FORM 3B
Contractual &
Commodities
DETAIL

FY 05

Project Number:
Project Title: Harlequin Duck P450 Reanalysis
Agency: USGS

FORM 3B
Equipment
DETAIL

[illegible]

Project Number:
Project Title: Lingering oil and sea otters: Critical needs
Agency: USGS

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[illegible]

FY 06

Project Number:
Project Title: Lingering oil and sea otters: Critical needs
Agency: USGS

FORM 3B
Contractual &
Commodities
DETAIL

[illegible]

FY 06

Project Number:
Project Title: Lingering oil and sea otters: Critical needs
Agency:

FORM 3B Equipment DETAIL

EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
DETAILED BUDGET FORM FY 05 - FY 07

[illegible]

FY 07

Project Number:
Project Title:
Agency:

FORM 3B
Personnel
& Travel
DETAIL

[illegible]

FY 07

Project Number:	
Project Title:	
Agency:	

FORM 3B
Contractual &
Commodities
DETAIL

[illegible]

FY 07

Project Number:	
Project Title:	
Agency:	

FORM 3B
Equipment
DETAIL

[illegible]

FORM 4A
Non-Trustee
SUMMARY

[illegible]

Project Number:
Project Title:
Name of Contractor:

12 of 20

[illegible]

FY 05

Project Number:	
Project Title:	
Name of Contractor:	

FORM 4B
Contractual &
Commodities
DETAIL

FY 05

Project Number:	
Project Title:	
Name of Contractor:	

FORM 4B Equipment DETAIL

[illegible]

FY 06

Project Number:	
Project Title:	
Name of Contractor:	

FORM 4B
Personnel
& Travel
DETAIL

[illegible]

FY 06

Project Number:
Project Title:
Name of Contractor:

FORM 4B
Contractual &
Commodities
DETAIL

Project Number:
Project Title:
Name of Contractor:

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[illegible]

FY 07

Project Number:
Project Title:
Name of Contractor:

FORM 4B
Personnel
& Travel
DETAIL

FY 07

Project Number:
Project Title:
Name of Contractor:

FORM 4B
Contractual &
Commodities
DETAIL

[illegible]

Project Number:
Project Title:
Name of Contractor:

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Breakdown of budget for proposal: *Lingering Oil and Sea Otters: Critical Needs*
Submitted January 7, 2005
B. Ballachey & J. Bodkin

Total proposed budget: \$114.7K
FY05: \$79.8K
FY06: \$34.9K

Component 1: Reanalysis of CYP1A in archived samples

Purdue Univ., assays of samples	\$12.0K
Purdue Univ., tech salary support	\$ 2.3K
Purdue Univ., OH at 52%	\$ 7.4K
Salary, USGS	\$16.0K
General Admin	<u>\$ 3.4K</u>
Total	\$41.1K

Component 2: DNA adducts in archived samples

Oregon State University	\$ 4.0K
Oregon State, OH at 50%	\$ 2.0K
Purdue Univ., tech salary support	\$ 2.3K
Purdue Univ., OH at 52%	\$ 1.2K
Travel, Purdue to OSU	\$ 1.0K
Salary, USGS	\$16.0K
General Admin	<u>\$ 2.4K</u>
Total	\$28.9K

Component 3a: Modeling of survival rates

Salary, USGS	\$28.0K
Travel, AK to CA	\$ 2.0K
General Admin	<u>\$ 2.7K</u>
Total	\$32.7K

Component 3b: Aerial surveys at N. Knight and Montague

Contract for flight time	\$11.0K
General Admin	<u>\$ 1.0K</u>
Total	\$12.0K

Long-term impacts of the Exxon Valdez oil spill on sea otters, assessed through age-dependent mortality patterns

Daniel H. Monson^{*†}, Daniel F. Doak[‡], Brenda E. Ballachey^{*}, Ancel Johnson^{§¶}, and James L. Bodkin^{*}

^{*}United States Geological Survey, Alaska Biological Science Center, 1011 East Tudor Road, Anchorage, AK 99503; [‡]Department of Biology, University of California, Santa Cruz, CA 95064; and [§]United States Fish and Wildlife Service, Alaska Fish and Wildlife Research Center, 1011 East Tudor Road, Anchorage, AK 99503

Communicated by Robert T. Paine, University of Washington, Seattle, WA, April 11, 2000 (received for review October 17, 1999)

We use age distributions of sea otters (*Enhydra lutris*) found dead on beaches of western Prince William Sound, Alaska, between 1976 and 1998 in conjunction with time-varying demographic models to test for lingering effects from the 1989 Exxon Valdez oil spill. Our results show that sea otters in this area had decreased survival rates in the years following the spill and that the effects of the spill on annual survival increased rather than dissipated for older animals. Otters born after the 1989 spill were affected less than those alive in March 1989, but do show continuing negative effects through 1998. Population-wide effects of the spill appear to have slowly dissipated through time, due largely to the loss of cohorts alive during the spill. Our results demonstrate that the difficult-to-detect long-term impacts of environmental disasters may still be highly significant and can be rigorously analyzed by using a combination of population data, modeling techniques, and statistical analyses.

On 24 March, 1989, the tanker vessel *Exxon Valdez* ran aground on Bligh Reef in Prince William Sound, Alaska, spilling an estimated 42 million liters of Prudhoe Bay crude oil. Sea otters, a species highly susceptible to oil-related mortality (1–5), occupied the coastal waters affected by the spill. By September 1989, nearly 1,000 dead otters had been recovered in the spill area (6), and total mortality because of the spill was undoubtedly higher (7–9). While acute, short-term effects of the *Exxon Valdez* oil spill (EVOS) on sea otters are indisputable, longer-term effects on this or other species are much more difficult to document. In this paper, we use a combination of field data, demographic modeling, and maximum likelihood analysis to show that sea otters of western Prince William Sound (WPWS) have incurred continuing, highly significant effects from the EVOS. Our goal is both to evaluate impacts on this particular population and to illustrate a method that can be adapted to improve assessment of environmental impacts on populations of long-lived species.

Several lines of evidence suggest that sea otters might have faced oil-related effects long after the spill. Acute oil exposure in sea otters resulted in lung, liver, and kidney damage (10, 11). Sea otters placed in aquaria after the spill had relatively poor survival rates, and at necropsy showed pathologies similar to those documented at the time of the spill (T. Williams, personal communication). Acute pathologies also resulted in abnormal hematological and serum chemistry values before death (12). Analogous changes in serum enzymes associated with liver damage were documented in wild sea otters from 1989 to 1992, and again, although to a much lesser extent, in 1996–1998 (13). Thus, individuals surviving initial exposure to oil but remaining in the wild are likely to have experienced sublethal pathologies similar to those seen in animals dying shortly after the spill.

Continued exposure to oil remaining in the environment may have contributed to persistent spill effects. After the spill, an estimated 40% of the oil (16 million liters) beached in WPWS (14); by 1992 an estimated 2% of the original oil remained on

beaches (14), and oil was still present in sediments on some beaches in 1997 (15). Although most remaining oil residues were deemed nontoxic by the summer of 1991 (16, 17), toxic components persist where oil is protected from weathering and may be mobilized after high-energy storms (15, 18). Thus, oiled shorelines provided a reservoir for continued contamination of adjacent intertidal areas and nearshore waters. From 1996 to 1998 wild otters in an oiled area had significantly higher induction of cytochrome P4501A (CYP1A), a bioindicator of exposure to aromatic hydrocarbons, than did otters from an unoiled area (13), indicating some level of continued exposure.

While these facts suggest the possibility of lingering spill effects, evaluating this possibility has proven difficult and costly. At the individual level, “clinically ill” individuals are not likely to survive to be sampled, fresh carcasses for postmortem examination are rarely found, and small sample sizes and high variability in data from live captures result in low statistical power. At the population level, comparisons of pre- and postspill survey data were not ideally suited to a straightforward analysis of spill effects, and have proven inconclusive (7–9, 19, 20). However, in some oiled areas otter numbers remain at about half their prespill densities (21). Prespill carcass collections were available, which may provide an index of over-winter sea otter mortality. However, weather patterns, searcher experience, effort, and timing of collections can all influence deposition and/or recovery rates independent of actual mortality rates, making a simple comparison of the number of dead otters uninformative.

In contrast, the age distribution of otters found dead each year can be used to infer mortality patterns (22). In this paper we use time-varying population models in combination with maximum likelihood methods to evaluate alternative hypotheses about changing demographic rates for otters after the EVOS. Our analyses are based on age-at-death data and estimated demographic rates (23, 24). We use a simple demographic model with time-varying, age-specific survival rates to predict the observed age distributions of dead otters recovered each year after the spill. By modifying survival rates in the model away from prespill values and evaluating the fit of different modifications, we can identify the most likely ways in which the spill has influenced the demography of the population (25).

Methods

Study Area and Data Collection. Our primary data are the ages of sea otters found dead in WPWS both before and after the 1989

Abbreviations: WPWS, western Prince William Sound; K-S, Kolmogorov–Smirnov test; AIC, Akaike information criterion; EVOS, *Exxon Valdez* oil spill; –LL, negative log-likelihood.

[†]To whom reprint requests should be addressed. E-mail: daniel.monson@usgs.gov.

[¶]Present address: 36815 Starlight Drive, Soldotna, AK 99669-8909.

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EVOS. From 1976 to 1985, the U.S. Fish and Wildlife Service systematically collected sea otter carcasses each spring from Green Island, with an additional collection in 1979 from Northwest Montague Island. From April through September 1989 and again in the summers of 1990 and 1991, spill response crews collected carcasses throughout oiled portions of WPWS. In addition, an unknown number of carcasses were recovered offshore within the oil slick during early spill response efforts (9). Systematic beach surveys at Green Island were resumed in 1990 and continued through 1998. In 1996 and 1997 opportunistic collections in the oiled northern Knight Island area increased with implementation of a new research project in this area. We systematically surveyed beaches in the larger area of oiled WPWS in 1998.

We conducted systematic beach surveys in April or May soon after snow melt, and before the regrowth of beach grasses, which can conceal carcass remains. Beaches were walked by one or two observers, searching below and up to the strand line (the area of debris deposition from the previous winter's storms). Observers recorded location, condition of carcasses, and sex if identifiable. However, sex often could not be determined, so all carcasses were combined for analysis. The skull was collected when present, and a tooth (preferentially a premolar) was removed for age analysis. Pups were identified by open skull sutures and deciduous teeth. Longitudinal sections of the tooth were decalcified for cementum annuli readings, generally providing age estimates ± 1 yr (26). Matson's Laboratory (Milltown, MT) sectioned and aged all teeth.

Sea otters collected in 1989 were judged to be either pre- or postspill deaths, based on the carcass condition at the time of recovery relative to time since the spill (27). Beginning in 1990 we used only carcasses showing signs of recent deposition (i.e., remains included cartilaginous material and located above previous year's vegetation or in the intertidal) to avoid including prespill and spill-year mortalities. Because carcass persistence is not known, this practice was continued through 1991, after which all recovered carcasses were included.

Data Analysis and Modeling. We first compared the age distributions of otters collected over different time intervals and in different areas by using Kolmogorov–Smirnov (K-S) two-sample tests (28). We used two prespill time periods (1976–1985 and 1989 prespill) and three postspill periods (1989 postspill, 1990–1991, and 1992–1998), and two areas: Green Island (the site of systematic pre- and postspill collections) and the rest of WPWS. We excluded 0-yr-olds from all analyses because carcasses of the youngest animals are relatively unlikely to persist on beaches (29).

Next we constructed demographic models with survival rates varying from prespill estimates ("baseline rates") across both ages and years. We did not alter fecundities, as independent evidence indicates no change in otter reproductive values after the spill (30, 31), and age-specific birth rates normally do not vary across populations (32–34). Each model was run for 9 yr, corresponding to the 1990–1998 postspill years. For each simulation, we compared the predicted age distributions of otters dying in each year with those actually seen in the field, and used maximum likelihood methods to determine the most likely patterns of change. This technique provides a clear way to infer changes in demography from age-at-death data by obviating the need to make assumptions such as constant vital rates or stable age distributions (22, 23).

We used a deterministic, two-sex, age-structured matrix model to simulate populations and ran the model with a large number of baseline demographic estimates and model forms to test the robustness of our results. We initialized models by using one of three sets of baseline age- and sex-specific survival estimates from smoothed maximum likelihood analyses of ages-at-death

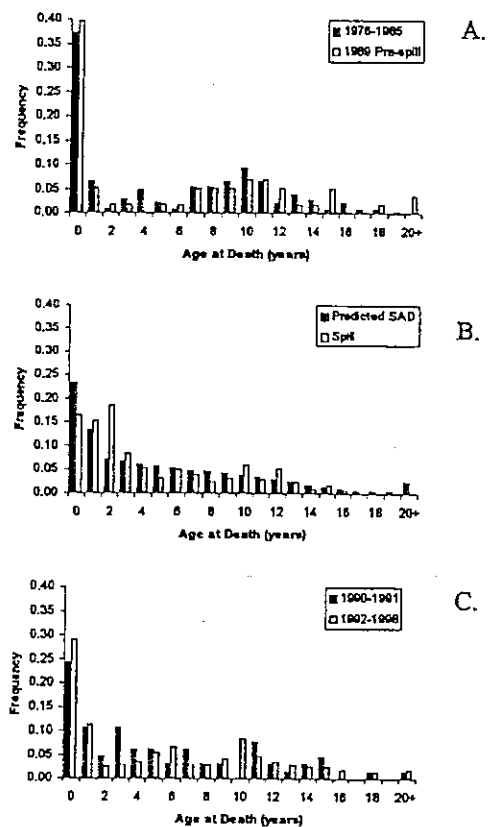


Fig. 1. Age distributions of sea otters found dead in WPWS. (A) From 1976 to 1985 and in 1989 but judged to be prespill mortalities. (B) 1989 spill-related sea otter mortalities and the predicted stable age distribution (SAD). (C) 1990–1991 and 1992–1998.

based on carcasses collected before and/or immediately after the spill (following methods in refs. 23 and 24; Fig. 1A and B) and one set of fecundity estimates from 1989 carcass data (24, 35). Although we did not formally account for uncertainty in these estimates, using three separate sets of demographic estimates does allow us to test for effects of estimation error on our results. We began different simulated populations either at the stable age and sex distribution corresponding to the baseline demographic rates used or the distribution indicated by the presumably age and sex independent mortality patterns generated by the acute effects of the spill (refs. 23 and 24; Fig. 1B).

We created three families of models with differing functions to modify survival rates across ages and years. These functions span a range of possible forms for spill effects across years and ages. First, the survival rate for each age i and sex (male or female) in each year j was estimated as the baseline rate for that sex and age multiplied by a Logit function: Modeled survival $_{i,j}$ = (baseline survival)(Logit $_{i,j}$), where Logit $_{i,j}$ = $\exp(fn_{i,j}) / (1 + \exp(fn_{i,j}))$ and $fn_{i,j} = a + b \cdot (i \text{ years since spill}) + d \cdot (\text{age } j) + e \cdot (i \text{ years since spill}) \cdot (\text{age } j)$. While baseline survival rates differed for males and females, we did not include sex as a factor in $fn_{i,j}$, assuming that the proportional deviations in survival away from sex-specific baseline values were the same for all animals of a given age.

While the Logit function allows quite complicated age and time-specific alterations in survival rates, it does not allow for survival rates higher than those estimated from before the oil spill, as might be predicted due to a release from density-dependent constraints (21). Therefore, we also used two other

functions. The first is a *Modified Logit* function, with each age, sex, and year-specific demographic rate equal to

$$\text{Modeled survival}_{i,j} = (\text{Logit}_{i,j})^{(\ln(\text{baseline rate})/\ln(1/2))}, \quad [1]$$

where $\text{Logit}_{i,j}$ is defined as above. This function allows modeled survival rates to vary between $\{0, 1\}$, both higher and lower than the baseline rate, with the modeled rate equaling the baseline when $\text{Logit}_{i,j} = 0.5$. Finally, we also used a *linear* model, with the $\text{fn}_{i,j}$ function described above:

$$\text{Modeled survival} = \begin{cases} (\text{baseline rate})(\text{fn}_{i,j}) & \text{if } 0 \leq \text{fn}_{i,j} \leq 1 \\ 0 & \text{if } 0 > \text{fn}_{i,j} \\ 1 & \text{if } \text{fn}_{i,j} > 1 \end{cases} \quad [2]$$

For each combination of baseline survival rates, functions, and initial age distributions (= 18 models) we found the best-fit values and the confidence limits for the four parameters in $\text{fn}_{i,j}$, using each of six age-at-death data sets: otters collected before the spill or otters dying after 1989 and from Green Island, the rest of WPWS, or all areas (= 54 post- and 54 pre-spill model fits). Although the model tracks male and female animals separately, most carcasses were not sexed, so we use the model to predict the relative number of animals dying in each age class each year by sex, but then lump across sexes. For each year, we calculated the likelihood of the observed age distribution of 1-yr-old and older carcasses, given this predicted frequency distribution, using multinomial probabilities (23, 25). The negative log-likelihoods (-LLs) from each year were then summed to yield a final estimate for each model (36). Relative -LL (-LL minus constant terms) values provide the means to compare models with different functional forms (using Akaike's information criterion, AIC; ref. 36) and to identify the best-fit parameter values and confidence limits on these parameters (using likelihood profiles; ref. 36). Because our models did not differ in number of free parameters, differences between twice the -LL values are equivalent to differences in AICs (with smaller AIC values reflecting greater support for a model). To find best-fit values and confidence limits, we used downhill simplex and parabolic interpolation methods (37).

After identifying the best model forms and most likely parameter values, it is important to ask whether these models generate accurate predictions of the observed carcass age distributions. To determine the goodness of fit between the predicted and observed age distributions, we conducted one-sample K-S tests for each year of age-at-death data from 1990 to 1998 for both the linear and logistic models.

Results

Observed Age Distributions of Otter Carcasses. Green Island is the only site with consistent carcass collections both before and after the spill. Green Island was also on the periphery of the spill area (potentially more influence from carcasses coming from unoiled areas) with shores ranging from unoiled to heavily oiled. Therefore, we first asked whether there is evidence of demographic differences between Green Island and the rest of WPWS. For none of the time periods did age distributions differ between the two areas (K-S, $P > 0.05$ for all time periods; $D_{0.05}$, the minimum significant difference in cumulative distributions, varied from 0.24 to 0.48). While we still perform some analyses for the Green and WPWS areas separately, these results give no reason to suspect differences in the two areas in otter demography before or after the EVOS.

Next, we asked whether age-at-death distributions differed across the five time periods, combining data from Green Island and WPWS collections ($D_{0.05}$ varied from 0.16 to 0.30 for these tests). While the 1976–1985 and 1989 pre-spill distributions did

not differ from one another (K-S, $P > 0.05$), both were significantly different from the age distributions of direct spill mortalities (post-spill 1989 carcasses) and also from the 1990–1991 distributions (Fig. 1). The 1992–1998 age distribution did not differ significantly from the pre-spill or 1990–1991 distributions, but it was different from the distribution of direct spill deaths. In general, these changes in age distributions suggest a shift in mortality patterns after the spill, with a gradual return toward the pre-spill pattern.

Modeling of Survival Changes. We first checked the reasonableness of our approach by fitting the 54 models to pre-spill carcass data. For the best-fit models of all three functional forms, the confidence values for the two parameters controlling time effects on survival (b and c) bracketed zero, indicating a lack of temporal changes in survival rates in the pre-spill years (Table 1). Since no shifts in pre-spill demography are likely, this result confirms that our approach is unlikely to give spurious predictions of change. The 95% confidence limits of the other two parameters (a and d) encompass zero, include only very small values, or are very broad, also supporting the lack of strong differences between the basic age-specific demographic rates and assumptions used in our analyses and those operating before the 1989 spill.

Next, we fit the 54 models to the post-spill carcass data. In general, the lowest -LL (and hence AIC) values resulted from models using an initial stable age distribution, our first set of baseline demographic rates (24), and the logistic or linear functional form. However, the striking result of all these analyses is the consistency of the effects across data-sets and model assumptions. The best-fit models of each form predict a complex but consistent pattern of demographic change after the EVOS (Table 1), regardless of carcass data (Green Island vs. the rest of WPWS), initial age distribution, baseline demographic estimates, or functional form. Thus, we report detailed results only from the best-fit model in each family, fit to all post-spill carcass data. While the best-fit linear and logistic models are both well supported by the data, the modified logistic is substantially less likely (Table 1); Akaike weights (38) estimate the relative likelihood of the logistic, modified logistic, and linear model forms as 0.35, 0.01, and 0.64, respectively.

The easiest way to convey the influence of the oil spill on predicted otter survivorships is as a proportion of the pre-spill survival rates for a given age in each year after the spill: values greater than 1 indicate higher survival after the spill, and values lower than 1 the converse (Fig. 2). Immediately after the spill, young animals are predicted to have suffered the greatest decrease in survivorship, but these effects dissipated rapidly with time (Fig. 2). In contrast, survival of older adults (≥ 10 yr old) was initially only slightly reduced, but this effect increased with time, with poorer and poorer performance each year after the spill for a given age group. The best-fit models predict that survival of prime reproductive age otters (e.g., age 5) was reduced by as much as 50% initially and then slowly increased to values near or above pre-spill levels by 1998 (Fig. 2). The predicted effects on the oldest animals (≥ 15 yr old) are likely to be somewhat inaccurate because of the small number of older carcasses found to fit this part of the distribution.

It is also instructive to consider how otters of a given age at the time of the spill were influenced as they aged (Fig. 3). These results suggest that young cohorts at the time of the spill (e.g., age 1) experienced substantially higher mortality rates in the first several years after the spill, but that annual survival improved (relative to pre-spill rates) as they aged. In contrast, animals in their prime reproductive years and older (i.e., ≥ 5 yr old) in 1989 have suffered strongly increasing mortality effects as time has passed. Only as these cohorts are lost from the population have demographic rates returned to normal.

While these predicted patterns of change are robust to the

Table 1. Best-fit parameter values for different models of changing otter demography fit to age distributions of sea otters found dead before or after EVOS

Model family	Relative log-likelihood	Maximum likelihood (95% confidence limits)			
		Parameter a (constant)	Parameter b (year effect)	Parameter d (age effect)	Parameter e (interaction)
Fit to prespill carcasses:					
Logistic	374.55	-47.7348 (-86.4115, 4.1017)	-0.1501 (-2.7285, 0.3162)	0.02285 (0.00545, 0.175616)	0.00097 (-0.00090, 0.00259)
Modified logistic	371.52	2.38747 (0.82337, 3.58883)	0.10258 (-0.01390, 0.24090)	-0.31686 (-0.44277, -0.17741)	0.00874 (-0.00367, 0.01995)
Linear	369.88	0.00509 (0.00509, 0.38982)	-0.00034 (-0.00034, 0.0000)	0.00018 (0.00018, 0.01785)	-0.00001 (-0.00001, 0)
Fit to postspill carcasses:					
Logistic	503.72	-0.8379 (-2.1982, 0.7026)	0.5133 (0.2035, 0.8375)	0.1798 (0.0812, 0.3179)	-0.0576 (-0.0922, -0.0259)
Modified logistic	507.55	-1.1747 (-2.2327, 0.2638)	0.5225 (0.3141, 0.7037)	0.06915 (-0.0570, 0.1842)	-0.0706 (-0.0980, -0.0436)
Linear	503.12	0.2536 (-0.0033, 0.3332)	0.1062 (0.0612, 0.1150)	0.03455 (0.0179, 0.0495)	-0.0107 (-0.0135, -0.0064)
Relative negative log-likelihood values, maximum likelihood parameter estimates, and one-dimensional 95% confidence limits are given for the best-fit model for each model family. All six best-fit models assumed an initial stable age distribution. See text for definitions of parameter effects.					

Relative negative log-likelihood values, maximum likelihood parameter estimates, and one-dimensional 95% confidence limits are given for the best-fit model for each model family. All six best-fit models assumed an initial stable age distribution. See text for definitions of parameter effects.

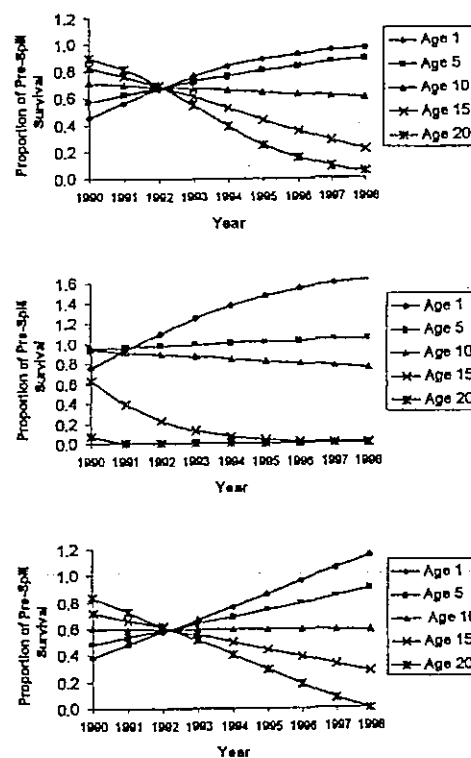


Fig. 2. Estimated postspill effects on age-specific survival rates. Estimated effects on survival rates are shown as proportions of prespill (baseline) rates for five representative ages. Shown are best-fit results for the logistic model (A), the modified logistic model (B), and the linear model (C).

range of analyses explored so far, we also ran four additional analyses to gauge their strength and accuracy. First, we added environmental variability in first-year survivorship, the demographic rate most likely to show substantial random variability (ref. 37; estimated from tagged otters in WPWS in 1990–1991; refs. 33, 34, and 39), and fit these stochastic simulations to postspill carcass data (25). The best-fit parameter values of these stochastic models are essentially identical to the deterministic results and showed similar confidence limits. Second, to ask whether spill effects on otters born after 1989 were likely, we ran models that only modified survivorships of animals that lived through the spill. These altered models resulted in substantially worse fits for all three model functions (increases in AIC = 19.62, 30.64, and 21.34 for the best-fit logistic, modified logistic, and linear models, respectively), directly supporting the conclusion that otters born after 1989 also have experienced spill effects. Third, we modified the linear model to include quadratic terms and interactions and fit a suite of these more complicated nested models. Likelihood ratio tests suggested no justification for these more complicated models, and none yielded predictions qualitatively different from those of our simpler models. Finally, although we have reliable estimates of the initial postspill age distribution (23), we also tested whether modifications of the initial population structure (e.g., from nonrandom acute spill mortality) could explain observed carcass distributions. Starting with the linear model, we added a second-order polynomial function with two fitted parameters to modify the initial age distribution to help explain the observed carcass data, barely altered model fit (change in $-LL = 0.52$). Conversely, a model allowing modification of initial age distribution but no changes in demographic rates through time fit carcass data substantially worse

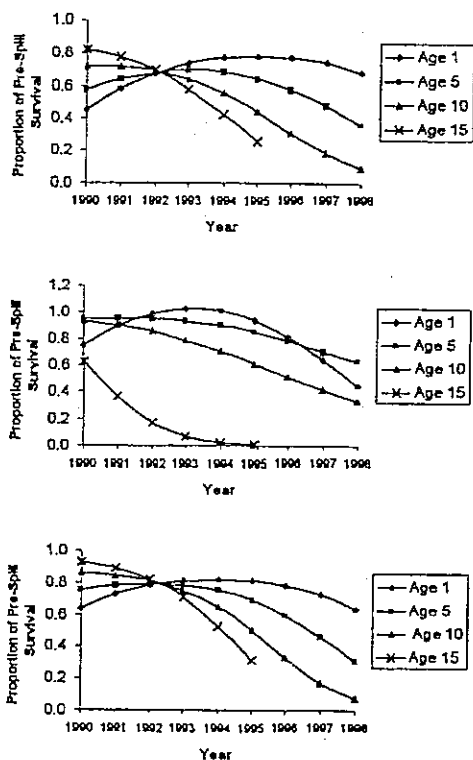


Fig. 3. Changing postspill effects for cohorts of otters. Each line represents annual survivals experienced each year for an aging group of otters that were 1, 5, 10, or 15 yr old at the time of the 1989 spill, expressed as a proportion of pre-spill survival rates. Shown are best-fit results for the logistic model (A), the modified logistic model (B), and the linear model (C).

than did the original model (change in $-LL = 32.37$). We also reran linear and logistic models, using fitted estimates of initial age distributions (controlled by a six-parameter logistic function with third-order age effects and main and interaction effects of sex) that made no use of observed age distributions. Neither model compared favorably with the originals (increases in $AIC = 2.70$ and 2.32). Moreover, these models predict the same significant patterns of change in demography after the spill and fit much more poorly if changing demography was not allowed (increases in $AIC = 8.34$ and 9.98), further showing that changes in the initial population distribution cannot explain the carcass data after the EVOS. In sum, all these tests confirm the robustness of our basic results.

Finally, we asked whether the predictions of our models accurately reflect our observed age distributions. For the linear model (the single best model) we find no significant departure in observed carcass age distributions from those predicted until the last 2 yr (K-S one-sample tests): in these years, a surplus of older otters results in a significant deviation from the age distributions predicted by either model. For the logistic model, 3 yr, including the last yr, show significantly different distributions; again, a surplus of older otters explained this mismatch in 1998. Overall, these results suggest that the best-fit models do a good job of accurately predicting otter age-at-death distributions, but that the model predictions are worst at the end of the data collection period; as we discuss below, census data of live otters suggest an explanation for this pattern.

Discussion

Our results lend strong support to the hypothesis that the EVOS has had continuing impacts on the sea otter population of WPWS. In

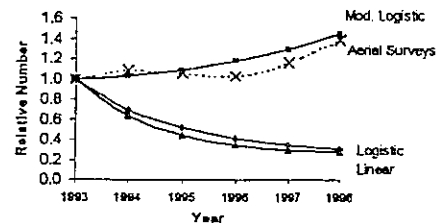


Fig. 4. Proportional changes in population size predicted from the three best-fit demographic models (Table 1) and actual trends from aerial surveys of WPWS (31).

particular, we found no evidence of improved performance for any age-class immediately after the 1989 spill due to a release from density-driven competition (a reasonable scenario if no lingering effects persisted). Rather, otters of all ages have shown elevated mortality rates in the 9 yr after the spill. These long-term effects are strongest on otters that were 4–5 yr or older during 1989, but the modeling results also suggest that at least through 1996, animals born after the spill were also affected by the events of 1989. Thus, while lingering effects of acute oil exposure may account for much of the longer-term spill effects, less direct impacts are also likely to have occurred, due either to maternal influences or to continued exposure to oil residues.

While the immediate loss of otters in the aftermath of the spill resulted in a decline in the local population (40), our results suggest that important long-term demographic changes limited recovery after 1989. In our analyses, we use one population-level effect (age distributions of dead otters) as a tool to infer individual demography. However, the resulting demographic inferences can then be used to predict changes in another population attribute, total numbers. The two best-fit models suggest continuing decline of otters through 1998, whereas the modified logistic predicts no growth until the mid-nineties, when populations are predicted to have slowly risen (Fig. 4).

Direct postspill boat surveys indicated continued declines in sea otter numbers the first year after the spill, and no subsequent increase in population size in the spill area through at least 1991 (40). In addition, low weanling survival rates were observed in WPWS after the spill (6). Although these findings are consistent with predictions of our models, early boat surveys were not sensitive to small changes in abundance, and weanling survival rates can normally be quite variable (34). We began more accurate aerial surveys in 1993, and found significant growth in the WPWS sea otter population, particularly since 1995 (31). At first glance, recent censuses of the live population appear inconsistent with the predictions of our two best models (although they match predictions of the modified logistic extremely well; Fig. 4). However, the models rely on carcass data collected only in oil-affected portions of WPWS, including some of the most heavily oiled, lowest-density sea otter habitat in WPWS. In contrast, aerial surveys include large areas of unoiled, relatively high-density otter habitat. In fact, much of the observed population growth occurred in unoiled or less affected areas, where sea otter densities can be as much as 10 times greater than in the most heavily oiled areas (21, 31). These differences, combined with the demographic results reported here, suggest that oil-affected areas may continue to represent a population “sink” that benefits from immigration from healthy segments of the greater WPWS sea otter population. Although sea otters generally occupy relatively small home ranges, longer-range movements, particularly by males and/or young animals, are common (41, 42).

Several other lines of evidence are consistent with the conclusion that sea otters have experienced significant long-term effects of the spill and that otter movements may account for

much of the apparent recovery in oiled areas. Sea otter numbers in the most heavily oiled areas of northern Knight Island have shown no sign of recovery through 1999 (21, 31). Lower tagged otter retention rates in this area, compared with those in an unoiled area of Montague Island, suggest sea otters at Knight Island experienced higher mortality and/or emigration rates even though food resources and body condition of animals there suggest the area should support some population growth (31, 43). Sea otters living in oiled areas have consistently expressed higher levels of cytochrome P4501A than those captured in unoiled areas, indicating continued exposure to petroleum hydrocarbons at least through 1998 (13). Similar biomarker and demographic patterns for harlequin ducks (44, 45), another nearshore predator of benthic invertebrates, also support continuing spill-related effects in oiled areas of WPWS. These similarities suggest that additional species may have suffered consequences analogous to those we find for sea otters. However, while our findings document continuing demographic effects of the EVOS, we also show that these effects have gradually dissipated with time—largely because of the death of cohorts most affected by the spill. This finding suggests that cautious optimism is warranted concerning the gradual return of the ecological communities of WPWS to pre-spill conditions.

Major anthropogenic “disasters” are usually labeled such because of their immediate and obvious impacts. However, there is increasing recognition that long-term, large-scale effects of

events such as oil spills also pose a significant threat to affected populations and ecosystems (46). Unfortunately, accurate assessment of these impacts is not always attainable using the simplistic statistical methods usually advocated for environmental impact monitoring (e.g., ref. 47). Here, we have used a more complex mixture of modeling, statistics, and population data to quantify and understand the effects of the EVOS, one of the best-studied but also most controversial of recent environmental oil disasters (48). Recognition that such events can have strong, long-term impacts on populations of sea otters and other nearshore species demands greater caution in short-term assessment of environmental impacts and suggests that greater efforts are needed to understand the community-wide effects of spill events.

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GEM PROPOSAL SIGNATURE FORM

THIS FORM MUST BE SIGNED BY THE PROPOSED PRINCIPAL INVESTIGATOR AND SUBMITTED ALONG WITH THE PROPOSAL. If the proposal has more than one investigator, this form must be signed by at least one of the investigators, and that investigator will ensure that Trustee Council requirements are followed. Proposals will not be reviewed until this signed form is received by the Trustee Council Office.

By submission of this proposal, I agree to abide by the Trustee Council's data policy (*Trustee Council/GEM Data Policy**, adopted July 9, 2002) and reporting requirements (*Procedures for the Preparation and Distribution of Reports***, adopted July 9, 2002).

PROJECT TITLE: Linger oil and sea otters: Pathways of exposure and recovery status

Printed Name of PI: Brenda Ballachey

Signature of PI: _____ Date _____

Printed Name of co-PI: James L. Bodkin

Signature of co-PI: _____ Date _____

* Available at <http://www.oilspill.state.ak.us/pdf/admin/datapolicy.pdf>

** Available at <http://www.oilspill.state.ak.us/pdf/admin/reportguidelines.pdf>

Trustee Council Use Only																															
Project No: _____	GEM PROPOSAL SUMMARY PAGE																														
Date Received: _____																															
Project Title:	Lingering oil and sea otters: Pathways of exposure and recovery status (continuation of work in project 040620)																														
Project Period:	FY 05- FY 06																														
Proposer(s):	Brenda E. Ballachey and James L. Bodkin, Alaska Science Center, USGS, 1011 E. Tudor Road, Anchorage, Alaska, 99503 (907) 786-3550																														
Study Location:	Prince William Sound																														
Abstract:	<p>Some of the strongest evidence of continuing effects of lingering oil from the <i>Exxon Valdez</i> spill comes from long term monitoring of sea otter populations and their exposure to hydrocarbons. Sea otters in heavily oiled areas of western PWS had not recovered as of 2003. Through 2002, sea otters continue to exhibit elevated levels of the cytochrome P4501A biomarker in areas where lingering oil deposits are most prominent. In 2002/03, sea otters at northern Knight Island were instrumented with radiotransmitters and time-depth recorders. Ongoing monitoring of these individuals is quantifying home ranges relative to known intertidal lingering oil deposits, and when the dive data are retrieved and analyzed, we will link foraging behaviors of individual sea otters to oiled shorelines, and relate patterns of habitat use to individual variation in cytochrome levels. For FY2005, we propose to conduct surveys of population size and distribution, continue to monitor instrumented sea otters to obtain habitat use and survival information, and obtain an additional sample of cytochrome P4501A. This will allow evaluation of continuing exposure to residual oil, population trends, and the status of recovery of sea otters in western PWS.</p>																														
Funding:	<table> <tr> <td>EVOS Funding Requested:</td> <td>FY 04</td> <td>\$</td> <td>20,500</td> <td></td> </tr> <tr> <td></td> <td>FY 05</td> <td>\$</td> <td>126,900</td> <td></td> </tr> <tr> <td></td> <td>FY 06</td> <td>\$</td> <td>0</td> <td>TOTAL: 147,400</td> </tr> <tr> <td>Non-EVOS Funds to be Used:</td> <td>FY 04</td> <td>\$</td> <td>4,400</td> <td></td> </tr> <tr> <td></td> <td>FY 05</td> <td>\$</td> <td>38,000</td> <td></td> </tr> <tr> <td></td> <td>FY 06</td> <td>\$</td> <td>0</td> <td>TOTAL: 42,400</td> </tr> </table>	EVOS Funding Requested:	FY 04	\$	20,500			FY 05	\$	126,900			FY 06	\$	0	TOTAL: 147,400	Non-EVOS Funds to be Used:	FY 04	\$	4,400			FY 05	\$	38,000			FY 06	\$	0	TOTAL: 42,400
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Note: Closeout \$ in the amount of 32.7K has already been approved as part of Project 040620.																															
Date:	13 April 2004																														

GEM RESEARCH PLAN

Lingering oil and sea otters: Pathways of exposure and recovery status

Brenda Ballachey and Jim Bodkin
U.S. Geological Survey
Alaska Science Center

I. NEED FOR THE PROJECT

A. Statement of Problem

Lingering oil from the *Exxon Valdez* oil spill persists in intertidal habitats in western Prince William Sound, and is particularly evident in those bays and passages where oiling was most severe in 1989. Further, evidence throughout the nearshore trophic web indicates an invertebrate pathway of exposure to upper trophic levels, including sea otters and sea ducks, with chronic effects resulting in delayed ecosystem recovery (Dean et al. 2000, Trust et al. 2000, Esler et al. 2000, Fukuyama et al. 2001, Bodkin et al. 2002, Esler et al. 2002). Studies conducted in 2001-2003 (EVOS projects 02585 and 030620) have documented the extent of residual oiling throughout the western Sound and the bioavailability of the oil to predators and their prey populations. Aerial surveys of sea otter abundance through 2003 fail to demonstrate population recovery in heavily oiled areas, and the biomarker of exposure to aromatic hydrocarbons, cytochrome P4501A (CYP1A), remains elevated among sea otters where recovery has not occurred (Bodkin et al. 2002), at least through 2002. Radio-telemetry studies initiated in 2002-03 (EVOS project 030620) have documented home ranges and areas of use by sea otters in three heavily oiled locations in western Prince William Sound: 1) Herring Bay, 2) Bay of Isles, and 3) Lower Passage (Figure 1). Although relocations provide reasonable estimates of home ranges, inferring use of particular habitats (such as oiled shorelines) within those home ranges remains problematic because observation time encompasses such a small percentage (estimated at about .01-.02%) of the total time an individual occurs within its home range. Additionally, strong individual variation in foraging behavior, including diet and depth (Estes et al. 2003), likely contributes to variation in exposure to lingering oil among individuals. In 2003, we captured and sampled CYP1A in those sea otters instrumented with radios in 2002 and instrumented an additional sample of 20 individuals with time-depth-recorders (TDR's) as part of the USGS base sea otter research program. TDR's will provide continuous dive depth information on each individual for about 360 days, allowing identification of intertidal foraging, particularly in relation to known home ranges and shorelines serving as repositories for residual *Exxon Valdez* oil. Monitoring of sea otters instrumented with radio transmitters through 2004-2005 will provide an additional year of data on individual habitat use and survival that will be used to determine the cause for a lack of sea otter recovery at heavily oiled northern Knight Island. Additionally, in conjunction with a sampling in 2005 of several species of nearshore fishes and birds (proposed as a separate project), a 2005 sample of CYP1A in sea otters will provide for a comprehensive evaluation of exposure to lingering oil among resident nearshore vertebrates.

B. Relevance to GEM Program Goals and Scientific Priorities

Recovery of the Prince William Sound ecosystem from the *Exxon Valdez* oil spill may not be considered complete until individuals are no longer exposed to spilled oil and when populations reach pre-spill levels of abundance. Clearly, sea otters have not attained these recovery goals. The proposed work will allow continued evaluation of the state of the affected sea otter populations, through continued estimates of sea otter population size and quantification of a biomarker of hydrocarbon exposure. The results of the biomarker component of this study will be interpreted with results from two other studies proposed for FY05 (Ballachey, Bodkin, Irons, Rice et al), to obtain an integrated view of biomarker expression in a suite of nearshore vertebrates and the extent of continuing exposure to lingering oil. Further, the proposed collaborative effort will identify those nearshore habitats that may be responsible for providing exposure to lingering oil and, therefore, where restoration efforts may be of greatest potential benefit to nearshore species as a group. The proposed work directly addresses items contained in the 2004-5 invitation for proposals pertaining to population data, foraging activities, and hydrocarbon exposure of sea otters in oiled areas.

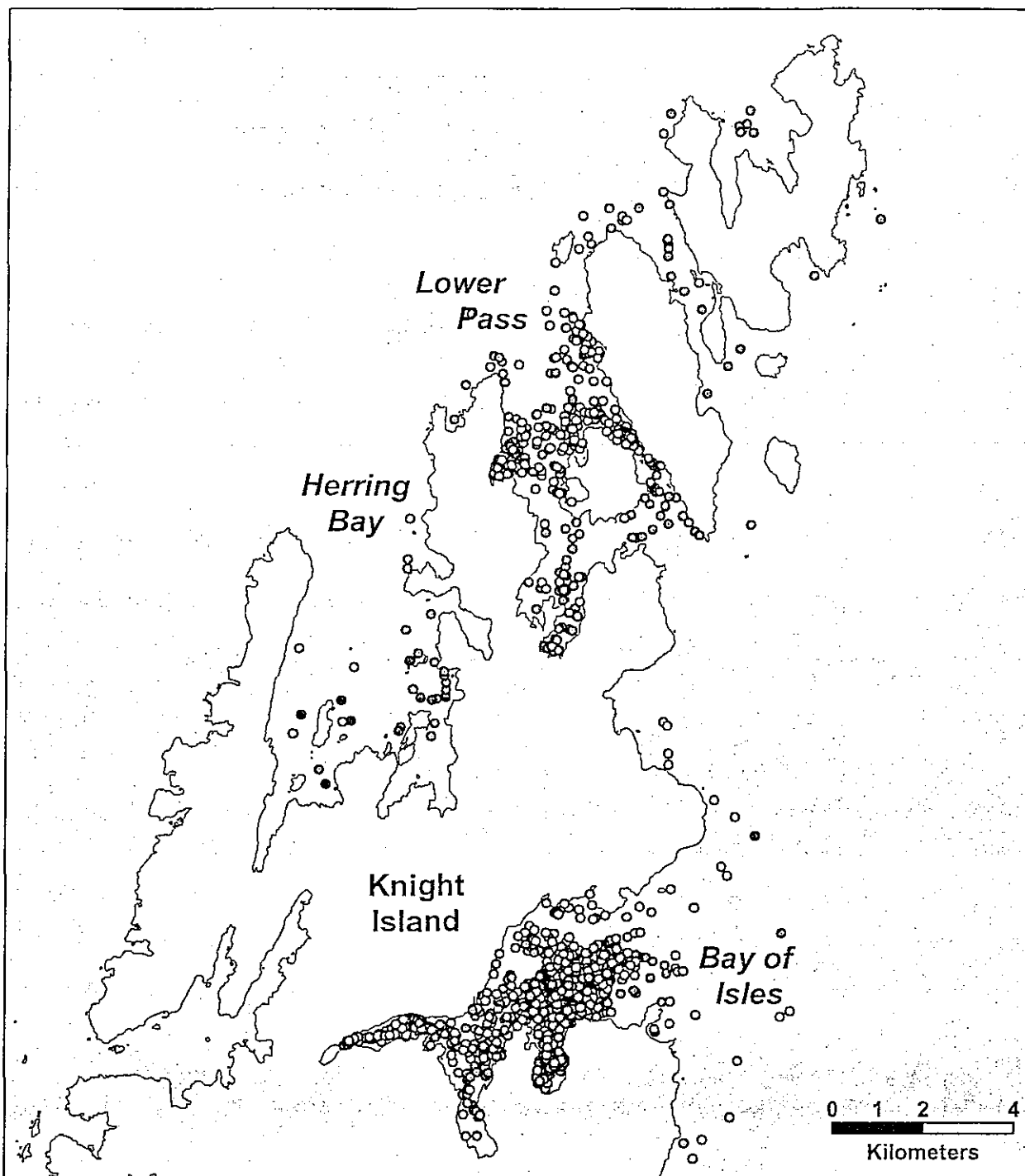


Figure 1. Locations of 27 individual sea otters instrumented with radio transmitters at Knight Island in July 2002. Each color represents an individual and not all re-sights are observable in the figure due to overlap. The number of relocations ranges from 26-142 per individual

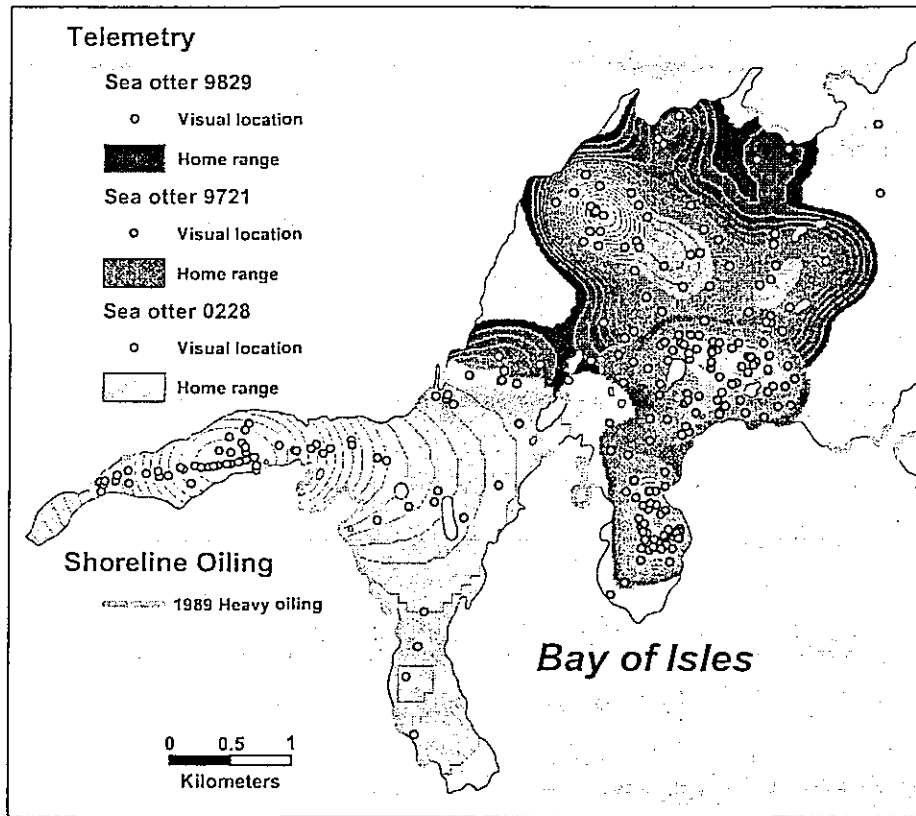


Figure 2. Kernel home ranges of three individual male sea otters in Bay of Isles and the proximity of home ranges and activity centers to known heavily oiled shorelines in 1989. Completion of the mapping of oiled shoreline habitats in 2003 will allow similar analyses with contemporary oiled habitats. Preliminary analyses indicate not all individuals are equally exposed to lingering oil.

II. PROJECT DESIGN

A. Objectives

Objective 1. Conduct an aerial survey of sea otters in western Prince William Sound, including the heavily oiled areas of the northern Knight Island Archipelago.

H_0 : Sea otter population size in western Prince William Sound, or the northern Knight Island Archipelago, does not differ in 2005 from prior years.

Estimates of sea otter population size provide perhaps our best measure of the current status of sea otter populations affected by the *Exxon Valdez* oil spill. Standardized surveys have demonstrated an increase in western Prince William Sound (Figure 2), yet fail to demonstrate any increase in population size in the heavily oiled area of northern Knight Island since 1993

(Figure 3). Continued surveys likely will provide our most direct measure of population recovery.

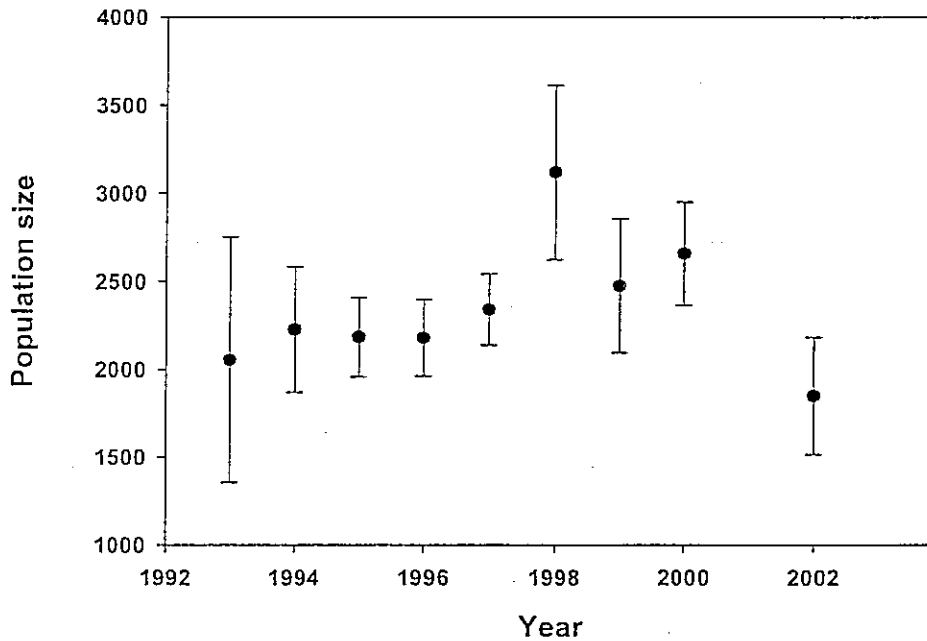


Figure 2. Western Prince William Sound sea otter population size estimates (\pm se), 1993-2002 (except 2001).

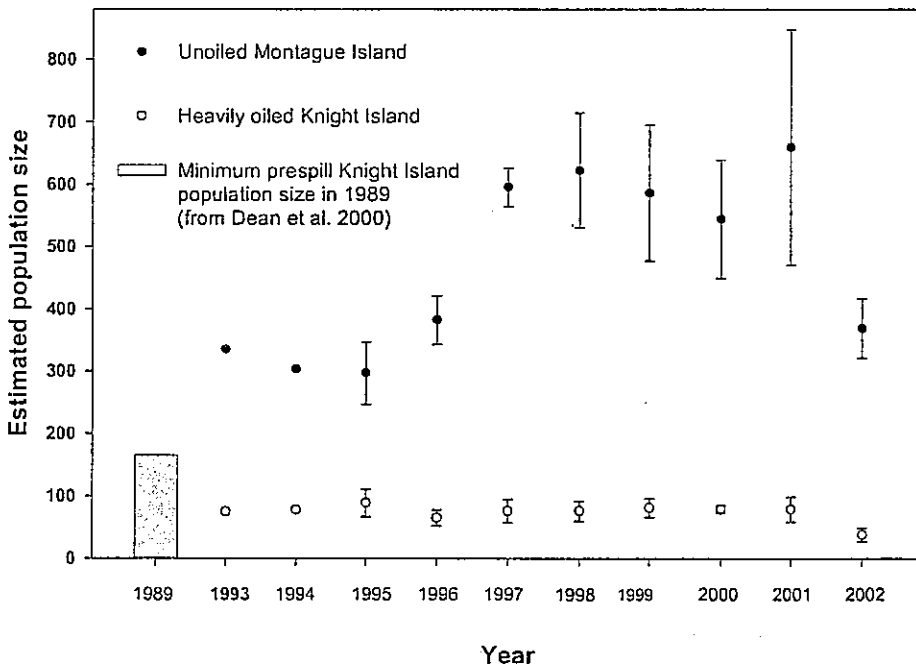


Figure 3. Sea otter population size estimates from unoiled Montague and heavily oiled Knight Island, Prince William Sound, AK, 1989-2002.

Objective 2. Measure Cytochrome P4501A values in a sample of sea otters from previously oiled Knight Island and unoiled Montague Island

H_0 : Cytochrome P450 values do not differ among previously oiled and unoiled habitats,

H_a : Cytochrome P450 values do not vary over time.

Measurement of CYP1A in sea otters from heavily oiled Knight Island compared to unoiled Montague Island have demonstrated significant exposure to aromatic hydrocarbons at Knight Island; significant differences between the two areas have persisted through summer 2002 (Figure 4). However, over time the magnitude of the difference between areas has been diminishing, suggesting gradual recovery (Ballachey et al. 2001b, Bodkin et al. 2002, USGS unpub. Data, Bodkin et al 2003). If differences between Knight Island and baseline extend through 2005, we will use these data to project a predicted point in time where biomarker values at Knight may attain the background levels measured at Montague Island.

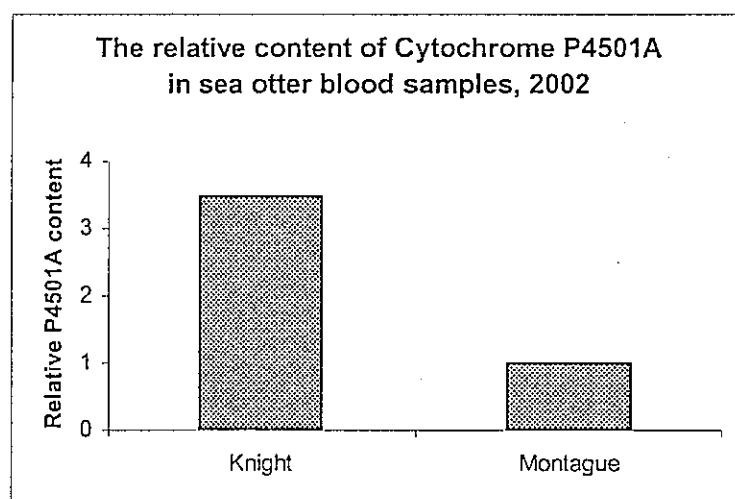


Figure 4. Relative cytochrome P4501A (CYP1A) content of blood lymphocytes from sea otters at oiled northern Knight Island and unoiled Montague Island, July 2002. (Note: mRNA for CYP1A quantified using real time PCR, and expressed in graph as CYP1A mRNA relative to mRNA for the housekeeping gene 18SrRNA).

Objective 3. Estimate habitat use and annual survival rates in a sample of sea otters from previously oiled Knight Island.

H_0 : Habitat use relative to oiled habitats does not vary among individual sea otters

H_a : Annual survival rates of adult sea otters from previously oiled habitats do not differ from expected adult survival rates

Sea otters were instrumented with radio transmitters (2002-03) and TDRs (2003) allowing us to monitor their patterns of habitat use and to estimate annual survival rates. CYP1A was also measured in these individuals (some otters have multiple CYP1A

measurements over several years). A continued year of monitoring these sea otters will improve our estimate of survival rates in the oiled area and our understanding of variation among individuals in habitat use and how that relates to CYP1A levels.

B. Procedural and Scientific Methods

Objective 1. Aerial Surveys

We will continue to use previously developed aerial survey techniques which employ standardized strip transect counts along survey lines, and intensive search units (ISU's) to estimate a correction factor for each survey (Bodkin and Udevitz 1999). We will conduct a single survey of the entire western Sound in 2005. We will also conduct replicate surveys (3-5 replications per survey) of the heavily oiled northern Knight Island study site (previously sampled in the Nearshore Vertebrate Predators project and projects 02423 and 030620). Results of proposed surveys provide unbiased estimates of population size and density. Proportional standard errors of past surveys in Prince William Sound range from 0.09-0.18

Objective 2. Monitor Exposure to Lingering Oil

Elevations in CYP1A in sea otters captured at northern Knight Island do not appear to be due to background or natural hydrocarbon sources, as these were found to be negligible in intertidal areas of Prince William Sound (Short and Babcock 1996), nor to differential contamination of areas by PCBs (Trust et al. 2000; USGS unpub. data). Continued exposure to residual *Exxon Valdez* oil is the most plausible explanation for CYP1A elevations. Residual oil is still stranded in intertidal areas of Prince William Sound (Short et al 2003, Babcock et al. 1996, Brodersen et al. 1999, Carls et al. 2001, Hayes and Michel 1999), providing a continuing potential source of contamination. However, the locations where sea otters may be acquiring continuing exposure to residual oil remained largely unknown until 2001/2002. With the data now available on distribution and abundance of lingering oil, we can identify those locations where sea otters and sea ducks are most likely acquiring their continued exposure, and prioritize areas for restoration. Further, we can evaluate relations between exposure of those individuals, based on their foraging locations and depths, their health and their subsequent survival.

As in past years, the CYP1A biomarker will be measured using peripheral mononuclear blood cells collected by jugular venipuncture (Ballachey et al. 2001a). The cells are isolated from the blood in the field, cryopreserved in liquid nitrogen, and subsequently shipped to Purdue University for analyses in the laboratory of Dr. Paul Snyder. Previous assays of CYP1A on the blood cells have been done with a reverse transcriptase PCR assay (Snyder et al 2001). However, with the 2002 and 2003 samples, we are examining the utility of an improved (and potentially more sensitive) molecular assay, using real-time PCR. If we demonstrate a high correlation between CYP1A induction measured by the two assays, subsequent analyses on the 2004 samples will utilize only the real-time PCR method. However, if the correlation is not high, all samples will be assayed by the reverse transcriptase methods to assure comparability with data collected in previous years.

In addition to sampling blood for the CYP1A biomarker, we routinely collect blood and ship it to Quest Laboratories (Portland, OR) for hematology and clinical chemistry panels, which provide a general picture of animal health as well as supplementary data on liver and kidney function. We will also collect a small (approximately 2 mm) liver biopsy that will be fixed in formalin and examined histologically for abnormalities in the liver cells.

The proposed research will provide a means to relate observed levels of CYP1A induction and liver histopathology in sea otters from heavily oiled areas of northern Knight Island to locations and depths where those individuals forage. Although essentially all sea otters sampled at Knight show at least a low level of induction, only a small proportion exhibit relatively high CYP1A levels. Thus, it appears likely that exposure may vary across individuals, with only a small proportion of the animals using areas where oil is persistent, as opposed to all animals using all habitats equitably. This research also provides the opportunity to relate the abundance and behavior of sea otters to the proximity of lingering oil. Once sea otter density, foraging depths, and oil exposure history can be tied to known patches of lingering oil, direct restoration measures and locations can be identified and prioritized.

Objective 3. Estimate oiled habitat use and annual survival rates from sea otters at previously oiled Knight Island

In 2002 and 2003 we instrumented a sample of sea otters at Knight Island to determine the use of habitats known to contain lingering oil and to estimate annual survival rates. The radio transmitters deployed in 2003 will continue to function through July 2005. Continued monitoring of these individuals will provide additional information on the degree to which oiled intertidal areas are utilized and provide an additional estimate of annual survival.

Individuals will be relocated at approximately 10 day intervals from July 2004-July 2005. Relocations will be obtained from single engine aircraft flying at 500' altitude and 70 mph. Each relocation will include the date, time and a location with not less than 400 meters accuracy. Each relocation will be plotted on a map in the field and later digitized into a GIS coverage (ARC View). Each radio transmitter incorporates a thermal sensor that reduces the transmission pulse rate by 50% upon reaching a temperature of approximately 85 degrees Fahrenheit. This sensor allows for rapid detection of mortality and facilitates recovery of fresh carcasses suitable for necropsy.

C. Data Analysis and Statistical Methods

Aerial survey data will be collected and analyzed following procedures described in detail in Bodkin and Udevitz (1999). The observer, pilot, and plane will be the same as in prior years (1994-2002).

Blood and Liver Cytochrome P4501A

CYP1A data on a subset of sea otters will be obtained by both the reverse transcriptase and the real-time PCR assays. If there is a high correlation between the two methods, further analyses will be by the real-time PCR technique, and data from previous years will be transformed so that

all years are comparable. An ANOVA will be conducted on the full data set (2 areas: northern Knight and Montague; 7 years: 1996-98, 2001-2004). Additionally, based on a regression analysis (CYP1A values by year), we will predict the point in time when CYP1A values, and exposure to aromatic hydrocarbons, will return to background levels at northern Knight Island.

Habitat use and survival

Relocation data will be analyzed with the animal movement extension to ARC-View GIS using kernel home range estimation. Minimum, maximum, and mean distances to known oiled shorelines for each individual will be calculated and related to CYP1A measures using regression analysis.

Survival estimates will be based on a Kaplan-Meier analysis (Kaplan and Meier 1958). The analysis estimates survival throughout the study based on the number of otters at risk and the number of otters that died during each time period. The time origin for the survival analysis will be the date of capture with time intervals approximately equal to the length of time between otter relocations. Survival estimates will be compared to estimates from other locations using similar methods.

D. Description of Study Area

The aerial surveys will be conducted in western Prince William Sound, with intensive replicate surveys at northern Knight Island. Sampling of oiled and unoled shoreline segments for the abundance and behaviors of sea otters will be conducted at northern Knight Island. Oiled and unoled shoreline segments identified from project 02585 and 030620 (NOAA and USGS) will serve as the foundation for our study design relating sea otter home ranges and foraging depths to oil exposure histories and potential use of oiled shorelines. Capture and relocations have been centered in Lower Passage (60.501, -148.667) and Bay of Isles (60.400, -148.667) at northern Knight Island, although relocations of some individuals have been recorded up to 24 km away from their capture location. Locations of observations will depend on animal movements and to date, all but a very few observations have been at Knight Island.

E. Coordination and Collaboration with Other Efforts

The proposed work builds on the long history of EVOS and Department of Interior study of sea otters in Prince William Sound (Nearshore Vertebrate Predator project, Doroff et al. 1994, Ballachey et al. 1994, Bodkin et al 1999, Bodkin et al 2002, Ballachey et al 2003, Monson et al 2000). Prior project numbers include 99025, 02423, 02585, 03620 and 04620. The scope of prior work includes annual sea otter population size estimates since 1993, estimates of reproduction, survival and mortality, diet, size and condition, and movements and home ranges. Assays of the CYP1A biomarker have been conducted since 1996 (no samples were collected in 1999 or 2000). The proposed work will utilize the results of NOAA (Auke Bay Laboratory) studies on the presence, distribution and abundance of oiled habitats at Northern Knight Island in 2001-2003, in terms of identifying proximity and foraging depths in relation to lingering oil. Surveys of sea otter abundance will be plotted with historic data to evaluate progress toward a recovery endpoint defined by estimated pre-spill abundance. Biomarker data will be contrasted

to data collected in the same locations, and from some of the same individuals, during the period 1996-2004. Such contrasts will allow evaluation of trends observed from 1996-2004, suggesting a decline in the magnitude of the difference between oiled and unoiled habitats. Approximately 22% of the total cost of the work proposed for FY05 will be funded by the Alaska Science Center, USGS, in the form of vessel support (\$4,000) salary costs (\$26,400), and facilities and equipment (\$12,000).

III. SCHEDULE

A. Project Milestones

Objective 1. Aerial Surveys

Data acquisition to be completed by August 2005

Data analysis to be completed by December 2006

Objective 2. Monitor Exposure to Lingering Oil

Sample acquisition to be completed by August 2005

Laboratory and data analysis to be completed by April 2006

Objective 3. Habitat Use and Survival

Data acquisition to be completed by August 2005

Data analysis to be completed by April 2006

B. Measurable Project Tasks

FY 04, last quarter (August 1, 2004-October 1, 2004)

Initiate monitoring of instrumented individual locations

FY 05, 1st quarter (October 1, 2004-January 1, 2005)

Continue monitoring of instrumented individual locations

FY 05, 2nd quarter (January 1, 2005-April 1, 2005)

Continue monitoring of instrumented individual locations

FY 05, 3rd quarter (April 1 - July 1, 2005)

Continue monitoring of instrumented individual locations

FY05, 4th quarter (July 1, 2005 – October 1, 2005)

Initiate capture of sea otters

Obtain biomarker samples

Aug-Sept. 2005

Initiate data recovery and analysis (surveys, biomarker and habitat use and survival)

Submit annual report

Oct-Dec 2005	Continue sample and data analyses
2006	Prepare and submit final report

IV. RESPONSIVENESS TO KEY TRUSTEE COUNCIL STRATEGIES

A. Community Involvement and Traditional Ecological Knowledge (TEK)

We will be available to interact with local communities in meetings to explain and discuss ongoing restoration projects (this effort coordinated with similar activities for project 030423 and 040620, and proposed new project by Ballachey, Bodkin, and Irons). Contractual arrangements have been made with Cordova Air Service (907-424-3289) in Cordova to provide aerial support for survey and radio relocations. Contractual arrangements will be sought with other members of local communities for vessel charters to support recapture and other project needs.

B. Resource Management Applications

Results of the proposed work, in conjunction with the results of work completed under projects 99025, 02423 and 03620, should provide managers with adequate information to make decisions regarding locations of specific shoreline habitats where sea otter populations are incurring exposure to lingering oil and which may be suitable for direct restoration actions. In addition, anticipated results of this work will allow managers to identify progress toward reclassification of sea otters and other nearshore resources as "recovered" from the 1989 *Exxon Valdez* oil spill.

Sea otter populations throughout the Aleutian Archipelago, the Alaska Peninsula, and as far east as Kodiak Island, have experienced declines in abundance ranging from about 50-90% since about 1985 (Estes et al. 1998). Although cause of the decline is unclear, predation is thought to be a contributing factor, at least in the Aleutians. The proposed survey effort in Western Prince William Sound will continue the longest annual sea otter population data set in Alaska and will be of benefit to the Fish and Wildlife Service, Marine Mammals Management (Rosa Meehan, 907-786-3349) who is responsible for sea otter management in Alaska.

V. PUBLICATIONS AND REPORTS

An annual progress report will be submitted to the Trustee Council on 1 September, 2005 and a final report will be submitted by 15 April, 2006. The results of the TDR work will provide new information on sea otter diving and foraging behavior that has not previously been published and will make a new contribution to the primary scientific literature. The results of the biomarker studies will provide an unprecedented view of the duration and relative magnitude of exposure to a top-level nearshore predator following a large-scale oil spill. Because the persistence of *Exxon Valdez* lingering oil was unanticipated and unprecedented, the linkage between lingering oil and pathways of exposure to higher trophic levels will also provide an original contribution to the primary literature on oil spill effects.

VI. PROFESSIONAL CONFERENCES

We anticipate the results of the proposed work will be suitable for presentation at the 2006 International Biennial meeting of the Society for Marine Mammalogy to be held in South Africa during the winter of 2005/2006. Because of the global nature of oil spills, the unanticipated magnitude and duration of EVOS effects, and the apparent susceptibility of marine mammals to such events, this will be a particularly valuable opportunity to present the results of this work. We anticipate presenting two papers at the conference, one pertaining to pathways of exposure and another on the use and interpretation of biomarkers as a tool for defining exposure to and recovery from spilled oil. Note: travel for attending conference was already approved as part of closeout for Project 040620.

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RESUME**BRENDA E. BALLACHEY**

Research Physiologist

U.S. Geological Survey, Alaska Science Center

1011 East Tudor Road, Anchorage, Alaska 99503, USA

Phone: 907/786-3480, Fax: 907/786-3636

E-mail: brenda_ballachev@usgs.gov**AREAS OF EXPERTISE**

Sea otters: biochemical, physiological, population and ecological effects of oil exposure

Marine mammals: population status and indices of condition

Environmental toxicology; Biomarkers of contaminant exposure

Mammalian genetics and physiology; Quantitative genetics

Male reproduction: semen quality and relationship to fertility

EDUCATION**Oregon State University, Corvallis, Oregon - Ph.D., 1985**

Major: Animal Breeding and Genetics; Minors: Genetics, Statistics

Thesis: Flow cytometric evaluation of spermatozoan viability and nuclear chromatin structure

(January 1984 to March 1985 - Relocated to South Dakota State University to conduct doctoral research)

Colorado State University, Fort Collins, Colorado - M.S., 1980

Major: Animal Sciences/Animal Breeding and Genetics

Thesis: Effect of diet and age on body composition of obese and lean mice

Colorado State University, Fort Collins, Colorado - B.S. with distinction, 1974

Major: Animal Sciences

PROFESSIONAL EXPERIENCE (1987 to present)**Research Physiologist**

Alaska Biological Science Center, U.S. Geological Survey, Anchorage, AK

(Formerly National Biological Service; Fish & Wildlife Service)

July 1990 to September 1996: Project leader for population status (sea otters, walrus) and sea otter oil spill studies.**October 1996 to present:** Principal investigator (half-time appointment) on Exxon Valdez oil spill studies of sea otters and other vertebrate predators in coastal marine areas of Prince William Sound, Alaska.**General Biologist**

Alaska Fish and Wildlife Research Center, U.S. Fish and Wildlife Service, Anchorage, AK

November 1989 to July 1990Research on sea otters, with emphasis on studies of acute and chronic effects of the *Exxon Valdez* oil spill.**Staff Officer**

Board on Agriculture, National Research Council (NRC), Washington, DC, USA

March 1987 to November 1989

Worked with Committee on Managing Global Genetic Resources to assess genetic diversity in agricultural species, including crops, livestock, forests and fisheries.

COLLABORATIONS

Purdue University, South Dakota State University, NOAA/ABL, USFWS, Woods Hole Oceanographic Institute, University of Alaska Fairbanks, Monterey Bay Aquarium.

AFFILIATIONS

American Association for the Advancement of Science
Society for Marine Mammalogy
Society for Environmental Toxicology and Chemistry

SELECTED PUBLICATIONS

- Ballachey, B.E., J. L. Bodkin, and A. R. DeGange. 1994. An Overview of Sea Otter Studies. Chapter 3 in *Marine Mammals and the Exxon Valdez*. T.R. Loughlin, Ed. Academic Press.
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- Lipscomb, T.P., R.K. Harris, A.H. Rebar, B.E. Ballachey and R.J. Haebler. 1994. Pathology of Sea Otters. Chapter 16 in *Marine Mammals and the Exxon Valdez*. T.R. Loughlin, Ed. Academic Press.
- Loughlin, T.R., B.E. Ballachey and B. Wright. 1996. Overview of studies to determine injury caused by the *Exxon Valdez* oil spill to marine mammals. In Rice, S.D., R.B. Spies, D.A. Wolfe and B.A. Wright, Eds. *Proceedings of the Exxon Valdez Oil Spill Symposium*. American Fisheries Society Symposium Number 18:798-808.
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- Mulcahy, D.M. and B.E. Ballachey. 1994. Hydrocarbon residues in sea otters. Chapter 18 in *Marine mammals and the Exxon Valdez*. T.R. Loughlin, Ed. Academic Press.
- Rebar, A.H., T.P. Lipscomb, R.K. Harris and B.E. Ballachey. 1995. Clinical and clinical laboratory correlates in sea otters dying acutely in rehabilitation centers. *Vet. Clin. Path.* 32:346-350.
- Stegeman, J.J., B. Ballachey, J. Bickham, B. Hocker, S. Kennedy, H. Thompson and D. Vethaak. 1993. Implementation of biomarker-based studies. Chapter 3 in *Strategy for Biomarker Research and Application in the Assessment of Environmental Health*. D.B. Peakall and L.R. Shugart, Eds. Springer-Verlag, Belgium.
- Udevitz, M.S. and B.E. Ballachey. 1998. Estimating survival rates with age structure data. *Jnl. Wildl. Mgmt.* 62(2):779-792.

Resume: James L. Bodkin

March 2004

Research Wildlife Biologist, Alaska Science Center, USGS, 1011 E. Tudor Road, Anchorage, Alaska, 99503. phone 907-786-3550, fax 907-786-3636 email, james_bodkin@usgs.gov.

Education: 1985 -MS, California Polytechnic State University, San Luis Obispo, CA.
(Wildlife Biology)
1976- BS, Long Beach State University (Biology), Long Beach, CA
1972 - AS, Cypress College (Biology), Cypress, CA

Memberships: Society for Marine Mammalogy
American Society of Mammalogists
Society for Conservation Biology
Wildlife Society
Western Society of Naturalists
National Geographic Society

Responsibilities: I lead Alaska sea otter research and the marine science program for the Alaska Science Center. The mission of the Center is to provide biological information and research findings to resource managers, policymakers, and the public to support sound management of biological resources and ecosystems in Alaska and throughout the North Pacific Ocean. The Alaska sea otter project is one of two USGS sea otter research programs, the other led by James Estes, located in Santa Cruz, CA.

Responsible for designing, developing and directing multi-disciplinary research programs for studying North Pacific coastal marine ecosystems, focusing on sea otter populations and their role in structuring coastal marine communities in Alaska. Current research programs encompass three broad objectives, including, 1) designing, developing and testing methods to assess the status of sea otter populations, 2) describing processes responsible for structuring coastal marine communities, and 3) determining the status of recovery of sea otter populations affected by the 1989 Exxon Valdez oil spill in Prince William Sound, Alaska.

Scope of each of the three research programs:

Designing, developing and testing methods to assess the status of sea otter populations. Appropriate conservation and management of sea otter populations requires accurate knowledge on the status of populations relative to available resources, primarily food and space. Current projects to evaluate population status include measures of abundance (density), age and sex specific fecundity and survival, individual condition and bio-markers, and activity-time budgets. Remote sensing devices (time-depth recorders) are currently being tested as a new method to estimate time budgets.

Describing processes responsible for structuring coastal marine communities. Processes responsible for driving the structure and function of north Pacific coastal communities are complex and not well understood, yet managers of coastal resources need to understand causes of variation and change in coastal communities. Current projects include a) defining coastal marine community structure in terms of physical character, biological productivity, and species composition and abundance of algae,

macro-invertebrates, fishes, birds and mammals, and b) employing comparative and experimental methods to allow inference regarding cause of change in the coastal system.

Determine the status of recovery of sea otter populations affected by the 1989 Exxon Valdez oil spill in Prince William Sound, Alaska. Natural resources are subjected to increasing levels of anthropogenic disturbance, as exemplified by this nation's largest oil spill, the Exxon Valdez spill of 1989. Previous methods to understand the acute and chronic effects of disturbances at both species and ecosystem levels are poorly developed, often leading to uncertainty. Project objectives include developing new tools and approaches to improve our understanding of catastrophic perturbations and methods to describe the processes of how systems recover and to identify factors that can constrain system recovery.

Selected Publications:

Bodkin, J.L. 1988. Effects of kelp forest removal on associated fish assemblages in central California. *Journal of Experimental Marine Biology and Ecology*. 117:227-238.

Bodkin, J.L. and R. Jameson. 1991. Patterns of seabird and marine mammal carcass deposition along the central California coast, 1980-1986. *Can J. Zool.* 69:1149-1155.

Bodkin, J.L. and L. Browne. 1992. Molt frequency and size-class distribution in the spiny lobster (*Panulirus interruptus*), at San Nicolas Island, California. *California Fish and Game*. 78(4):136-144.

Bodkin, J.L., B.E. Ballachey, M.A. Cronin and K.T. Scribner. 1999. Population demographics and genetic diversity in remnant and re-established populations of sea otters. *Conservation Biology* 13(6):1278-1385.

Bodkin, J. L. and M.S. Udevitz. 1999. An aerial survey method to estimate sea otter abundance. in: Garner, G.W., S.C. Amstrup, J.L. Laake, B.F.J. Manly, L.L. McDonald, and D.G. Robertson, (eds.) *Marine mammal survey and assessment methods*. Balkema Press, Netherlands pg. 13-26

Bodkin, J.L., A.M. Burdin and D.A. Ryzanov. 2000. Age and sex specific mortality and population structure in sea otters. *Marine Mammal Science* 16(1):201-219.

Bodkin, J.L. 2001. Marine Mammals: Sea otters. Pages 2614-2621. in Steele, J. S. Thorpe and K. Turekian (eds.) *Encyclopedia of Ocean Sciences*. Academic Press, London UK. (invited ms)

Bodkin, J.L., B.E. Ballachey, T.A. Dean, A.K. Fukuyama, S.C. Jewett, L.M. McDonald, D.H. Monson, C.E. O'Clair and G.R. VanBlaricom. 2002. Sea otter population status and the process of recovery from the Exxon Valdez oil spill. *Marine Ecology Progress Series*. 241:237-253.

Peterson, C.H., S.D. Rice, J.W. Short, D. Esler, J.L. Bodkin, B.E. Ballachey, D.B. Irons. 2003. Long-term ecosystem response to the Exxon Valdez oil spill. *Science* 302:2082-2086.

Collaborators:

Dr B.E. Ballachey, USGS, Dr. T.A. Dean, Coastal Resource Associates, Ms A.M. Doroff, USFWS, Dr. D. Esler, Simon Fraser Univ., Dr. J.A. Estes, USGS, Dr. D.B. Irons USFWS, Dr. C.H. Peterson, Univ. North Carolina, Dr. John Piatt, Alaska Science Center, Dr S.D. Rice NOAA, Mr J.W. Short, NOAA, Dr P. Snyder, Purdue University, Ms. M. Staedler, Monterey Bay Aquarium

BUDGET JUSTIFICATION

Bodkin and Ballachey

Lingering oil and sea otters: Pathways of exposure and recovery status

Total project cost 189.9 K, for FY04 & FY05. 42.4 K provided by USGS/ASC (4.4K in FY04 and 38K in FY05). 147.4K requested from EVOSTC; 20.5K in FY04 and 126.9K in FY05.

The costs not covered by the EVOS funds include salary for J. Bodkin and additional USGS staff involved in planning, logistics and capture operations. The project is not legislatively mandated, but will provide information valuable to both sea otter management (USFWS and the Alaska Sea Otter Commission) and the EVOS Trustee Council in terms of understanding sea otter population dynamics, behavioral ecology and recovery from the *Exxon Valdez* oil spill. Indirect costs have been previously arranged between the EVOS office and Trustee Agencies.

FY 2004: Amount requested 20.5K

Personnel: 6.0 K. Funds will provide the salary support necessary to monitoring objectives. USGS will be providing 4.4 K in additional salary support.

Travel: No funds requested from EVOS.

Contractual: 12.8 K total. 3.8 K is requested for aerial relocations of instrumented sea otters in August and September 2004. 9.0 K is requested for histopathology of sea duck liver samples that were collected in western PWS and at the Alaska SeaLife Center between 1996 and 2002.

Commodities: No funds requested in FY04.

Equipment: No funds requested in FY04. USGS will be providing needed equipment for monitoring (radio-tracking) purposes.

FY 2005: Amount requested \$ 126.9 K.

Personnel: 30.0 K Funds will provide the additional salary support necessary to monitoring and biomarker objectives. USGS will be providing 22 K in additional salary support.

Travel: None requested from EVOS. USGS will provide field research travel costs in Alaska.

Contractual: 79.6 K total. 18.8 K is requested for aerial relocations of instrumented sea otters and 8.8K for population abundance surveys in western PWS. 27 K is requested for vessel support for capture and sampling of tissues for biomarker assays, liver endoscopies and blood chemistry, and 20 K for veterinarian and laboratory services, including analysis of biomarker samples. 5.0 K is allocated to blood analyses, including hematology and serum chemistries. 9.0 K is requested for histopathology of sea duck liver samples collected between 1996 and 2002.

Commodities: 1.5 K is requested for food and miscellaneous commodities such as tools, field notebooks, and paper. 2.7 K is requested for fuel (2 skiffs and 1 25' whaler). 1.6 K is requested to defray expenses of veterinary supplies (surgical materials, drugs, etc). USGS will provide commodities in the form of office supplies, survival gear, etc.

Equipment: 1.0 K is requested for miscellaneous radio tracking equipment such as antennas, switch boxes, and cables. USGS will be providing radio receivers for tracking purposes at a cost of 6.0 K and vessel costs of 4 K.

FY 2006 & FY 2007: no new funding is requested.

Note: 26.2 K and 6.5 K have already been approved for FY06 & 07 as part of Project 040620.

CURRENT AND PENDING SUPPORT FORM

The following information must be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.

Investigator: James Bodkin/Brenda	Other agencies to which this proposal has been/will be submitted: None; no other current or pending support for this research.
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Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title:	Source of Support: Total Award Amount: Total Award Period Covered: Location of Project: Months of Your Time Committed to the Project: FY 05 FY06 Sumr:
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Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title:	Source of Support: Total Award Amount: \$ Total Award Period Covered: Location of Project: Months of Your Time Committed to the Project: FY FY 05 FY 06 Sumr:
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Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title:	Source of Support: Total Award Amount: \$ Total Award Period Covered: Location of Project: Months of Your Time Committed to the Project: FY FY 05 FY 06 Sumr:
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Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title:	Source of Support: Total Award Amount: \$ Total Award Period Covered: Location of Project: Months of Your Time Committed to the Project: FY FY 05 FY 06 Sumr:
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*If this project has previously been funded by another entity, please list and furnish information for immediately preceding funding period.

DATA MANAGEMENT

1. Study Design: See Research Plan for details.

Aerial Survey: We will continue to use previously developed aerial survey techniques which employ standardized strip transect counts along survey lines, and intensive search units (ISU's) to estimate a correction factor for each survey (Bodkin and Udevitz 1999).

CYP1A: As in past years, the CYP1A biomarker will be measured using peripheral mononuclear blood cells collected by jugular venipuncture (Ballachey et al. 2001a). Morphometric data will be collected during captures and blood samples will be analyzed for a suite of standard hematological and chemical variables.

Habitat Use: Individuals will be relocated at approximately 10 day intervals from July 2004-July 2005. In addition several intensive periods of resight data will be collected, attempting multiple resights per day and logging behaviors. TDRs will be retrieved in July 2004.

2. Criteria/Acceptable Data Quality

Aerial Survey, CYP1A, Habitat Use: The USGS Alaska Science Center's Sea Otter Project has in place a data management plan, developed from the EVOS NVP project. All data will be collected, proofed, and stored under guidelines delineated in the DM plan.

3. Metadata

a. Metalite Metadata information:

Aerial Survey, CYP1A, Habitat Use:

Identification_Information:

Citation:

Citation_Information:

Originator: USGS Alaska Science Center, James L Bodkin and Brenda E Ballachey

Publication_Date: 20060415

Title: Lingering oil and sea otters: pathways of exposure and recovery status

Geospatial_Data_Presentation_Form: map

Publication_Information:

Publication_Place: Anchorage, Alaska, United States

Publisher: USGS

Description:

Abstract: There are three main datasets that will be created by this project: aerial survey data consisting of sea otter sightings (number, group size, , activity, GIS locations); Cytochrome P4501A data consisting of sea otter capture information and results of P450 analysis of white blood cells; and habitat use data consisting locations of re-sighted VHF-implanted sea otters (VHF frequency, date, time, activity, GIS location).

Purpose: These data sets will be created to allow continued evaluation of the state of the sea otter populations affected by EVOS, through continued estimates of sea otter population size,

quantification of a biomarker of hydrocarbon exposure, and evaluation of habitat use relative to known areas of existing lingering oil.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 20010401

Ending_Date: 20050415

Currentness_Reference: ground condition

Status:

Progress: Planned

Maintenance_and_Update_Frequency: As needed

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -147.2

East_Bounding_Coordinate: -147.983

North_Bounding_Coordinate: 60.75

South_Bounding_Coordinate: 60.15

Keywords:

Theme:

Theme_Keyword_Thesaurus:

Theme_Keyword: sea otter

Theme_Keyword: oil

Theme_Keyword: recovery

Place:

Place_Keyword_Thesaurus:

Place_Keyword: Prince William Sound

Access_Constraints: None

Use_Constraints: None

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Point

Distribution_Information:

Distributor:

Contact_Information:

Contact_Person_Primary:

Contact_Person: James L. Bodkin

Contact_Organization: USGS Alaska Science Center

Contact_Address:

Address_Type: Mailing and Physical Address

Address:

Alaska Science Center

1011 East Tudor Road

City: Anchorage

State_or_Province: Alaska

Postal_Code: 99503

Country: United States

Contact_Voice_Telephone: 907.786.3550

Contact_Facsimile_Telephone: 907.786.3636
 Contact_Electronic_Mail_Address: james_bodkin@usgs.gov
 Distribution_Liability:
 Metadata_Reference_Information:
 Metadata_Date: 20040413
 Metadata_Contact:
 Contact_Information:
 Contact_Person_Primary:
 Contact_Person: James L. Bodkin
 Contact_Organization: USGS Alaska Science Center
 Contact_Address:
 Address_Type: Mailing and Physical Address
 Address:
 Alaska Science Center
 1011 East Tudor Road
 City: Anchorage
 State_or_Province: Alaska
 Postal_Code: 99503
 Country: United States
 Contact_Voice_Telephone: 907.786.3550
 Contact_Facsimile_Telephone: 907.786.3636
 Contact_Electronic_Mail_Address: james_bodkin@usgs.gov
 Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
 Metadata_Standard_Version: FGDC-STD-001-1998

b. Dataset category:

Aerial Survey: Species specific measurements, fields: INTENSIVE SEARCH UNIT, SET, TRANSECT, GROUP, ADULTS, STRIP ADULTS, CIRCLE ADULTS, PUPS, STRIP PUPS, CIRCLE PUPS, CHOP, GLARE, BEHAVIOR, DATE, OBSERVER, PERIOD, AREA, STRATUM, LENGTH, SIDE

CYP1A: Species specific measurements, fields:

P450: OTTER#, COLLDAT, CYP1Ablood, CYP1Aliver

Capture: DATE, AREA, AGECLASS, TOOTHAGE, RECORDER, OTTER NUMBER, SEX, PUP, PUP WEIGHT, PUP LENGTH, WEIGHT, LENGTH, GIRTH, LATITUDE, LONGITUDE, CAPTURE METHOD, TIME OTTER FIRST OBSERVED, CAUGHT WITH, PAW, LEFT TAG POSITION, LCOLOR, LTAG #, RIGHT TAG POSITION, RCOLOR, RTAG #, COMMENTS1, INITIAL FENTANYL DOSE, IFTIME, INITIAL VALIUM DOSE, IVTIME, SUPPLEMENTAL FENTANYL DOSE, SUPPLEMENTAL VALIUM DOSE, STIME, SUPPLEMENTAL2 FENTANYL DOSE, S2TIME, COMMENTS2, TEMPERATURE, TIME, FECAL SAMPLE COLLECTED?, TOOTH CONDITION, CANINES, INCISORS, PREMOLARS, MOLARS, MISSING, BROKEN, CANINE DIAMETER, TOOTH COLLECTED, AGE ESTIMATE, ESTIMATOR, ORAL LESIONS, BIOPSIES/SWABS, HEAD COLOR, BACULA LENGTH, COMMENTS3, BLOOD VOLUME DRAWN, DRAWTIME, QUEST DIAGNOSTICS NUMBER, NALTREXONE DOSE, NALTIME, COMMENTS4, RELEASE LOCATION, RELTIME, OBSERVERS, OTHER REMARKS

Blood: OTTER#, TREATMENT DATE, TREATMENT TIME, ANALYSIS DATE, ANALYSIS TIME, LABORATORY, WHITE BLOOD CELLS, RED BLOOD CELL COUNT, HEMOGLOBIN, HEMATOCRIT, MEAN CORPUSCULAR VOLUME, MEAN CORPUSCULAR HEMOGLOBIN, MEAN CORPUSCULAR HEMOGLOBIN CONCENTRATION, PLATELETS, SEGMENTED NEUTROPHILS, BANDS, LYMPHOCYTES, MONOCYTES, EOSINOPHILS, BASOPHILS, GLUCOSE, TOTAL PROTEIN, CREATININE, URIC ACID, CHOLESTEROL, TRIGLYCERIDES, ALKALINE PHOSPHATASE, SERUM GLUTAMIC OXALOACETIC TRANSAMINASE / ASPARTATE AMINO TRANSFERASE, SERUM GLUTAMIC PYRUVIC TRANSAMINASE / ALANINE AMINO TRANSFERASE, LACTIC DEHYDROGENASE, TOTAL BILIRUBINS, DIRECT BILIRUBIN, SODIUM, POTASSIUM, CHLORIDE, CALCIUM, PHOSPHOROUS, IRON, ALBUMIN, GLOBULIN, ALBUMIN TO GLOBULIN RATIO, BLOOD UREA NITROGEN, CORTISOL, CARBON DIOXIDE, CREATINE PHOSPHOKINASE, HAPTOGLOBIN, RED CELL WIDTH, TOTAL PROTEIN, TRIGLYCERIDES, CHOLESTEROL, HIGH DENSITY LIPOPROTEINS, VERY LOW DENSITY LIPOPROTEINS, LOW DENSITY LIPOPROTEINS, CHOLESTEROL:HIGH DENSITY LIPOPROTEINS, GAMMA GLUTAMYL TRANSFERASE, ALKALINE PHOSPHATASE

Habitat Use Species specific measurements, fields: VHF Frequency, Pup Presence, Date, Time, Easting, Northing, Accuracy, Behavior, Bout, Prey, Observer, Outlier, Comment

4. Algorithms

Aerial Survey, CYP1A, Habitat Use:
No algorithms will be utilized in this project.

5. Sample Collection, Handling, Custody, Storage

Aerial Survey and Habitat Use:
No samples are collected during these portions of the project.

CYP1A: As in past years, the CYP1A biomarker will be measured using peripheral mononuclear blood cells (PBMC) collected by jugular venipuncture (Ballachey et al. 2001a). The cells are isolated from the blood in the field, cryopreserved in liquid nitrogen, and subsequently shipped to Purdue University for analyses in the laboratory of Dr. Paul Snyder. Sample identifications are tied to the otter ID number and collection date that are located on the capture data sheets for each individual. The USGS Alaska Science Center's Sea Otter Project sample management plan is followed in documenting, inventorying, and tracking all samples. Chain of custody forms are used when shipping samples to other facilities for analysis. Surplus PBMC samples are stored at Purdue University. Surplus serum samples are stored in an ultracold freezer at USGS Alaska Science Center. Any additional samples collected during the capture are stored appropriately (frozen or preserved) at USGS Alaska Science Center.

6. Analytical Instrumentation

Aerial Survey, CYP1A, Habitat Use:

Analytical instruments will not be utilized in this project.

7. Data Reduction and Reporting

Aerial Survey: We will continue to use previously developed aerial survey data analysis techniques which use the standardized strip transect counts and intensive search units (ISU's) to estimate a correction factor for each survey (Bodkin and Udevitz 1999) in order to determine a population estimate. SAS statistical software and ArcInfo GIS software will be used.

CYP1A, Capture, and Blood: Off the shelf statistical software (e.g. SAS, SYSTAT, SigmaStat) will be used for descriptive statistics and simple between areas (oil exposed vs non-exposed) comparisons. A statistical consulting group might be contracted if the data warrant.

Habitat Use: SAS Statistical software, pre-packaged programs from the TDR manufacturer (Wildlife Computers), and ArcInfo or ArcGIS will be used to determine home ranges of VHF implanted otters as well as proportion of time spent in proximity to lingering oil. Further analyses and potential modeling have yet to be determined and will be based on results of preliminary data analysis.

Trustee Council Use Only

Project No: _____

Date Received: _____

GEM PROPOSAL SUMMARY PAGE

(To be filled in by proposer)

Project Title: Quantifying Temporal Variation in Harlequin Duck Exposure to Exxon Valdez Oil

Project Period: FY 05

Proposer(s): Dr. Dan Esler

Study Location: Lab analysis and data analysis of samples collected in Prince William Sound.

Abstract: Measurements of cytochrome P4501A (P450) have proven to be extremely useful for quantifying the degree of exposure to hydrocarbons following the EVOS for a number of vertebrates, including harlequin ducks. However, the ability to document interannual changes in exposure for harlequin ducks is eroded by dramatic differences in average P450 values between years, both for oiled and unoled areas. There is no reasonable biological explanation for these widely differing values among years and we speculate that these are the result of differences within the laboratory. Because the P450 data are so critical for documenting changes in oil exposure over time, as well as for linking individual survival with oil exposure, we propose to concurrently reanalyze all archived HADU samples. We propose to conduct these analyses at the same time samples from March 2005 are being analyzed (this is already funded by EVOSTC). This approach will result in a database in which all samples can be compared both within and between years, allowing for confident interpretation of the level of exposure in oiled areas and changes in that exposure over time.

Funding:	EVOS Funding Requested:	FY 04	\$	
		FY 05	\$ 39,000	
		FY 06	\$	TOTAL: \$39,000
	Non-EVOS Funds to be Used:	FY 04	\$	
		FY 05	\$	
		FY 06	\$	TOTAL:

Date: 5 January 2005

(NOT TO EXCEED ONE PAGE)

GEM PROPOSAL SIGNATURE FORM

THIS FORM MUST BE SIGNED BY THE PROPOSED PRINCIPAL INVESTIGATOR AND SUBMITTED ALONG WITH THE PROPOSAL. If the proposal has more than one investigator, this form must be signed by at least one of the investigators, and that investigator will ensure that Trustee Council requirements are followed. Proposals will not be reviewed until this signed form is received by the Trustee Council Office.

By submission of this proposal, I agree to abide by the Trustee Council's data policy
(*Trustee Council/GEM Data Policy**, adopted July 9, 2002) and reporting
requirements (*Procedures for the Preparation and Distribution of Reports***, adopted
July 9, 2002).

PROJECT TITLE: Quantifying Temporal Variation in Harlequin Duck Exposure
To Exxon Valdez Oil

Printed Name of PI: Dan Esler

Signature of PI: _____ Date 5 Jan 2005

Printed Name of co-PI: _____

Signature of co-PI: _____ Date _____

Printed Name of co-PI: _____

Signature of co-PI: _____ Date _____

* Available at <http://www.oilspill.state.ak.us/pdf/admin/datapolicy.pdf>

** Available at <http://www.oilspill.state.ak.us/pdf/admin/reportguidelines.pdf>

GEM RESEARCH PLAN

I. NEED FOR THE PROJECT

A. Statement of Problem

Harlequin ducks (*Histrionicus histrionicus*) have been the subject of a broad array of investigations following the 1989 Exxon Valdez oil spill. The process of population recovery of this species has been monitored and studied intensively, and it is one of the few species (along with sea otters) for which information is available that quantifies the demographic factors leading to population change. The Nearshore Vertebrate Predator project (NVP), funded by the EVOSTC, was initiated in 1995, and consisted of a suite of studies addressing constraints to population recovery for 4 vertebrates, including harlequin ducks. Results of the NVP included the surprising finding that several nearshore vertebrates (Jewett et al. 2002, Bodkin et al. 2002), including harlequin ducks (Trust et al. 2000), continued to be exposed to residual oil through at least 1998. This duration of exposure was much longer than expected, based on conventional assumptions about persistence of spilled oil (Peterson et al. 2003). NVP studies also documented demographic problems that corresponded with continued exposure to lingering oil, including reduced survival of sea otters (Monson et al. 2000) and harlequin ducks (Esler et al. 2000). In fact, exposure to lingering oil was considered to be a primary factor constraining population recovery of sea otters (Bodkin et al. 2002) and harlequin ducks (Esler et al. 2002).

Based on NVP findings, the EVOSTC funded a new set of studies (//423), which included consideration of the relationship between continuing oil exposure and population demography of harlequin ducks, at both individual and population levels. This work led to the conclusion that differences in harlequin duck survival between oiled and unoiled areas diminished over time, and were equivalent by 2002 (Bodkin et al. 2003). This was accompanied by suggestions of corresponding diminishment of oil exposure over time (see below). These are important findings because they: (1) document the full timeframe over which oil exposure persisted and (2) corroborate suggestions from NVP studies that there was a cause-effect relationship between oil exposure and population demographic processes.

Clearly, quantification of oil-exposure is an important component of the conclusions described above. For harlequin ducks, along with other nearshore vertebrates, inferences about oil exposure have been drawn through quantification of cytochrome P4501A (P450). P450 has proven to be a sensitive and specific biochemical measurement for assessing exposure to PAHs. Certain PAHs induce P450 responses, therefore measuring resultant enzyme production or activity can indirectly indicate exposure to oil constituents. In the case of harlequin ducks, liver samples were collected to assess P450 induction by measuring 7-ethoxyresorufin-O-deethylase (EROD) activity. EROD, which is the catalytic function of hydrocarbon-inducible CYP 1A, activity is a widely used and recognized method for quantifying P450.

However, the interpretation of P450 data for harlequin ducks has been hampered by dramatic interannual differences in EROD activity results. As described in Fig. 1, average EROD activity reported for oiled areas ranged from 40.2 to 1981.8 pmol/min/mg across years and, for unoiled

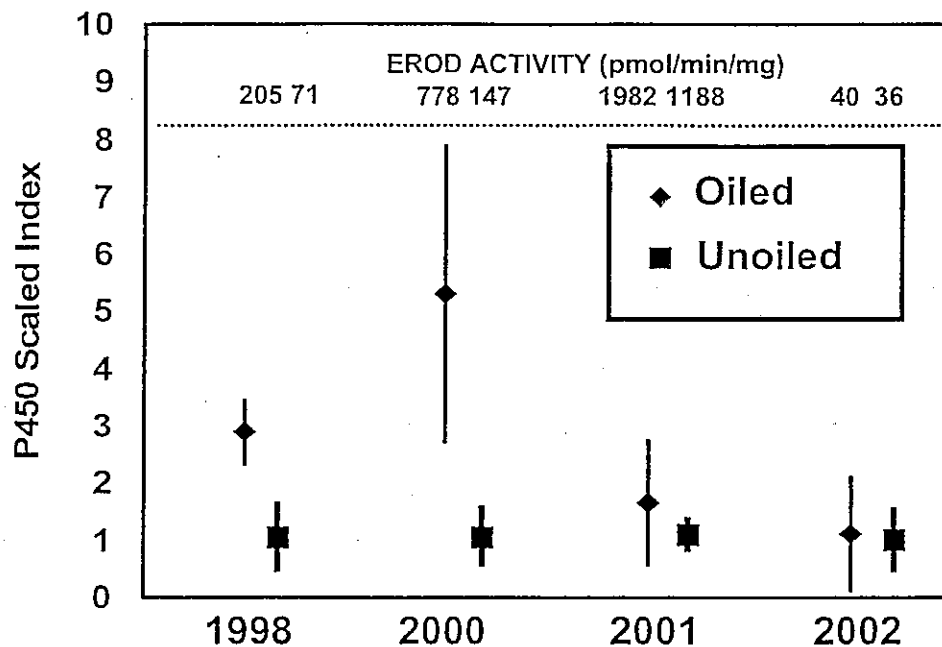


Figure 1. Cytochrome P450 (as measured by EROD activity) in harlequin ducks from oiled and unoiled areas of Prince William Sound, Alaska. The values above the dotted line are the average EROD activity reported from the lab. The figure scales the EROD data, setting the unoiled area at 1 for each year, to illustrate the change in the ratio of oiled:unoiled over time.

areas, the range was from 36.0 to 1187.9 pmol/min/mg across years. These almost certainly do not reflect real differences in exposure over time. Not only is the magnitude of differences among years in oiled areas far beyond what one would expect, one should predict that average exposure in oiled areas would decline over time with diminishing availability of oil, as has been described for other species. Also, there is no biological explanation for the dramatic differences across years in unoiled areas. One would expect that average EROD activity should remain stable over time in the unoiled areas. Also, interannual differences are fairly consistent between areas when considered across years; e.g., for both areas results are more than 30 times higher in 2001 than 2002. We are left to conclude that dramatic interannual differences are the result of variation in the laboratory processing.

Results from studies of captive harlequin ducks at the Alaska SeaLife Center corroborate the hypothesis of lab-induced interannual differences. During 2 winters (2000 and 2001) female harlequin ducks were captured from an unoiled area and held from September to March in captivity. In each winter, ducks ingested oil in controlled amounts and their P450 response was measured at season's end. Despite similar, controlled handling and dosing of ducks, as well as sample handling, between years, dramatically different results were reported in the 2 years. EROD activity of oiled birds was 634.6 and 2239.4 pmol/min/mg, respectively, in 2000 and 2001. More surprisingly, EROD activity of control birds was 86.7 and 235.3 pmol/min/mg in 2000 and 2001, respectively. The ratio of EROD activity for oiled:control birds was similar between years (7.3:1 and 9.5:1 in 2000 and 2001, respectively), suggesting that the magnitude of the differences was valid, but that values could not be directly compared across years.

To compare EROD activity across years for harlequin ducks captured in oiled and unoiled areas of Prince William Sound, we created an index for each year, scaling the results from unoiled areas to 1 and corresponding oiled area data by the same factor. This approach assumes that EROD activity would be similar in unoiled areas across years, which is reasonable under the assumption that residual Exxon Valdez oil is the primary inducer of P450. Based on this analysis (Figure 1), the difference in EROD activity diminishes over time and areas are statistically similar in 2001 and 2002. This pattern is concordant with those described for other nearshore species. However, the confidence in this conclusion, and its important implications for harlequin duck population recovery, would be enhanced by addressing the unexplained interannual variation.

Because the P450 data are so critical for documenting changes in oil exposure over time, as well as for linking individual survival with oil exposure, we propose to concurrently reanalyze all archived HADU samples. We propose to conduct these analyses at the same time samples from March 2005 are being analyzed (this is already funded by EVOSTC). This approach will result in a database in which all samples can be compared both within and between years, allowing for confident interpretation of the level of exposure in oiled areas and changes in that exposure over time.

Finally, as another check on data quality, we propose to have samples collected in March 2005 analyzed by 2 labs, 1 at Woods Hole Oceanographic Institute (where all of the historical data were generated) and 1 at University of California Davis with a history of doing the same method of EROD activity analyses.

B. Relevance to GEM Program Goals and Scientific Priorities

Lingering oil issues continue to be important for the EVOSTC and GEM. Recovery of the Prince William Sound ecosystem from the *Exxon Valdez* oil spill may not be considered complete until individuals are no longer exposed to spilled oil. Clear quantification of changes in exposure over time is central to that measure of recovery. Further, the proposed work will allow clearer interpretation of demographic processes related to changes in oil exposure, which in turn lead to conclusions about appropriate restoration.

II. PROJECT DESIGN

A. Objectives

This proposal consists of a single, simple objective:

1. Concurrently analyze all contemporary and archived harlequin duck liver samples using EROD activity to provide P450 data that can be confidently compared within and between years.

B. Procedural and Scientific Methods

Frozen liver samples collected in March 2005 will be shipped to the laboratory of Dr. John Stegeman at the Woods Hole Oceanographic Institute for preparation and analysis. Individual

liver pieces will be homogenized in 7 ml final volume homogenizing buffer (0.05 M Tris, 0.15 M KCl, pH 7.4), and microsomes sedimented by differential centrifugation as described previously (Stegeman et al., 1979). All other samples (i.e., those from previous studies of wild and captive harlequin ducks) are archived at Woods Hole as prepared microsomes. Microsomes will be resuspended in approximately 2 ml per g tissue with resuspension buffer (0.05 M Tris, 0.1 mM EDTA, 1 mM DTT, 20% v/v glycerol, pH 7.4). Protein will be determined in a 96 well plate using the micro-procedure of Smith et al. (1985). 7-Ethoxyresorufin-O-deethylase (EROD), the catalytic function of hydrocarbon-inducible CYP1A, will be measured using a kinetic modification of the plate-based assay of Kennedy et al. (1993). EROD activity will be determined in duplicate in a 48 well plate at 20° C using a Cytofluor® fluorescent plate reader (Millipore, Bedford, MA). Each well will contain 200 µl consisting of 1 µl of microsomes (4-15 µg protein), 2 µM 7-ethoxy resorufin in 50 mM Tris buffer, 0.1 M NaCl, pH = 7.8. Catalytic activity will be initiated by the addition of NADPH in buffer to a final 1.67 mM concentration. Fluorescence will be determined at 1 min intervals over 6 min, and the linear slope (fluorescence per minute) will be divided by the slope of the resorufin product standard curve (fluorescence per pmol) determined under the same conditions to yield pmol per minute per mg protein catalytic rates.

C. Data Analysis and Statistical Methods

Using the new data derived from concurrent analysis of March 2005 samples and reanalysis of all archived samples, we will use a General Linear Model to evaluate variation in EROD activity in relation to area (oiled vs. unoiled), year (categorical variable with levels for 1998, 2000, 2001, 2002, and 2005), and the interaction of area by year. We will use an information-theoretic approach to model selection (Burnham and Anderson 2002), finding the most parsimonious grouping of cells within the area by year matrix.

D. Description of Study Area

The samples used in these analyses have been, or will be, collected from sites described in project 040774. In brief, these include areas within Prince William Sound that were oiled during the Exxon Valdez spill (Green Island, Bay of Isles, Lower Passage, Herring Bay, Crafton Island, Main Bay, and Foul Bay) and nearby unoiled sites on northwestern Montague Island. These are the same sites that have been used since the initiation of NVP studies in 1995.

E. Coordination and Collaboration with Other Efforts

This proposal builds on previously funded EVOSTC projects, including NVP and //423 studies. This is essentially an amendment to EVOSTC project 040774, which was designed to sample P450 across an array of species, including harlequin ducks, for comparison to previously-collected samples.

III. SCHEDULE

A. Project Milestones and Measurable Project Tasks

Objective 1. Arrange lab analysis contracts and schedules – Feb 2005.

Collect new samples (project 040774) – March 2005.

Ship new samples to labs – April 2005.

Data delivered – June 2005.

Data analyzed and provided to EVOSTC in brief – July 2005.

Final report – April 2006.

IV. RESPONSIVENESS TO KEY TRUSTEE COUNCIL STRATEGIES

A. Community Involvement and Traditional Ecological Knowledge (TEK)

This proposal does not include a field component, so community involvement in field activities does not apply. However, over the years of data acquisition, we have consistently chartered boats and aircraft support from local operators.

B. Resource Management Applications

The data generated under this proposal will provide clear answers to questions about effects of lingering Exxon Valdez oil on migratory bird populations, including the duration of exposure and subsequent chronic effects. These are useful not only for understanding effects of the Exxon Valdez spill, but also in the context of risk assessment for other catastrophic events. Finally, these data will contribute to the understanding of effects of other sources of chronic contamination on wildlife populations. These kinds of data are already being used by the U.S. Fish and Wildlife Service and the Canadian Wildlife Service.

V. PUBLICATIONS AND REPORTS

No funds are requested in this proposal for publications. A final report will be submitted by April 30, 2006.

VI. PROFESSIONAL CONFERENCES

No funds are requested in this proposal for attending meetings.

LITERATURE CITED

- Bodkin, J.L., B. Ballachey, T.A. Dean, F.K. Fukuyama, S.C. Jewett, L.L. McDonald, D.H. Monson, C.E. O'Clair, and G.R. Van Blaricom. 2002. Sea otter population status and the process of recovery following the 1989 *Exxon Valdez* oil spill. *Marine Ecology Progress Series* 241:237-253.
- Bodkin, J. L., B. E. Ballachey, D. Esler, and T. Dean. 2003. Patterns and processes of population change in selected nearshore vertebrate predators. *Exxon Valdez Oil Spill Restoration Project Final Report* (Restoration Project //423).
- Esler, D., J.A. Schmutz, R.L. Jarvis, and D.M. Mulcahy. 2000a. Winter survival of adult female harlequin ducks in relation to history of contamination by the Exxon Valdez oil spill. *Journal of Wildlife Management* 64:839-847.
- Esler, D., T.D. Bowman, K.A. Trust, B.E. Ballachey, T.A. Dean, S.C. Jewett, C.E. O'Clair. 2002. Harlequin duck population recovery following the *Exxon Valdez* oil spill: Progress, process, and constraints. *Marine Ecology Progress Series* 241: 271-286
- Jewett S.C., T.A. Dean, B. R. Woodin, M. K. Hoberg, and J. J. Stegeman. 2002. Exposure to hydrocarbons ten years after the Exxon Valdez oil spill: evidence from cytochrome P4501A expression and biliary FACs in nearshore demersal fishes. *Marine Environmental Research* 54(1):21-48.
- Monson, D.H., D.F. Doak, B.E. Ballachey, A. Johnson, and J.L. Bodkin. 2000. Long-term impacts of the *Exxon Valdez* oil spill on sea otters, assessed through age-dependent mortality patterns. *Proc. Nat'l. Acad. Sciences, USA* 97(12):6562-6567.
- Peterson, C.H, S.D. Rice, J.W. Short, D. Esler, J. L. Bodkin, B.E. Ballachey, D.B. Irons. 2003. Long-term ecosystem responses to the Exxon Valdez oil spill. *Science* 302:2082-2086.
- Short, J. W., M. R. Lindeberg, P. M. Harris, J. M. Maselko, J. J. Pella, and S. D. Rice. 2004. Estimate of oil persisting on beaches of Prince William Sound, 12 after the Exxon Valdez oil spill. *Environmental Science and Technology* 38(1): 19 25.
- Trust, K. A., D. Esler, B. R. Woodin, and J. J. Stegeman. 2000. Cytochrome P450 1A induction in sea ducks inhabiting nearshore areas of Prince William Sound, Alaska. *Marine Pollution Bulletin* 40:397-403.

CURRENT AND PENDING SUPPORT FORM

The following information must be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.

Investigator: Dr. Dan Esler

Other agencies to which this proposal has been/will be submitted:

Support: ☒ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support

Project/Proposal Title: EVOSTC project #040774

Collection of the final round of samples during March 2005 is supported by this project.

Source of Support: EVOSTC

Total Award Amount: \$65,000

Total Award Period Covered: FY05

Location of Project: Prince William Sound

Months of Your Time Committed to the Project: FY04 1 FY 05 FY 06 Sumr:

Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support

Project/Proposal Title:

Source of Support:

Total Award Amount: \$

Total Award Period Covered:

Location of Project:

Months of Your Time Committed to the Project: FY 04 FY 05 FY 06 Sumr:

Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support

Project/Proposal Title:

Source of Support:

Total Award Amount: \$

Total Award Period Covered:

Location of Project:

Months of Your Time Committed to the Project: FY04 FY 05 FY 06 Sumr:

Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support

Project/Proposal Title:

Source of Support:

Total Award Amount: \$

Total Award Period Covered:

Location of Project:

Months of Your Time Committed to the Project: FY 04 FY 05 FY 06 Sumr:

*If this project has previously been funded by another entity, please list and furnish information for immediately preceding funding period.

(USE ADDITIONAL SHEETS AS NECESSARY)

**EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
DETAILED BUDGET FORM FY 05 - FY 07**

Budget Category:	Proposed FY 05	Proposed FY 06	Proposed FY 07	TOTAL PROPOSED
Personnel	\$6.8	\$0.0	\$0.0	\$6.8
Travel	\$0.0	\$0.0	\$0.0	\$0.0
Contractual	\$29.0	\$0.0	\$0.0	\$29.0
Commodities	\$0.0	\$0.0	\$0.0	\$0.0
Equipment	\$0.0	\$0.0	\$0.0	\$0.0
Subtotal	\$35.8	\$0.0	\$0.0	\$35.8
General Administration (9% of subtotal)	\$3.2	\$0.0	\$0.0	\$3.2
Project Total	\$39.0	\$0.0	\$0.0	\$39.0

Cost-share Funds:
In this box, identify non-EVOS funds or in-kind contributions used as cost-share for the work in this proposal. List the amount of funds, the source of funds, and the purpose for which the funds will be used. Do not include funds that are not directly and specifically related to the work being proposed in this proposal.

**FY 05-
07**

Date Prepared:

Project Number:
Project Title: Harlequin Duck P450 Reanalysis
Agency: USGS

**FORM 3A
TRUSTEE
AGENCY
SUMMARY**

**EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
DETAILED BUDGET FORM FY 05 - FY 07**

Personnel Costs:		GS/Range/ Step	Months Budgeted	Monthly Costs	Overtime	Personnel Sum
Name	Description					
PI - Esler	salary and benefits		1.0	6.8		6.8
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
Subtotal			1.0	6.8	0.0	\$6.8
Personnel Total						\$6.8

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
Travel Total						\$0.0

FY 05

Project Number:
Project Title: Harlequin Duck P450 Reanalysis
Agency: USGS

**FORM 3B
Personnel
& Travel
DETAIL**

EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
DETAILED BUDGET FORM FY 05 - FY 07

[illegible]

FY 05

Project Number:
Project Title: Harlequin Duck P450 Reanalysis
Agency: USGS

FORM 3B
Contractual &
Commodities
DETAIL

**EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
DETAILED BUDGET FORM FY 05 - FY 07**

[illegible]

FY 05

Project Number:
Project Title: Harlequin Duck P450 Reanalysis
Agency: USGS

FORM 3B
Equipment
DETAIL

[illegible]

FY 06

Project Number:
Project Title: Harlequin Duck P450 Reanalysis
Agency: USGS

FORM 3B
Personnel
& Travel
DETAIL

[illegible]

FY 06

Project Number:
Project Title: Harlequin Duck P450 Reanalysis
Agency: USGS

FORM 3B
Contractual &
Commodities
DETAIL

[illegible]

FY 06

Project Number:	
Project Title:	
Agency:	

FORM 3B
Equipment
DETAIL

[illegible]

Project Number:
Project Title:
Agency:

8 of 20

FY 07

Project Number:	
Project Title:	
Agency:	

FORM 3B
Contractual &
Commodities
DETAIL

[illegible]

FY 07

Project Number:	
Project Title:	
Agency:	

FORM 3B Equipment DETAIL

**EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
DETAILED BUDGET FORM FY 05 - FY 07**

**FY 05-
07**

Project Number:
Project Title:
Name of Contractor:

**FORM 4A
Non-Trustee
SUMMARY**

[illegible]

[illegible]

FY 05

Project Number:	
Project Title:	
Name of Contractor:	

FORM 4B
Contractual &
Commodities
DETAIL

FY 05

Project Number:	
Project Title:	
Name of Contractor:	

FORM 4B
Equipment
DETAIL

[illegible]

FY 06

Project Number:
Project Title:
Name of Contractor:

FORM 4B
Personnel
& Travel
DETAIL

[illegible]

FY 06

Project Number:
Project Title:
Name of Contractor:

FORM 4B
Contractual &
Commodities
DETAIL

[illegible]

Project Number:
Project Title:
Name of Contractor:

17 of 20

[illegible]

[illegible]

FY 07

Project Number:
Project Title:
Name of Contractor:

FORM 4B
Contractual &
Commodities
DETAIL

[illegible]

FY 07

Project Number:
Project Title:
Name of Contractor:

FORM 4B Equipment DETAIL

Exxon Valdez Oil Spill Trustee Council

441 W. 5th Ave., Suite 500 • Anchorage, Alaska 99501-2340 • 907/278-8012 • fax 907/276-7178



Memorandum

To: PAC, STAC and Agency Liaisons

From: Gail Phillips
Executive Director *Gail*

Date: January 13, 2005

Subject: FY 2006 Invitation

For the FY 2006 Invitation, the Trustee Council directed that they wanted a short term shift in focus. This included revisiting the injured resources and services list identified in the 1994 *Exxon Valdez* Oil Spill Restoration Plan to review and determine the present status of injured resources and services. As part of this re-visitation there is also a need to perform a critical evaluation to understand why many resources have not recovered, are still recovering or recovery status is unknown.

In order to accomplish this, we have developed a draft Invitation that meets the Council's direction. I am happy to send this to you for your review and comment. This will be on the agenda for the PAC/STAC joint meeting on January 27, 2005.

Enclosed is a copy of the FY 06 Invitation in a "DRAFT FOR REVIEW AND COMMENT Form". If you have comments and/or suggestions, please submit them to Dick Dworsky at Richard_Dworsky@evostc.state.ak.us by COB February 1, 2005.

Your help in preparing the FY 2006 Invitation is appreciated. Thank you.

Exxon Valdez Oil Spill Trustee Council

441 W. 5th Ave., Suite 500 • Anchorage, Alaska 99501-2340 • 907/278-8012 • fax 907/276-7178



Memorandum

To: Exxon Valdez Oil Spill Trust Council members:

From: Gail Phillips
Executive Director *Gail*

Date: January 20, 2005

Subject: DRAFT FY 2006 Invitation for Proposals

Enclosed please find a draft of the Invitation for Proposals for the federal fiscal year 2006. Please note that this version includes edited comments, but not final PAC, STAC or liaisons comments. The final draft invitation will be distributed to you after all of the comments are received, but I thought you might like to have an advance copy now. Since the PAC/STAC are meeting on January 27th to review this, we've asked for their comments to be submitted by February 1st in order for you to have their input at the February meeting.

Please feel free to contact me if you have any questions or comments.



DRAFT FOR TC REVIEW AND COMMENT. Not for
publication January 20, 2005.

Draft

Exxon Valdez Oil Spill Trustee Council

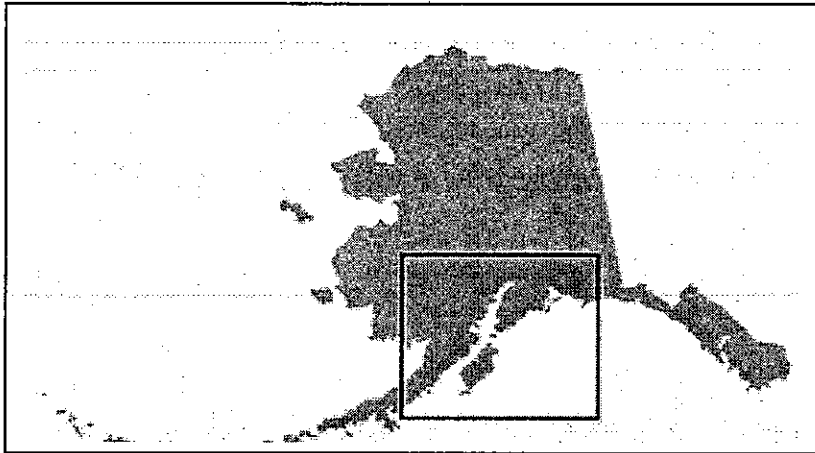
Implementation of the *Exxon Valdez* Oil Spill Restoration Plan

FY 2006 Invitation for Proposals

Exxon Valdez Oil Spill Trustee Council
441 West 5th Avenue, Suite 500
Anchorage, AK 99501
907-278-8012 phone/907-276-7178 fax
1-800-478-7745 (Within Alaska)
1-800-283-7745 (Outside Alaska)
www.evostc.state.ak.us

January 20, 2005

Note. This version includes edited comments but not final PAC,
STAC or Liaisons comments.



*Federal
Fiscal
Year
2006*

Draft

**INVITATION FOR
PROPOSALS**

Issued February 15, 2005

Exxon Valdez Oil Spill Trustee Council

441 W. 5th Ave., Suite 500 • Anchorage, Alaska 99501-2340 • 907/278-8012 • fax 907/276-7178

Joe Meade, *Forest Supervisor, AK Region, DOA*
James Balsiger, *Administrator, NMFS*
Drue Pearce, *Sr. Advisor to the Secretary, DOI*

Wayne Regelin, *Commissioner, ADF&G*
Kurt Fredriksson, *Commissioner, ADEC*
Gregg Renkes, *Attorney General, ADOL*



DRAFT FOR REVIEW AND COMMENT BY

FEBRUARY 1, 2005. Comments to Richard_Dworsky@evostc.state.ak.us

The FY 06 Invitation was issued in an electronic format on the Trustee Council's web page. This paper copy of the invitation was prepared to provide documentation for the permanent files.

Statement of Non-discrimination.

The Trustee Council conducts all programs and activities free from discrimination based on race, color, national origin, age, sex, religion, marital status, pregnancy, parenthood, or disability. The Council administers all programs and activities in compliance with Title VI of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, Title II of the Americans with Disabilities Act of 1990, the Age Discrimination Act of 1975, and Title IX of the Education Amendments of 1972. If you believe you have been discriminated against in any program, activity, or facility, or if you desire further information, please write to: EVOS Trustee Council, 441 West 5th Avenue, Suite 500, Anchorage, Alaska 99501-2340; or O.E.O. U.S Department of the Interior, Washington, D.C. 20240. For information on alternative formats for this and other publications, contact the department ADA coordinator at (voice) 907-465-4120 or (telecommunication device for the deaf) 1-800-478-3648

Eligibility Criteria

Individuals, private industry, government agencies, and other interested parties, regardless of nationality or institutional affiliation, are entitled to submit a proposal in response to this Invitation. All proposals will be evaluated based on the same criteria regardless of the source of the proposal. In addition, proposals that are good ideas in areas that are not specifically invited will receive the same careful review and processing as ideas that are specifically invited. Nonetheless, ideas from areas that are not invited are less likely to be funded than good ideas that are.

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BACKGROUND

In 1989, the *T/V Exxon Valdez* spilled 11 million gallons of crude oil into Prince William Sound. In 1991, the U.S. District Court approved a civil settlement that required Exxon Corporation to pay the United States and the State of Alaska \$900 million to restore the resources injured by the spill, and the reduced or lost services (human uses) the resources provide. Under the court-approved terms of the settlement, a Trustee Council of three federal and three state members administers the restoration fund to restore the resources and services injured by the spill. <http://www.evostc.state.ak.us/>

The *Exxon Valdez* Restoration Plan was adopted by the Council in 1994 with a subsequent Update on Injured Resources and Services dated August 2002 (with June 2003 additions), and provides long-term guidance for restoring the resources and services injured by the oil spill. It contains policies for making restoration decisions and describes how restoration activities will be implemented. <http://www.evostc.state.ak.us/pdf/restoration/injupdate02.pdf>

Consistence with Trustee Council guidance, "The Council recognizes and commends the tremendous amount of work accomplished in partnership with many, including communities, the University and agency researchers, over the past fifteen years, through research, monitoring and specific restoration activities that addressed the restoration and rehabilitation goals identified in the 1994 Restoration Plan. In recognition of work already accomplished, the Council will assess and evaluate the work that is still needed to better understand the effects of lingering oil and to reach closure on the status of injured species and services. Over the next eighteen months, the Council has determined the need to realign priorities and restorative activities, placing focus on critical work required to reach closure in areas of restoration related to lingering oil and injured species. Once the outcome of these prioritized studies is accomplished, the Council will be better prepared to fully meet the goals outlined in the 1994 Restoration Plan inclusive of the long-term requirements of the Gulf Ecosystem Monitoring Program (GEM)."

Thus, for the FY 06 Invitation, the Trustee Council stipulated a short term shift in focus. This included revisiting the injured resources and services list identified in the 1994 Restoration Plan to review and determine the present status of injured resources and services. As part of this re-visitation there is also a need to perform a critical evaluation to understand why many resources have not recovered, are still recovering or recovery status is unknown.

The Trustee Council sets restoration priorities and annually determines what restoration projects will be performed. Restoration projects are solicited through an Invitation for Proposals. The Invitation for Proposals is open to individuals, private industry, government agencies and other interested parties interested in submitting proposals for restoration work identified in the Invitation.

The FY 06 Invitation-Overview

The FY 06 Invitation for Proposals is focused on the synthesis of information to assist the Trustee Council in determining the status of injured resources and services identified in the 1994 Restoration Plan. The Invitation is soliciting proposals to review, synthesize and benchmark the injured resources and services list as identified in the *1994 Exxon Valdez Oil Spill Restoration Plan* and the subsequent *Update on Injured Resources and Services* dated August 2002 and amended with June 2003 additions.

The invitation is divided into three parts:

- 1. Introduction.** This section describes the schedule and milestones for the development and release of the FY 06 Invitation and subsequent receipt, review and approval of proposals and also sets forth the available funding for FY 06.
- 2. FY 06 Invitation.** This section sets forth the purpose, background and scope of work for the FY 06 Invitation. This invitation focuses on the synthesis of information to assist in determining the status of injured resources and services. Injured resources could be clustered to more easily describe the status of injury, recovery, current strategies for restoring these resources and services and potential future actions and changes for restoring these resources and services.

This invitation also allows on-going Principal Investigators the opportunity to propose modification of their multi-year projects if valid circumstances exist.

- 3. Instructions for Submitting a Proposal.** This section gives detailed instructions for preparing and submitting a proposal. It also describes how proposals will be evaluated.

Introduction

Schedule

The schedule and milestones for the development and release of the FY 06 Invitation and subsequent receipt, review and approval of proposals is shown below.

Schedule and Milestones for the FY 06 Invitation

January 2005	Draft Invitation sent to STAC and PAC
January 2005	Draft sent to Trustee Council
February 4, 2005	TC approves Final Draft Invitation
February 15, 2005	Invitation for Proposals issued
April 1, 2005	Proposals due
April 15- June 15, 2005	Scientific Review conducted and distributed
June 15, 2005	Funding Recommendations drafted

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June 19-July 1 2005
July 29, 2005
August 10, 2005
September 1, 2005

Public comment period
Work Plan & Budget drafted
Presentation to Trustee Council for approval
Final Work Plan

Funding

The Trustee Council established an investment fund and adopted an endowment approach for management of the fund which establishes annual spending limits consistent with ensuring the fund's value over time which provides for inflation-proofing the fund and includes annual funding caps for FY 06 and all future years. Included in this spending limit are the annual work plan, continuing multi-year projects and the administrative costs of the program including the science and data management, public information and project management costs.

The FY 06 proposed costs are:

- \$4.6 million spending cap
- \$2.2 million for multi-year projects (already committed)
- \$1.8 million for internal projects
- Leaving \$600,000 for funding this FY 06 Invitation

FY 06 Invitation

The purpose of the FY 06 Invitation is to seek projects that will: 1) fully evaluate and benchmark the restoration of injured resources and services identified in the 1994 *Exxon Valdez* Restoration Plan and 2) identify options for reaching recovery and/or potential additional restoration projects. The invitation is predicated on synthesizing all relevant information to provide information relevant to determining the current status of injured resources and services identified in the 1994 *Exxon Valdez* Oil Spill Restoration Plan.

Please note that updates or modifications to currently funded projects will be accepted and must be submitted in accordance with the policies and procedures manual available at <http://www.evostc.state.ak.us/admin/index.html#policies%20&%20procedures>. Except for these potential modifications, no new proposals outside the bounds of this invitation will be accepted.

The synthesis should build on previous research and studies as well as ongoing studies being conducted by Integral Consulting and the Synthesis project book being completed by Dr. Robert Spies. Proposals should bring together existing data and information to evaluate different aspects of the species status.

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The synthesis will be used to benchmark both the status of injured resources and services under the 1994 *Exxon Valdez* Oil Spill Restoration Plan and progress in accomplishing the Plan's goals and recovery objectives. The synthesis should also, in cases where needed, identify potential options and criteria to develop and design new restoration strategies to meet recovery objectives. The synthesis will provide a scientific basis for decision making and communicating the status of injured resources and services to the public.

Studies funded under this invitation shall provide a synthesis of scientific literature and existing data gathering programs to serve as the basis for the evaluation of the status of injured resources and services and suggest management options where needed for changing or resolving the status of the injured resources and services. It should be noted that several of the topics contained in the attached draft outline are being addressed in deliverables being prepared by a consulting firm currently under contract to the State of Alaska Department of Law. It is expected that the product of this contract will be available for use in this synthesis effort by June 2005. The EVOS Restoration Office does not wish to duplicate efforts and encourages the use of existing materials and collaboration with other ongoing efforts. Based upon the results of the previously referenced contract it is expected that proposals submitted in response to this solicitation will undergo an iterative review and negotiations to further refine deliverables and funding requirements.

Proposals are being solicited only for the named injured resource or service or group of resources that is currently listed as Recovering, Not Recovered or Recovery Unknown. These resources are identified in Table 1.

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Table 1. Table of Injured Resources and Services¹

Resource	Recovered	Recovering	Not Recovered	Recovery Unknown
Archaeological Resources	X			
Bald Eagles	X			
Black Oystercatchers	X			
Common Murres	X			
Pink salmon	X			
River Otters	X			
Sockeye Salmon	X			
Clams		X		
Commercial Fishing		X		
Designated Wilderness		X		
Intertidal Communities		X		
Killer Whales		X		
Marbled Murrelets		X		
Mussels		X		
Passive Use		X		
Recreation and Tourism		X		
Sea otters		X		
Sediments		X		
Subsistence			X	
Harbor Seals			X	
Harlequin Ducks			X	
Pigeon Guillemot			X	
Pacific Herring			X	
Common Loon			X	
Cutthroat Trout				X
Dolly Varden				X
Kittlitz's Murrelet				X
Rockfish				X
Subtidal Communities				X
Cormorants (3 SPC)				X

Proposals are invited for an individual injured resource or service or by groups of like injured resources or services or for interrelated ecological services such as the nearshore habitat, which includes various species of birds, fish or sediments. Proposals that group resources and services shall include the rationale and benefits of grouping injured resources or services into a single synthesis.

A draft proposal outline for an injured resources or service or synthesis of information to determine the status of injured resources identified in the 1994 *Exxon Valdez* Oil Spill Restoration Plan as recovering, not recovered and recovery unknown is shown as an example in Table 2 to aid proposers in understanding the scope and content of the final product.

¹ From Restoration Plan (1994) and Status Report 2002 with 2003 updates

Table 2
Illustrative Outline

Status Update of an Injured Species or Service

(This outline may be modified to accommodate unique characteristics or combining of more than one species or service into a single project)

Introduction

Background

- Natural history and ecology
 - General habitat
 - Life History Characteristics
 - Demography
 - Distribution and abundance in Alaska
 - Distribution and abundance in Spill Zone²
 - Reproductive biology
 - Feeding ecology
 - Human use (recreational and commercial)
- Summary of initial impact of spill (1989-1994)²

History and current status of recovery classification (goals, objective, strategies beginning with the 1994 Restoration Plan) Error! Bookmark not defined.

- Status in the 1994 Restoration Plan
- Summary of changes in status over time
- Current status

Summary of monitoring, research, and restoration projects conducted to date

- Summary of EVOS funded projects
- Summary of Non-EVOS funded projects
- Relationship of projects to recovery objectives and restoration strategy including monitoring, R&D, direct restoration, and habitat acquisition

Synthesis of effects of the EVOS³

- Direct effects of the initial spill
 - Short-term effects
 - Long-term effects
- Indirect and cascade effects of the initial spill
 - Short-term effects
 - Long-term effects
- Ongoing effects associated with lingering oil³
 - Direct effects of lingering oil
 - Indirect effects of lingering oil

² Depending on the availability of information, Integral Consulting is mapping distributions of lingering oil and of injured resources in the spill zone.

³ Integral Consulting provides detailed evaluations of the fate and effects of lingering oil and its impacts on injury and recovery status for non-service related resources that are currently classified as either recovering or not recovered.

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Other factors influencing continuing injury, rates of recovery and population variability^{Error!} Bookmark not defined.

Long-term population trends within and outside the spill zone
Ecosystem change, regime shifts and cyclical changes in the marine environment⁴
Other threats and effects of anthropogenic factors
 Contaminants, Disturbance, Predators, Invasive species, Disease
 Other

Summary of current population status and ability to attribute current status to the EVOS Trustee Council^{Error! Bookmark not defined.}

Relationship to past and current recovery objectives
Supplemental endpoints for interpretation of population status.

Examples are:

- Physical – Restoration of exposure pathways and habitat conditions conducive to resource recovery
- Temporal – Time frame for population growth or community succession is adequate for resource recovery
- Spatial – Scale of long-term, persistent or ongoing effects in relation to exposure area and size of population.

Recommendations for revised EVOS recovery objectives and restoration strategy

- Populations – Structural and functional aspects of affected resources
- Physical factors – Sources, pathways, exposure points
- Temporal factors – Oil degradation rates, succession rates, generation times
- Spatial factors – Scale of long-term, persistent or ongoing effects in relation to exposure area and size of population.

Recommendations for future actions (additional work to clarify injured species status, restore injured species, or monitor lingering oil impacts and recovery)

Recommended actions

Research
Monitoring
Restoration

Estimated direct and indirect costs to perform recommended studies or restoration to achieve recovery objective

Primary and secondary benefits from implementation and less expensive methods for achieving substantially similar results.

The syntheses will assist the Trustee Council in determining the resources and services recovery status and in defining whether or not the recovery objectives have been met and restoration is complete. Where current endpoints are indefinable or unattainable, proposals should attempt to identify alternative clear, measurable and achievable endpoints.

⁴ Substantive aspects of this topic are addressed in a book that is in preparation by the science staff of the Exxon Valdez Oil Spill Trustee Council (Spies et al., in preparation).

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Funded studies will have to describe how they intend to accomplish the following which includes at a minimum:

1. Review and evaluate the information contained in the *Summary of Restoration Strategies and Projects – FFY 92-02* for each non-recovered resource and service. <http://www.evostc.state.ak.us/restoration/index.html>
2. Review pertinent research and monitoring reports generated by the EVOS Trustee Council.
3. Review additional research and background information sponsored by other institutions or investigators that is pertinent to understanding of the specific resource(s) and service(s).
4. Synthesize and describe how EVOS funded projects contributed to the restoration strategies and objective.
5. Review all other relevant literature related to the injured resource or service that may aid in determining the status or condition and/or whether or not its on-going condition may be the result of the oil spill.
6. Critically evaluate the status of the injured resource or service consistent with the restoration objective and strategies as a result of the oil spill.
7. Identify data and information with references that supporting this view.
8. Perform a critical evaluation of the recovery objectives and restoration strategies to see if they are attainable or whether or not they should be re-evaluated based on current information.

DELIVERABLES

The final report will constitute the deliverable. The proposers will be required to present the draft final report in both written and oral form to the Trustee Council and incorporate reviewer comments prior to submission of the final version. The final product shall be submitted as an EVOS Final Report that meets the standard formatting and can be filed in the ARLIS collection along with all other EVOS products.

The duration of this synthesis is approximately seven months commencing on September 1, 2005. Draft reports will be due on April 1, 2006 and, after peer review and comments, final reports will be due on September 1, 2006.

How Proposals are Reviewed

Policy and Legal Review To be eligible for funding, proposals must be designed to analyze, evaluate, suggest restoration, replace, enhance or acquire the equivalent of natural resources injured as a result of the oil spill or the reduced or lost services

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provided by such resources. Trustee Council staff will review each proposal for completeness and for adherence to the requirements of this invitation before forwarding them to the Trustee Council for consideration.

Technical and Programmatic Review Proposals will be evaluated on the following technical aspects that are essential to all projects:

1. Understanding of the problem, soundness of the technical approach.
2. Feasibility, capabilities, experience and past performance of the proposer(s) and key personnel.
3. Facilities or other factors integral to the proposal's success are available to support the proposal.
4. Cost effectiveness of the proposal - general cost may be submitted until final negotiations.
5. The scope of the proposal may be modified during negotiations to include more than a single resource or service if applicable.
6. Partnerships are encouraged.

Proposals and their technical reviews will be examined by the Trustee Council's Scientific and Technical Advisory Committee (STAC) and appropriate subcommittees for both scientific rigor and programmatic suitability. The programmatic criteria applied by the STAC emphasize the following:

1. Responsiveness of the proposal to the invitation.
2. The extent to which the proposal is consistent with the *1994 Exxon Valdez Oil Spill Trustee Council Restoration Plan*.
3. The extent to which the proposal will help achieve the restoration objectives identified by the Trustee Council for a given injured resource. The Council's restoration objectives, and the current status of injury, are available at <http://www.evostc.state.ak.us/pdf/injupdate02.pdf>.
4. How the proposal will contribute to meeting the implementation goals and strategies of the Council, such as leveraging funds from other sources.
5. Degree to which the proposed activities have considered or are able to capitalize on local knowledge or traditional ecological knowledge appropriate to the proposed activities.
6. Degree to which proposed activities are likely to result in resource or environmental management applications.

Budget Review Trustee Council staff will examine each proposal's budget for consistency with its proposed objectives and for adherence to the budget instructions contained in this invitation. You may be asked to respond to budget review questions or to revise your budget to address budgetary concerns.

Public Advisory Committee Review Proposals will be reviewed by the Trustee Council's Public Advisory Committee (PAC), a 20 member group representing a cross section of interests affected by the oil spill.

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Public Comment and Funding Decision The Trustee Council's Executive Director will develop a funding recommendation based on the reviews described above. The recommendation will be circulated for public comment as the *FY 06 Invitation for Proposals*. The Council will then decide which proposals will be funded. Unanimous agreement of all six Council members is required to fund a proposal. **Note** that the Trustee Council is not legally bound to abide by recommendations of peer reviewers, the STAC, science advisors, PAC or the Executive Director.

Community Involvement Information

All proposals in all program areas are expected to declare the extent to which local communities are involved or have been contacted. All successful proposals will be required to develop a community involvement plan that puts the investigators in contact with the relevant communities and specifies how the community will receive the results of the project. Even if there are no obvious synergies to be derived from contacting the city, borough, tribal or other government entity or community council, it is prudent to let them know you may be working, staging or launching in the area. Proposals that have made appropriate community contacts will be rated higher by the STAC than those without, all other factors being equal.

The following contact information is intended to be used by proposers to find initial contacts in the communities. Advice and other contact information may be obtained from Cherri Womac, Community Involvement Coordinator for the Trustee Council, Cherri_Womac@evostc.state.ak.us, or by telephone at 907-278-8012.

Akhiok Tribal Council
Mitch Simeonoff,
President
PO Box 5072
Akiok, AK 99615
(907) 836-2313

Chenega IRA Council
Larry Evanoff,
President
PO Box 8079
Chenega Bay, AK
99574-8079
(907) 573-5132

Chignik Lake Village Council
Virginia Aleck,
President
PO Box 18
Chignik Lake, AK
99548
(907) 845-2212

Chignik Bay Village Council
(907) 749-2445

Chignik Lagoon Village Council
(907) 840-2281

City of Cordova
Scott Hahn, City
Manager
PO Box 1210
Cordova, AK 99574
(907) 424-6200

City of Homer
Walt Wrede, City
Manager
491 E Pioneer Ave
Homer, AK 99603
(907) 235-8121
clerk@xyz.net

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City of Kodiak
Linda Freed, City
Manager
710 Mill Bay Rd
Kodiak, AK 99615
(907) 486-8640
lfreed@city.kodiak.ak.us

City of Seldovia
John Frohrip, City
Manager
PO Drawer B
Seldovia, AK 99663
(907) 234-7643

City of Seward
Richard Gifford
Assistant City Manager
PO Box 167
Seward, AK 99664
(907) 224-4005
rgifford@cityofseward.net

City of Soldotna
Thomas Boedeker, City
Manager
177 N Birch St
Soldotna, AK 99669
(907) 262-9107
boedeker@ci.soldotna.ak.us

City of Valdez
David Dengel, City
Manager
PO Box 307
Valdez, AK 99686
(907) 835-4313
ddengel@ci.valdez.ak.us

**City of Whittier/Port
& Harbor
Commission**
Dean Rand,
Representative
PO Box 608
Whittier, AK 99693
(907) 472-2337
dean@discoveryvoyages.com

**Karluk IRA Tribal
Council**
Alicia Reft, President
PO Box 22
Karluk, AK 99608-
0022
(907) 241-2218

**Kodiak Island
Borough**
Pat Carlson, Manager
710 Mill Bay Rd.
Kodiak, AK 99615
(907) 486-9363
info@kib.co.kodiak.ak.us

**Larsen Bay Tribal
Council**
Jack Wick, President
PO Box 35
Larsen Bay, AK
99624-0035
(907) 847-2207

**Nanwalek IRA
Council**
Emilie Swenning, First
Chief
PO Box 8012
Nanwalek, AK 99603
(907) 281-2274

**Native Village of
Afognak**
Roger Malutin
PO Box 968
Kodiak, AK 99605
(907) 486-6357

Native Village of Eyak
Bruce Cain, Executive
Director
PO Box 1388
Cordova, AK 99574-
1388
(907) 424-7738
bruce@nveyak.org

**Native Village of Port
Lions**
Denise May, President
PO Box 69
Port Lions, AK 99550
(907) 454-2234

**Native Village of
Tatitlek**
Gary Kompkoff,
President
PO Box 171
Tatitlek, AK 99677
(907) 325-2311

**Old Harbor Tribal
Council**
Al Cratty, Jr.
PO Box 62
Old Harbor, AK 99643
(907) 286-2215

**Ouzinkie Tribal
Council**
Daniel Ellenak
PO Box 130
Ouzinkie, AK 99644
(907) 680-2257

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**Port Graham
Traditional Council**
Patrick Norman, Chief
PO Box 5510
Port Graham, AK
99603
(907) 284-2227

Seldovia Village Tribe
Crystal Collier,
Executive Director
PO Drawer L
Seldovia, AK 99663
(907) 234-7898

**Woody Island Tribal
Council**
Andy Teuber, Jr.
PO Box 9009
Kodiak, AK 99615
(907) 486-282

**Qutekcak Native
Tribe**
Connie Pavloff,
Administrator
203 3rd Ave
Seward, AK 99664
(907) 224-3118

Valdez Native Tribe
Charlie Hughey,
Natural Resources
Manager
PO Box 1108
Valdez, AK 99686
(907) 835-4951
vntevos@cvinternet.net

**Native Village of
Perryville**
Gerald Kosbruk,
President
PO Box 89
Perryville, AK 99648
(907) 853-2203
nvofperry@starband.net

General Conditions

Once the Trustee Council approves project funds, the Council's Executive Director will provide spending authorization on a project-by-project basis. To receive authorization to spend, each project must first address any project-specific conditions spelled out by the Council in their approval motion and be current on the Council's reporting and data requirements. In addition, the Trustee agency assigned to administer the project must document compliance with the National Environmental Policy Act (NEPA). During project implementation, principal investigators (PIs) must do the following:

Develop a data management plan. In collaboration with the Trustee Council's Data Systems Manager, develop a plan that includes procedures to process, document and migrate all data to be collected to archives identified by the Data Systems Manager. In addition, the Data Systems Manager will collaborate with PIs on data formats. For more information, see *Data Policy* at <http://www.evostc.state.ak.us/pdf/admin/datapolicy.pdf>.

Develop a community involvement plan. In collaboration with the Trustee Council's Community Involvement Coordinator, develop a plan that identifies the relevant communities, and that explains how, where and when the project will exchange information and ideas with those groups. (For more information on the role of community involvement in the GEM program, see Chapter 1 of the GEM Program Document <http://www.evostc.state.ak.us/gem/documents.html>).

Provide quarterly reports on the project's progress. The report must indicate whether the project's major tasks (as identified in the research plan) are being accomplished

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according to schedule and flag any problems being encountered. The report consists of filling out a brief form supplied by the Trustee Council.

Submit annual and final project reports. Annual reports are required on multi-year projects by September 1 of each fiscal year for which funding is received. Final reports are required upon project completion (and may consist of manuscripts for publication in the peer-reviewed literature). PIs must revise all final reports to respond to peer review comments, if any; revision of annual reports is not required. Final reports are made available to the public through the Alaska Resources Library and Information Services (ARLIS) and on the Trustee Council's web page; annual reports are made available only on the Council's web page. In addition, PIs are encouraged to post reports on their own web pages. (For more information, see *Procedures for the Preparation and Distribution of Reports* at <http://www.evostc.state.ak.us/pdf/admin/reportguidelines.pdf>). PIs are expected to publish results of their work in the peer-reviewed literature as well.

Attend the Annual EVOS Workshop. All PIs are expected to attend the workshop and some may be asked to present a poster or a talk. The Trustee Council's FY 06 workshop is tentatively scheduled for January, 2006.

Comply with the Trustee Council's TEK protocols. Protocols for including traditional ecological knowledge in the restoration process were adopted by the Trustee Council in December 1996. These protocols provide guidelines designed to facilitate collaboration between Alaska Natives and EVOS scientists in meeting the Council's restoration goals. (For more information, see *Protocols for Including Indigenous Knowledge in the EVOS Restoration Process* at <http://www.evostc.state.ak.us/pdf/admin/protex.pdf>).

Maintain samples and data taken during the course of the project. Because the Trustee Council's program is funded by a court-approved settlement with Exxon Corp., it is still subject to potential litigation. Certain requirements have been imposed by state and federal courts regarding destruction of samples and documents related to EVOS. There are significant legal consequences if items are destroyed other than as prescribed by the courts. (For more information, see *Procedures for Destroying Documents or Physical Evidence Related to EVOS* at <http://www.evostc.state.ak.us/pdf/admin/prosample.pdf>).

If possible, maintain a web site on the project. The web site should include the project's annual and final reports and any additional information that would help inform the public about the project. The web site must include the following statement: "This project was supported by the Exxon Valdez Oil Spill Trustee Council. However, any findings and conclusions presented on this web site are the investigators' own and do not necessarily reflect the views or position of the Trustee Council." A link to the project's web site will be provided on the Trustee Council's web site.

How to Prepare a Proposal

General Instructions

What to Submit. One paper copy and one electronic copy of the proposal package must be submitted. Proposals will not be accepted by fax. The electronic copy may be submitted on an IBM-compatible disk/CD or e-mailed to projects@evostc.state.ak.us. Electronic copies of the narrative sections of the proposal must be grouped in Microsoft Word 2002 (XP) or lower or WordPerfect 9.0 or lower, with any figures or tables imbedded (be advised that color figures or photographs may be reproduced in black and white). Electronic copies of each budget must be in an Excel format. Please submit all of your electronic documents in two separate files, all Microsoft Word documents or WordPerfect documents in one single file and all Excel documents in one separate file. Please label your electronic files as follows:

- Last name of lead PI_FY06_Proposal
- Last name of lead PI_FY06_Budget

Format of Proposals The proposal package should be paper-clipped (not stapled) in the upper left-hand corner but otherwise unbound and have 1-inch margins at the top, bottom and sides. The type size must be 12-point Times New Roman font. Also, include page numbers and a footer with the title of your proposal and the lead PI's name. The required summary page (page 1) must be a stand-alone page. All copies must be printed on one side of each sheet only. Extraneous cover sheets that often accompany applications from universities are allowed, but must not be integrated into the proposal package.

Sections of the Proposal Package

The proposal consists of the following sections in the following order (hard copy):

- Signature Form
- Proposal Summary Page
- Research Plan (including references and literature cited)
- Resumes
- Budget Justification
- Detailed Budget Form
- Current and Pending Support Form
- Data Management and Quality Assurance/Control Statement, including MetaLite metadata file

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Signature Form

(http://www.evostc.state.ak.us/nonpdf_docs/invitation/05signature_form.doc)

A signed form indicating willingness to abide by the Trustee Council's data and report requirements must be submitted for each Principle Investigator, with each proposal submitted.

Proposal Summary Page at

(http://www.evostc.state.ak.us/nonpdf_docs/invitation/05prop_sum_page.doc)

The summary page includes project title, project period, proposer(s) name, affiliation, email address for all PI's, study location, key words, a project abstract (a summary of the proposed work in 150 words or less), the amount of EVOS funding requested (*including 9% general administration*), and the amount of non-EVOS funds also contributing to the proposal.

Research Plan at

(http://www.evostc.state.ak.us/nonpdf_docs/invitation/05research_plan.doc)

The research plan must completely describe the work to be performed, including a statement of the problem the proposal is designed to address, project objectives, procedural and statistical methods, description of study area, coordination with other efforts, schedule, responsiveness to key Trustee Council strategies, and expected publications, reports and conference participation. ***The research plan is limited to 15 consecutively numbered pages formatted as explained.*** The page limit is inclusive of figures and tables. References and literature cited should be attached to the research plan, but do not fall within the 15-page limit. The research plan should include a foot note with the proposal title and lead PI's name. Reviewers will be given additional consideration for proposals that have resource management applications.

Resumes

The resumes of all principal investigators and other senior personnel involved in the proposal must be provided. ***Each resume is limited to two consecutively numbered pages*** and must include the following information:

1. A list of professional and academic credentials, mailing address, and other contact information (*including e-mail address*).
2. A list of up to five of your most recent publications most closely related to the proposed project and up to five other significant publications. Do not include additional lists of publications, lectures, etc.
3. A list of all persons (including their organizational affiliations) in alphabetical order with whom you have collaborated on a project or publication within the last four years. If there have been no collaborators, this should be indicated.

Current and Pending Support Form

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(http://www.evostc.state.ak.us/nonpdf_docs/invitation/05current_pending_support.doc)

Any current and pending financial resources that are intended to support research related or similar to that included in the proposal, or that would consume the time of the proposer(s), must be identified for each principal investigator and other senior personnel involved in the proposal.

Detailed Budget Form

(http://www.evostc.state.ak.us/admin/invitation/budgetfrom_instruction_page.html)

Detailed instructions are given below. A separate budget form, which outlines probable expenditures to implement the objectives described in your proposal, must be submitted for the fiscal year for which funding is requested from the Trustee Council. This form will be reviewed in conjunction with the budget justification (see below). Proposers may be asked to respond to budget review questions or to revise their budgets to address budgetary concerns.

Budget Justification

This narrative section is in addition to the detailed budget form which is also required (see above). For each fiscal year, and for each budget category (personnel, travel, contractual, commodities and equipment), this section must list the total amount requested and explain the basis for the request in terms of specific project objectives and activities. Funds from non-EVOS sources, including in-kind contributions, must also be described. In addition, if you are employed by a government agency that has a legislative mandate for the type of work you propose to do, you must explain why the proposed costs are not being covered by your agency's budget. If you are employed by a non-Trustee agency, you must include an explanation of how the indirect costs were calculated. ***This justification must not exceed two consecutively numbered pages.***

Data Management and Quality Assurance/Quality Control (QA/QC) Statement

Any project involving collecting or processing data, conducting surveys, taking environmental measurements, and/or modeling must provide a statement describing the data management and quality assurance/control processes that will be used to ensure the integrity of the data and match data types to project objectives. This statement must present the information listed below and reference the specific page and paragraph number of the research plan containing the information or state that the item does not apply to the proposed research. If you are employed by an entity that has published its QA/QC procedures, please cite where the information may be obtained in lieu of a statement. ***This statement must not exceed three consecutively numbered pages.***

1. Describe the study design, including sample type(s) and location requirements, all statistical analyses that were or will be used to estimate the types and numbers of physical samples required or equivalent information for studies using survey and interview techniques. Include a description of the metadata essential to interpretation of the results of your work. For example see 3 below.

2. Discuss criteria for determining acceptable data quality in terms of the activities to be performed or hypotheses to be tested.
3. Discuss the characteristics of the data that your project is going to be producing. This section is broken into two parts. Part (a) describes the production of a minimally compliant FGDC metadata record which needs to be submitted by all proposers. Part (b) is specific to projects producing quantitative data and provides specifications for categorizing quantitative data into one of three data groups: physical measurements, species specific measurements and taxonomic sampling.

(a) Metadata about your project which meets the minimum requirements dictated by the Federal Government Data Committee (FGDC) must be provided. Free software to facilitate the creation of a minimally compliant FGDC metadata record can be downloaded at <http://edcnts11.cr.usgs.gov/metalite>. The software—titled MetaLite—requires 26 fields to be registered and then automatically generates the associated FGDC metadata record. You must submit a copy of the metadata file produced by MetaLite with your proposal. In addition to minimal FGDC metadata requirements, proposers must submit more extensive metadata descriptor requirements for project data which have a quantitative characteristic. See (b) below.

(b) Quantitative datasets can generally be grouped into three categories: physical measurements, species specific measurements and taxonomic sampling. Physical measurements pertain to non-biological oceanographic readings harvested from devices. Species specific datasets are composed of biological analyses limited to a predefined species group or inclusive hierarchical taxonomic structure. Taxonomic sampling datasets consist of information which attempts to characterize various flora and fauna captured/observed during a sampling project. If your proposal would collect quantitative data, you must categorize, with justification, your data by one of the following types—physical measurements, species specific measurements or taxonomic sampling—and then produce a list of fields associated with your quantitative dataset.

4. Define each algorithm to be used to convert signals from sensors to observations. Examples of algorithms of interest would be the conversion of pressure to depth and the conversion of integrated voltages to biomass at depth. When conversion algorithms are lengthy (i.e., computer programs) substitute a source location, such as an ftp site, for the full text. In the case of proprietary conversion algorithms, identify the proprietor and describe how the accuracy of conversion is verified under calibration (see #6 below).

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5. Describe the procedures for the handling and custody of samples, including sample collection, identification, preservation, transportation and storage.
6. Describe the procedures that will be used in the calibration and performance evaluation of all analytical instrumentation and all methods of analysis to be used during the project.
7. Discuss the procedures for data reduction and reporting, including a description of all statistical methods, with reference to any statistical software to be used, to make inferences and conclusions. Discuss any computer models to be designed or utilized with associated verification and validation techniques.

Example of Proposal with Detailed Explanations

PROPOSAL SIGNATURE FORM

THIS FORM MUST BE SIGNED BY THE PROPOSED PRINCIPAL INVESTIGATOR AND SUBMITTED ALONG WITH THE PROPOSAL. If the proposal has more than one investigator, this form must be signed by at least one of the investigators, and that investigator will ensure that Trustee Council requirements are followed. Proposals will not be reviewed until this signed form is received by the Trustee Council Office.

By submission of this proposal, I agree to abide by the Trustee Council's data policy (*Trustee Council Data Policy**, adopted July 9, 2002) and reporting requirements (*Procedures for the Preparation and Distribution of Reports***, adopted July 9, 2002).

PROJECT TITLE: _____

Printed Name of PI: _____

Signature of PI: _____

Date _____

Printed Name of co-PI: _____

Signature of co-PI: _____

Date _____

Printed Name of co-PI: _____

Signature of co-PI: _____

Date _____

* Available at <http://www.evostc.state.ak.us/pdf/admin/datapolicy.pdf>

** Available at <http://www.evostc.state.ak.us/pdf/admin/reportguidelines.pdf>

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Trustee Council Use Only Project No: _____ Date Received: _____		PROPOSAL SUMMARY PAGE (To be filled in by proposer)	
Project Title:		Maximum 80 characters	
Project Period:		Federal fiscal years--October 1 st to September 30 th --for which funding will be requested from the Trustee Council; for example "FY 05-FY 06"	
Proposer(s):		Name, affiliation and email address of proposer(s)	
Study Location:		General area in which field work will be conducted; e.g., Prince William Sound, Kodiak, Kenai Peninsula	
Abstract:		A brief (150 words or less) summary of the project. Include what question(s) the project will address, what products the project will produce, and where and when the work will be done. The abstract may be edited for clarity, brevity, and readability by Trustee Council staff.	
Funding:		EVOS Funding Requested: FY 06 \$ (must include 9%GA)	
		TOTAL:	
		Non-EVOS Funds to be Used: FY 06 \$	
TOTAL:			
Date:		Date proposal prepared	

(NOT TO EXCEED ONE PAGE)

PROJECT PLAN

I. NEED FOR THE PROJECT

A. Statement of Problem

Identify the problem the project is designed to address. Describe the background and history of the problem. Include a scientific literature review that covers the most significant previous work history related to the project.

B. Relevance to 1994 Restoration Plan Goals and Scientific Priorities

Discuss how the project will evaluate the hypotheses or questions posed in the Invitation. Describe the results you expect to achieve during the project, the benefits of success as they relate to the topic under which the proposal was submitted, and the potential recipients of these benefits. Discuss the utility of the research proposed for addressing the objectives described in the invitation.

II. PROJECT DESIGN

A. Objectives

List the objectives of the proposed research, the hypotheses being tested during the project, and briefly state why the intended research is important.

B. Procedural and Scientific Methods

For each objective listed in A. above, identify the specific methods that will be used to meet the objective. In describing the methodologies for collection and analysis, identify measurements to be made and the anticipated precision and accuracy of each measurement and describe the sampling equipment in a manner that permits an assessment of the anticipated raw-data quality.

If applicable, discuss alternative methodologies considered, and explain why the proposed methods were chosen. In addition, projects that will involve the lethal collection of birds or mammals must comply with the Trustee Council's policy on collections, available at <http://www.evostc.state.ak.us/pdf/admin/collectionspolicy.pdf>.

C. Data Analysis and Statistical Methods

Describe the process for analyzing data. Discuss the means by which the measurements to be taken could be compared with historical observations or with regions that are thought to have similar ecosystems. Describe the statistical power of the proposed sampling program for detecting a significant change in numbers. To the extent that the variation to be expected in the

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response variable(s) is known or can be approximated, proposals should demonstrate that the sample sizes and sampling times (for dynamic processes) are of sufficient power or robustness to adequately test the hypotheses. For environmental measurements, what is the measurement error associated with the devices and approaches to be used?

D. Description of Study Area

Where will the project be undertaken? Describe the study area, including if applicable decimally-coded latitude and longitude readings of sampling locations or the bounding coordinates of the sampling region (e.g., 60.8233, -147.1029, 60.4739, -147.7309 for the north, east, south and west bounding coordinates). The formula for converting from degree minute seconds to decimal degrees is: degrees + (minutes/60) + (seconds/3600) so $121^{\circ}8'6'' = 121. + (8/60) + (6/3600) = 121.135$

E. Coordination and Collaboration with Other Efforts

Indicate how your proposed project relates to, complements or includes collaborative efforts with other proposed or existing projects funded by the Trustee Council. Describe any coordination that has taken or will take place (with other Council funded projects, ongoing agency operations, activities funded by other marine research entities, etc.) and what form the coordination will take (shared field sites, research platforms, sample collection, data management, equipment purchases, etc.). If the proposed project requires or includes collaboration with other agencies, organizations or scientists to accomplish the work, such arrangements should be fully explained and the names of agency or organization representatives involved in the project should be provided. If your proposal is in conflict with another project, note this and explain why.

III. SCHEDULE

A. Project Milestones

For each project objective listed above (II.A.), specify when critical project tasks will be completed. Project reviewers will use this information in conjunction with annual project reports to assess whether projects are meeting their objectives and are suitable for continued funding. Please format your information like the following example.

- Objective 1. Develop sediment-core chronologies in lake-productivity indicators.
To be met by September 2006
- Objective 2. Compare sediment data corresponding to the past few decades to salmon population statistics.
To be met by December 2006
- Objective 3. Reconstruct time-series of lake productivity, input of marine-derived nutrients, and salmon escapement.
To be met by April 2007

B. Measurable Project Tasks

Specify, by each quarter of each fiscal year, when critical project tasks (for example, sample collection, data analysis, manuscript submittal, etc.) will be completed. This information will be the basis for the quarterly project progress reports which are submitted to the Trustee Council Office. Please format your schedule like the following example.

FY 06, 1st quarter (October 1, 2005-December 31, 2005)

October: Project funding approved by Trustee Council

FY 06, 2nd quarter (January 1, 2006-March 31, 2006)

12-16 (tentative): Annual Symposium Workshop

FY 05, 3rd quarter (April 1, 2006-June 30, 2006)

April 30: Core Upper Russian Lake

May 30: Core Delight Lake

FY 05, 4th quarter (July 1, 2006-September 30, 2006)

September 1: Core Hidden Lake

FY 06, 1st quarter (October 1, 2006-December 31, 2006)

December 15: Finish lab analyses of all three lakes

FY 06, 2nd quarter (January 1, 2007-March 31, 2007)

(dates not yet known) Annual GEM Workshop

FY 06, 3rd quarter (April 1, 2007-June 30, 2007)

April 15 Submit final report. This will consist of a draft manuscript for publication to the Trustee Council Office.

IV. RESPONSIVENESS TO KEY TRUSTEE COUNCIL STRATEGIES

A. Community Involvement and Traditional Ecological Knowledge (TEK)

Every successful proposal is required to develop a community involvement plan that specifies how relevant coastal communities, concerned commercial and sport fishers and subsistence harvesters, local science interests such as public schools and university operations, will be informed and engaged in the project. The degree to which the activities of each proposed project allow involvement with local communities and incorporation of local knowledge will vary, but some kind of interaction with communities is required. Reviewers will give additional consideration to proposals that demonstrate meaningful community involvement and/or make

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use of traditional ecological knowledge (TEK). Use this section to address the following questions, if applicable: How will affected communities be informed about the project and be given an opportunity to provide their input? How will research findings and other project information be communicated to local communities? To what extent will local hire be used for the acquisition of such things as vessels, technicians, and equipment? To what extent will traditional and local knowledge be incorporated into the project? Do not simply provide a statement that a proposal is expected to benefit a community without demonstrating that one or more representatives of the community have been contacted prior to proposal submission and have agreed to work with the proposers in developing the community involvement components of the proposal. Community contacts should be identified in this section.

If you would like assistance in developing a community involvement or traditional knowledge component for your proposal, contact the Trustee Council Office. Please note that in December 1996 the Trustee Council adopted protocols for including traditional knowledge in EVOS projects. See *Protocols for Including Indigenous Knowledge in the EVOS Restoration Process* available at <http://www.evostc.ak.us/pdf/admin/protex.pdf>.

B. Resource Management Applications

Reviewers will be given additional consideration for proposals that have resource management applications. The development of tools, technologies and information that can help resource managers and regulators improve management of marine resources and address problems that may arise from human activities are a critical part of this invitation. Use this section to describe how your proposal might result in knowledge or products that would contribute to meeting this goal. Do not simply provide a statement that a proposal is expected to have resource management applications without demonstrating that one or more representatives of a resource management agency have been contacted prior to proposal submission and have agreed to work with the proposers in developing the resource management components of the proposal. Resource management agency contacts should be identified in this section.

V. PUBLICATIONS AND REPORTS

If you are requesting funding for publication of project results in a peer-reviewed journal, provide the subject/title of each manuscript, the name of the peer-reviewed journal(s) to which you plan to submit it, and when the manuscript will be submitted. The Trustee Council expects publication of project results in peer-reviewed journals as soon as scientifically appropriate and logistically possible. The Council has adopted a policy regarding an acknowledgment and disclaimer to be used in publishing results of projects it has supported. For more information, see *Procedures for the Preparation and Distribution of Reports* available at <http://www.evostc.state.ak.us/pdf/admin/reportguidelines.pdf>.

In addition to publications, annual reports are required on multi-year projects by September 1 of each fiscal year for which funding is received; final reports are required upon project completion. With approval of the Science Director, the publications discussed above may satisfy a portion of

the report requirements. For more information, see *Procedures for the Preparation and Distribution of Reports* at <http://www.oilspill.state.ak.us/pdf/admin/reportguidelines.pdf>.

Budget Instructions with Sample Budget Forms

There are two kinds of budget forms; you will use only the one that applies to you. One type of form is for Trustee agencies; a separate set of forms is for non-Trustee organizations. Instructions for completing the budget sheets are followed by examples of each budget sheet. Blank forms in Excel format are available on our website, http://www.evostc.state.ak.us/admin/inviation/budgetform_instruction_page.html.

The required budget form, detailing the amount of funding requested from the Trustee Council for each federal fiscal year, must be submitted as part of the proposal package. The form is in addition to the budget justification that is also required as part of the proposal package.

The invitation items are expected to be completed in the FY 06. Proposers are encouraged to be thoughtful and thorough in their budget development, as the Trustee Council expects to consider revisions to future-year budgets only in the case of unforeseen or unanticipated events or in response to ongoing scientific/technical review.

Each budget will be reviewed for consistency with the objectives contained in the proposal and for adherence to the budget instructions that follow. Proposers may be asked to respond to budget review questions, or to revise their budgets to address budgetary concerns.

Fiscal Year The Trustee Council awards funds on the federal fiscal year (October 1-September 30). As noted above, your budget must address all fiscal years for which funds are requested.

Project Number Leave the number blank, a number will be assigned to your proposal by staff.

Rules for Numbers Show costs in thousands of dollars. For example, show \$86,423 as \$86.4. When the number "5" follows the digit to be rounded, round to the higher amount. For example, round \$26,752 to \$26.8.

Indirect Costs Indirect costs are costs incurred for common or joint purposes that cannot be specifically identified with a particular project. Examples of indirect costs are lease costs, copying, phones, faxes, internet access, equipment maintenance, vehicle leasing, training, payroll and personnel functions, clerical support, administrative supervision, accounting, auditing and mail and messenger services. These items should be budgeted for separately only if they are incurred because of a specific project and documentation of the expense is maintained.

- Trustee agencies (Alaska Department of Environmental Conservation, Alaska Department of Fish and Game, Alaska Department of Natural Resources, National Oceanic and Atmospheric Administration, US Forest Service and US Department of the Interior) should cover these costs through the Trustee Council's general administration (GA) formula. The GA rate is 9% of each project's total direct costs.

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- Non-Trustee organizations should cover these costs through their indirect cost rate. These rates will be reviewed on a project-by-project basis. However, proposers affiliated with the University of Alaska must use the indirect rate agreed to by the University for Trustee Council-funded projects. The agreement provides for an indirect cost rate of 25 percent of total direct costs (TDC). TDC includes all direct costs except (1) equipment for which ownership resides with the University and (2) subcontract costs in excess of \$25,000. Regarding subcontracts, the indirect rate is 25 percent of the first \$25,000 of each subcontract, plus 5 percent of each subcontract's costs in excess of \$25,000 and less than \$250,000, plus 2 percent of each subcontract's costs in excess of \$250,000.

Direct Costs Direct costs are costs specifically identified with a particular project. Examples of direct costs are compensation of employees for the time spent executing the project, acquisition of materials or equipment for purposes outlined in the research plan, project-specific travel and contractual services specified in the research plan. For most projects, the following direct costs should be included:

1. NEPA (National Environmental Policy Act) Compliance: All projects funded by the Trustee Council must comply with NEPA. Due to their research nature, most projects receive a categorical exclusion (CE) from NEPA. However, for a few projects, an environmental assessment (EA) may be required. If a project will likely require an EA, include the costs for preparing it in the project budget.
2. Workshop Attendance: All principal investigators are required to attend the Annual GEM Workshop. The annual workshop is usually held the first or second week in January. Unless you reside in Anchorage, include funds in your budget for travel and per diem for the PI (and co-PI, if appropriate) to attend this workshop.
3. Community Involvement Activities: Include a minimum of one trip per fiscal year for the PI or his/her representative to exchange information with the local communities.
4. Report Writing: Annual reports are required on multiple-year projects and must be submitted by September 1 of each fiscal year for which funding is received; annual reports on projects funded for FY 06 will be due September 1, 2006. For continuing projects, continuation of your project is determined by the projects progress outlined in your annual report. Final reports are required upon project completion. Identify in the description field on the appropriate budget forms any funds that have been included for report writing and preparation. (For more information, see *Procedures for the Preparation and Distribution of Reports* at <http://www.evostc.state.ak.us/pdf/admin/reportguidelines.pdf>.)

Many projects will also include the following direct costs:

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5. Manuscript Preparation and Publication: The Trustee Council may contribute a maximum of \$1,000 in page costs per project and 1.5 months of personnel time per manuscript toward publication of study results in the peer reviewed literature. Specify in your research plan the subject/title of each manuscript, the name of the peer reviewed journal(s) to which you plan to submit it, and when the manuscript will be submitted.

Budget Forms One set of forms is for Trustee agencies; a separate set of forms is for non-Trustee organizations. Sample forms and instructions for completing them follow. The budget form must be completed for each fiscal year (FY 06-08) for which funding is being requested from the Trustee Council. Electronic copies of the forms (created in Excel) are available at http://www.evostc.state.ak.us/admin/invitation/budgetform_instruction_page.html or from the Trustee Council Office (on an IBM disk/CD or by e-mail).

Trustee Agency Form
 Multi-Trustee Agency Summary (Form 2A)

This form is used when multiple Trustee agencies are cooperating on a project. If only one Trustee agency is involved, this form is not required.

How to Complete the Form...

1. *Proposed Funding (FY 06, 07, 08, TOTAL)* - No input required. All the information is linked to the individual agency forms.
2. *Proposed Trustee Agency Totals* - Total requested by each agency. These fields are not linked and the information must be entered manually.
3. *Project Identification Field* - Enter the project number (if known), title, and lead agency.
4. *Date Prepared* - Enter the date this budget was prepared.

					PROPOSED TRUSTEE AGENCY TOTALS (FY 06 -- 08)						
					ADEC	ADF&G	ADNR	USFS	DOI	NOAA	
					-2-						
Budget Category:					Proposed FY 06	Proposed FY 07	Proposed FY 08	TOTAL PROPOSED			
					-1-	-1-	-1-	-1-			
Personnel											
Travel											
Contractual											
Commodities											
Equipment											
Subtotal											
General Administration (9% of subtotal)											
Project Total											
<div style="border: 1px solid black; padding: 5px; width: fit-content;">FY 06-08</div>					<div style="border: 1px solid black; padding: 5px;"> Project Number: Project Title: Lead Agency: </div>					<div style="border: 1px solid black; padding: 5px; text-align: center;"> FORM 2A MULTI- TRUSTEE AGENCY SUMMARY </div>	
Date Prepared: -4-											

Trustee Agency Form, page 1 of 4
 Summary (Form 3A)

This form summarizes the proposed expenditures contained on the Trustee Agency Detail forms.

How to Complete the Form...

1. *Proposed Funding (FY 05, 06, 07, TOTAL)* - No input required. All the information is linked to the Detail forms.
2. *Cost-share Funds* - Enter the amount of funds from other sources that the project leverages and any agency contribution.
3. *Project Identification Field* - Enter the project number (if known) and title and your agency.
4. *Data Prepared* - Enter the date this budget was prepared.

Budget Category:	Proposed FY 06	Proposed FY 07	Proposed FY 08		TOTAL PROPOSED	
	-1-	-1-	-1-		-1-	
Personnel						
Travel						
Contractual						
Commodities						
Equipment						
Subtotal						
General Administration (9% of subtotal)						
Project Total						

Cost-share Funds: -2-

In this box, identify non-EVOS funds or in-kind contributions used as cost-share for the work in this proposal. List the amount of funds, the source of funds, and the purpose for which the funds will be used. Do not include funds that are not directly and specifically related to the work being proposed in this proposal.

FY 06-08

Project Number:

Project Title:

Agency:

-3-

FORM 3A
 TRUSTEE
 AGENCY
 SUMMARY

Date Prepared: -4-

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Trustee Agency Form, page 2 of 4 Personnel & Travel Detail (Form 3B)

"Personnel" means compensation of employees, including benefits, for the time and effort devoted to the execution of the project. "Travel" means the cost of transportation by public conveyance and per diem. All travel must be budgeted at round-trip economy rates.

How to Complete the Form...

1. *Name* - Enter the first initial and last name of each person budgeted.
2. *Position Description* - Enter the position title.
3. *GS/Range/Step* - Enter the appropriate general schedule (GS) and step, or range and step.
4. *Months Budgeted* - Enter the number of months for each position.
5. *Monthly Costs* - Enter the monthly sum of salary and benefits for each position.
6. *Overtime* - Enter the estimated overtime cost for each position, if any.
7. *Personnel Sum* - The form automatically calculates: (Months Budgeted x Monthly Costs) + Overtime
8. *Travel Description* - Include name of traveler, destination and trip purpose.
9. *Ticket Price* - Enter the round trip economy-rate ticket price.
10. *Round Trips* - Enter the number of round trips.
11. *Total Days* - Enter the total number of days in travel status.
12. *Daily Per Diem* - Enter the daily per diem rate.
13. *Travel Sum* - The form automatically calculates: (Ticket Price x Round Trips) + (Total Days x Daily Per Diem)
14. *Project Identification Field* - Enter the project number and title and your agency.

Personnel Costs:		GS/Range/Step	Months Budgeted	Monthly Costs	Overtime	Personnel Sum
Name	Description					
-1-	-2-	-3-	-4-	-5-	-6-	-7-
Subtotal						
Personnel Total						
Travel Costs:		Ticket Price	Round Trips	Total Days	Daily Per Diem	Travel Sum
Description						
-8-		-9-	-10-	-11-	-12-	-13-
Travel Total						

FY 06

Project Number:
Project Title: -14-
Agency:

FORM 3B
Personnel
& Travel
DETAIL

Trustee Agency Form, page 3 of 4
Contractual & Commodities Detail (Form 3B)

"Contractual" covers such items as vessel charters, equipment rental or lease, professional services, communications and printing. "Commodities" are expendable supplies with an estimated life of less than one year and a unit value of less than \$1,000.

How to Complete the Form...

1. *Contractual Description* - List the items or services to be purchased. If a significant portion of the project will be performed under contract, and the likely contractor is known, the Non-Trustee Organization forms are also required.
2. *Contractual Sum* - Enter the proposed contractual cost.
3. *Commodities Description* - List the items to be purchased.
4. *Commodities Sum* - Enter the proposed commodities cost.
5. *Project Identification Field* - Enter the project number and title and your agency.

Contractual Costs:		Contract			
Description		Sum			
- 1 -		- 2 -			
If a component of the project will be performed under contract, the 4A and 4B forms are required. Contractual Total					
Commodities Costs:		Commod.			
Description		Sum			
- 3 -		- 4 -			
Commodities Total					
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; text-align: center; vertical-align: middle; padding: 5px;"> <div style="border: 1px solid black; padding: 5px; display: inline-block;"> FY 06 </div> </td> <td style="width: 40%; padding: 5px;"> <div style="border: 1px solid black; padding: 2px;"> Project Number: Project Title: - 5 - Lead Agency: </div> </td> <td style="width: 30%; text-align: center; vertical-align: middle; padding: 5px;"> <div style="border: 1px solid black; padding: 5px; display: inline-block;"> FORM 3B Contractual & Commodities DETAIL </div> </td> </tr> </table>			<div style="border: 1px solid black; padding: 5px; display: inline-block;"> FY 06 </div>	<div style="border: 1px solid black; padding: 2px;"> Project Number: Project Title: - 5 - Lead Agency: </div>	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> FORM 3B Contractual & Commodities DETAIL </div>
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> FY 06 </div>	<div style="border: 1px solid black; padding: 2px;"> Project Number: Project Title: - 5 - Lead Agency: </div>	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> FORM 3B Contractual & Commodities DETAIL </div>			

Trustee Agency Form, page 4 of 4
 Equipment Detail (Form 3B)

"Equipment" means non-expendable items having an estimated life of more than one year and a unit value greater than \$1,000. Equipment previously purchased by the Trustee Council should be used to the maximum extent possible. Before requesting funds for new equipment, contact your Trustee Agency project manager to determine if suitable equipment is already available. Equipment items with an original per unit cost of \$5,000 or more belong to the acquiring Trustee agency on behalf of the Council. At the end of the project, the Council's Executive Director shall determine if such equipment shall be used for another Council project or if the item shall remain with the acquiring agency. (For further information, see *EVOS Financial Procedures* at <http://www.evostc.state.ak.us/pdf/admin/profinancial.pdf>.)

How to Complete the Form...

1. *New Equipment Description* - List the equipment and how the cost estimate was obtained.
2. *Number of Units* - Enter the number of units to be purchased.
3. *Unit Price* - Enter the unit price.
4. *Equipment Sum* - The form automatically calculates: Number of Units x Unit Price
5. *Existing Equipment Description* - Describe existing equipment which will be used.
6. *Number of Units* - Enter the number of existing units which will be used.
7. *Inventory Agency* - Enter the agency which currently has the equipment on inventory.
8. *Project Identification Field* - Enter the project number and title and your agency.

New Equipment Purchases:		Number of Units	Unit Price	Equipment Sum
Description				
-1-		-2-	-3-	-4-
New Equipment Total				
Existing Equipment Usage:		Number of Units	Inventory Agency	
Description				
-5-		-6-	-7-	
FY 06	Project Number: Project Title: -8- Agency:		FORM 3B Equipment DETAIL	

DRAFT FOR REVIEW AND COMMENT BY
FEBRUARY 1, 2005. Comments to [Richard Dworsky@evostc.state.ak.us](mailto:Richard.Dworsky@evostc.state.ak.us)

Non-Trustee Organization Form, page 1 of 4
Summary (Form 4A)

This form summarizes the proposed expenditures contained on the Non-Trustee Organization Detail forms.

How to Complete the Form...

1. *Proposed Funding (FY 05, 06, 07, TOTAL)* - No input required. All the information is linked to the Detail forms.
2. *Indirect* - Enter the proposed indirect project cost.
3. *Trustee Agency GA* - No input required; the form automatically calculates: Project Total x .09. (Each project is administered by one of the Trustee agencies; the approved administrative fee is 9% of total project cost.)
4. *Cost-share Funds* - Enter the amount of funds from other sources that the project leverages and any organization contribution.
5. *Project Identification Field* - Enter the project number (if known) and title and your organization.
6. *Date Prepared* - Enter the date this budget was prepared.

Budget Category:	Proposed FY 06	Proposed FY 07	Proposed FY 08	TOTAL PROPOSED
Personnel	-1-	-1-	-1-	-1-
Travel				
Contractual				
Commodities				
Equipment				
Subtotal				
Indirect (rate will vary by proposer)	-2-			
Project Total				
Trustee Agency GA (9% of Project Total)	-3-			
Total Cost				

Cost-share Funds: -4-

In this box, identify non-EVOS funds or in-kind contributions used as cost-share for the work in this proposal. List the amount of funds, the source of funds, and the purpose for which the funds will be used. Do not include funds that are not directly and specifically related to the work being proposed in this proposal.

FY 06-08

Project Number:

Project Title:

Proposer:

-5-

**FORM 4A
NON-
TRUSTEE
SUMMARY**

Date Prepared: -6-

DRAFT FOR REVIEW AND COMMENT BY

FEBRUARY 1, 2005. Comments to [Richard Dworsky@evostc.state.ak.us](mailto:Richard_Dworsky@evostc.state.ak.us)

Non-Trustee Organization Form, page 2 of 4 Personnel & Travel Detail (Form 4B)

"Personnel" means the compensation of employees, including benefits, for the time and effort devoted to the project and includes tuition for students. "Travel" means the cost of transportation by public conveyance and per diem. All travel must be budgeted at round-trip economy rates.

How to Complete the Form...

1. *Name* - Enter the first initial and last name of each person budgeted.
2. *Position Description* - Enter the position title.
3. *Months Budgeted* - Enter the number of months for each position.
4. *Monthly Costs* - Enter the monthly sum of salary and benefits for each position.
5. *Overtime* - Enter the estimated overtime cost for each position, if any.
6. *Personnel Sum* - The form automatically calculates: (Months Budgeted x Monthly Costs) + Overtime
7. *Travel Description* - Include name of traveler, destination, and trip purpose.
8. *Ticket Price* - Enter the round trip economy-rate ticket price.
9. *Round Trips* - Enter the number of round trips.
10. *Total Days* - Enter the total number of days in travel status.
11. *Daily Per Diem* - Enter the daily per diem rate.
12. *Travel Sum* - The form automatically calculates: (Ticket Price x Round Trips) + (Total Days x Daily Per Diem)
13. *Project Identification Field* - Enter project number and title and your organization.

Personnel Costs:			Months Budgeted	Monthly Costs	Overtime	Personnel Sum
Name	Position Description					
- 1 -	- 2 -		- 3 -	- 4 -	- 5 -	- 6 -
Subtotal			0.0	0.0	0.0	
Personnel Total						
Travel Costs:			Ticket Price	Round Trips	Total Days	Travel Sum
Description						
- 7 -			- 8 -	- 9 -	- 10 -	- 11 -
						- 12 -
			Travel Total			
FY 06	Project Number: Project Title: Proposer:		- 13 -		FORM 4B Personnel & Travel DETAIL	

DRAFT FOR REVIEW AND COMMENT BY

FEBRUARY 1, 2005. Comments to Richard.Dworsky@evostc.state.ak.us

Non-Trustee Organization Form, page 3 of 4 Contractual & Commodities Detail (Form 4B)

"Contractual" covers such items as vessel charters, equipment rental or lease, professional services, communications, and printing. "Commodities" are expendable supplies with an estimated life of less than one year and a unit value of less than \$1,000.

How to Complete the Form...

1. *Contractual Description* - List the items or services to be purchased.
2. *Contractual Sum* - Enter the proposed contractual cost.
3. *Commodities Description* - List the items to be purchased.
4. *Commodities Sum* - Enter the proposed commodities cost.
5. *Project Identification Field* - Enter project number and title and your organization.

Contractual Costs:		Contract Sum
Description		
- 1 -		- 2 -
Contractual Total		
Commodities Costs:		Commodity Sum
Description		
- 3 -		- 4 -
Commodities Total		
FY 06	Project Number: Project Title: - 5 - Proposer:	FORM 4B Contractual & Commodities DETAIL

DRAFT FOR REVIEW AND COMMENT BY

FEBRUARY 1, 2005. Comments to [Richard Dworsky@evostc.state.ak.us](mailto:Richard_Dworsky@evostc.state.ak.us)

Non-Trustee Organization Form, page 4 of 4 Equipment Detail (Form 4B)

"Equipment" means non-expendable items having an estimated life of more than one year and a unit value greater than \$1,000. Equipment previously purchased by the Trustee Council should be used to the maximum extent possible. Before requesting funds for new equipment, contact the project manager at your administering Trustee agency to determine if suitable equipment is already available. All equipment purchased remains the property of the Trustee agency until the end of the project, at which time the agency may, under certain circumstances, transfer the equipment title to the contractor. If the original per unit cost of the equipment was \$5,000 or more, the Council's Executive Director has the authority to direct that the equipment be transferred to another Council-funded project, rather than remaining with the Trustee agency or being transferred to a contractor.

How to Complete the Form...

1. *New Equipment Description* - List the equipment and how the cost estimate was obtained.
2. *Number of Units* - Enter the number of units to be purchased.
3. *Unit Price* - Enter the unit price.
4. *Equipment Sum* - No input necessary. The form automatically calculates: Number of Units x Unit Price
5. *Existing Equipment Description* - Describe existing equipment which will be used.
6. *Number of Units* - Enter the number of existing units which will be used.
7. *Project Identification Field* - Enter project number and title and your organization.

New Equipment Purchases:		Number of Units	Unit Price	Equipment Sum
Description				
-1-		-2-	-3-	-4-
New Equipment Total				
Existing Equipment Usage:				Number of Units
Description				
-5-				-6-

FY 06	Project Number: Project Title: -7- Proposer:	FORM 3B Equipment DETAIL
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Attachment Instructions for Non-Trustee Council Proposals

If you represent a private organization, a non-profit group, or a university from a state other than Alaska, you should submit your proposal through the Broad Agency Announcement (BAA) process, as well as to the Trustee Council. In most instances, requirements of state and federal law preclude Council funds from being awarded directly to such organizations. Rather, a competitive solicitation process is required. This solicitation can occur before the Council approves funding for a project, through a Broad Agency Announcement (BAA) issued by the National Oceanic and Atmospheric Administration (NOAA). Under the BAA approach, if the Council approves funding for your project, you can begin contract negotiations with NOAA without the further competitive solicitation that is required if you do not apply through the BAA.

As part of this invitation, NOAA is issuing a BAA on behalf of the Trustee Council, requesting proposals for any of the topics identified in this invitation. To submit your proposal through the BAA process, submit an electronic copy, as well as one paper copy, of your proposal to NOAA at the address below by 5:00 p.m. Pacific Daylight (Seattle) time on Friday, April 1, 2005. (This is in addition to the copies of the proposal that must be submitted to the Trustee Council.) Include the words "submitted under the BAA" as part of your project's title. Faxed proposals will not be accepted.

More information is contained in the Broad Agency Announcement itself (BAA # AB133F-04-RP-0032) which is available from NOAA:

Ms. Sharon Kent
NOAA, WASC, Acquisition Management Division, WC31
7600 Sand Point Way NE
Seattle, WA 98115-6349
Telephone (206) 526-6035
Fax (206) 526-6025
Sharon.S.Kent@noaa.gov

Proposals submitted to NOAA under the BAA will be evaluated by the Trustee Council at the same time as other proposals submitted to the Council.

Miscellaneous

**Resolution 05-01 of the
Exxon Valdez Oil Spill Trustee Council
Recognizing Charles Meacham
for Outstanding Contributions to the Trustee Council**

Whereas, Charles Meacham has served on the *Exxon Valdez* Oil Spill Trustee Council's Public Advisory Committee since 1996; and

Whereas, Charles Meacham has served in the capacity of both vice-chairman and chairman; and

Whereas, Charles Meacham has represented the Science and Technical and now Sport Hunting and Fishing principal interest groups; and

Whereas, Charles Meacham has provided consistent leadership and facilitated thoughtful discussion during public meetings and field trips;

Now therefore be it resolved:

That in recognition of his faithful service as Chairman of the Public Advisory Committee the *Exxon Valdez* Oil Spill Trustee Council formally recognizes the contributions of Charles Meacham's dedication to public process and in the scientific understanding of areas affected by the *Exxon Valdez* oil spill.

This resolution was presented at a regularly scheduled meeting of the *Exxon Valdez* Oil Spill Trustee Council, and was,

Approved and Adopted this 4th day of February, 2005.

**Wayne Regelin, Acting Commissioner
Alaska Department of Fish and Game**

**Drue Pearce, Senior Advisory to the
for Alaska Affairs, U.S. Department of
the Interior**

**Kurt Fredriksson, Acting Commissioner
Alaska Department of Environmental
Conservation**

**James Balsiger, Administrator
Alaska Region, National Marine
Fisheries Services**

**Gregg Renkes, Attorney General
Alaska Department of Law**

**Joe Meade, Forest Supervisory
U.S. Department of Agriculture**

Exxon Valdez Oil Spill Trustee Council

441 W. 5th Ave. Suite 500 • Anchorage, Alaska 99501-2330 • 907/278-8012 • fax 907/276-7179



October 13, 2004

Mr. Mark Hamilton
President, University of Alaska
P.O. Box 755000
Fairbanks, Alaska 99775-5000

Dear President Hamilton:

Thank you for your letter of September 7, 2004 regarding both the Trustee Council's process and the project funding results for their FY 2005 Work Plan. The Council has asked me to respond on their behalf.

You have expressed concern that the Council's project selection "bears little resemblance" to their FY 05 Invitation for Proposals or to the priority ranking of the staff and science advisors. In addition, you suggest the Council's decisions appear to have been made without public consultation or open discussion and in violation of science sponsorship.

The Council's decisions regarding the FY 05 Work Plan were made pursuant to the Memorandum of Agreement and the Consent Decree governing the use of the funds recovered by the State and Federal governments and the Restoration Plan approved by the Trustee Council in 1994. As these documents point out, the mission of the Council is to restore the natural resources injured by the Exxon Valdez oil spill and to provide for meaningful public participation in the restoration process.

The FY 05 Invitation and proposed Work Plan underwent a thorough and strenuous review by the Council's staff, the science community, legal advisors and the general public. The Council considered all the comments and recommendations made by the staff, the science community and the public when it made its funding decisions. These decisions were necessarily made with restoration in mind rather than any science sponsorship.

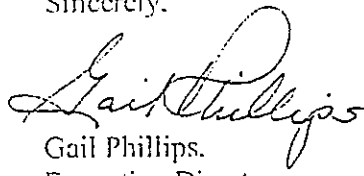
Although the FY 05 funding decisions were made by the Council during an open public meeting, the Council recognizes that its rationale for funding or not funding certain projects may not have been well defined during the meeting or easily understood by the public. The Trustees appreciate your comments in that regard and will work to improve their efforts in this area.

Federal Trustees
U.S. Department of the Interior
U.S. Department of Agriculture
National Oceanic and Atmospheric Administration

State Trustees
Alaska Department of Fish and Game
Alaska Department of Environmental Conservation
Alaska Department of Law

I hope that the University will continue to play an active role in assisting the Trustee Council in accomplishing its restoration mission.

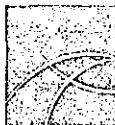
Sincerely,

A handwritten signature in cursive script, reading "Gail Phillips". The signature is written in dark ink and is positioned above the printed name and title.

Gail Phillips.
Executive Director

Cc: Trustee Council

Mark R. Hamilton, President
Phone: (907) 474-7311
Fax: (907) 474-6342
MAIL: sypres@alaska.edu



UNIVERSITY
of ALASKA
Many Traditions One Alaska

202 Butrovich Building
910 Yukon Drive
P.O. Box 755000
Fairbanks, AK 99775-5000

September 7, 2004

Trustees
Exxon Valdez Oil Spill Trustee Council
c/o Gail Phillips, Executive Director
441 W. 5th Avenue Suite 500
Anchorage, AK 99501

Dear Trustees:

I am writing to express grave concern with both the process and the results of your recent FY 2005-2007 funded project selection.

Your "FY 05 Invitation for Proposals" of March 2, 2004 specifically invites proposals in areas that you yourselves have publicly and repeatedly stated are important to EVOSTC responsibilities, and your "Draft Work Plan FY 2005 - FY 2007" of August 12, 2004 clearly identifies priorities recommended by the Executive Director (ED) and the Scientific and Technical Advisory Council (STAC) for both programmatic areas, and the proposals voted on by the Council on August 23. The Draft Work Plan also contains funding recommendations from the EVOS Public Advisory Committee and the staff, almost all of which are in agreement with those of the ED and STAC.

Your project selection, however, bears little resemblance either to your invitation or to the priority ranking of your staff and advisory groups. Of particular concern to the faculty of my University, several proposals in the areas of modeling and synthesis, which were both expressly invited and highly ranked, were not funded, while many lower ranking proposals, and one that STAC, the ED, Science Director, and Public Advisory Committee all recommended against, did receive funding. Further, it is impossible not to note that while funding was awarded to the Department of the Interior, Department of Commerce, Alaska state agencies and private entities, none was awarded to academic institutions.

The EVOSTC science plan and work plans have been carefully developed over several years with significant external peer review and National Academy guidance. Your decisions appear to have been made without public consultation or open discussion, and to contradict the very principles and priorities which you yourselves have consistently

University of Alaska

EVOS Trustee Council

Page 2

September 7, 2004

espoused. Violation of the practices and tenets of science sponsorship which have for generations guided successful research in this country -- including peer review, openness, and transparency -- puts at risk the scientific credibility of not only yourselves as trustees, but the organizations you represent, including the Alaska state agencies and US Departments of Interior, Commerce, and Agriculture.

My faculty, your advisors, and the public deserve an explanation of your actions, and a clear indication of how EVOSTC intends to fulfill its obligations in the future.

Sincerely,



Mark R. Hamilton
President

MRH/CD/pe

cc: Vice President Craig Dorman
Provost Paul Reichardt
Dean Denis Wiesenburg, SFOS
Director Roger Smith, GI
Professor Brenda Konar, SFOS
Professor Lyn McNutt, ASF
Professor Thomas Weingartner, IMS

STATE OF ALASKA

FRANK H. MURKOWSKI, GOVERNOR

September 17, 2004

VIA FAX 907-474-6342

Mark R. Hamilton
President
University of Alaska
202 Butrovich Room
P.O. Box 755000
Fairbanks, AK 99775-5000

Dear President Hamilton:

The State members of the Exxon Valdez Oil Spill Trustee Council (EVOSTC) have discussed your September 7 letter regarding the Council's recent approval of the FY 2005-2007 work plan. It became apparent to the State Trustees that you may benefit from some additional information on the role and responsibilities of the EVOSTC and the process by which we carry out our duties. As a fellow State entity we felt it was appropriate for the State members to respond directly to the issues and questions you raised in your letter. We hope this response helps you to better understand the outcome of our August 23rd meeting and provides you with the contextual background for that meeting, as well as some general insight into the operation of the Council.

While your comments focus on the FY 05 Invitation for Proposals, the proposal review process and your dissatisfaction with the subsequent funding decisions, your criticism does not acknowledge that 'science sponsorship' is not the primary mission of the Council, but instead a corollary mechanism by which we address our mission of restoration and rehabilitation mandated by the terms of the 1991 Memorandum of Agreement under which the Council must operate. Actions taken to implement the Council's mission are governed by the 1994 Restoration Plan. Since assuming our role as Trustees, we have been consistent in our efforts to move forward a scientific endeavor that is consistent with our restoration and rehabilitation mission, regardless of whether it is conducted by academia, government agency, or private entity.

The EVOSTC science plan and work plans you refer to in your letter as "being carefully developed over several years with significant external peer review and National Academy guidance" are specific to the Gulf Ecosystem Monitoring (GEM) program. While the State Trustees are generally supportive of the type of long term monitoring GEM envisions, we do not view GEM as a whole-cloth replacement for the restoration and rehabilitation activities of the Council. Monitoring and research is only one of many actions specifically referenced in the EVOSTC Restoration Plan. Other major issues continue to exist and restoration actions need to be taken which demand a portion of our effort and funding.

Our knowledge of the effects of the oil spill, and consequently the need to respond, remains in flux. An example was the revelation in 2001 that substantially more oil remained in Prince William Sound in a substantially more toxic state than anyone had ever believed likely. In addition to the fate and effect of lingering oil, there are a number of species and services that continue to be on our list of injured resources, and there is a need for applied scientific research with a direct management benefit in the spill affected region. The highest priority of the Council is to undertake projects that have the most direct and immediate restoration effects on injured natural resources and lost or diminished services. Before undertaking long term projects designed to restore resources through generally broadening our understanding of the oil spill area ecosystem, it is important to first fund those projects that look at spill impacts and may lead quickly and directly to restoration benefits such as improved natural resource management decisions.

As State Trustees we have articulated the need for a balance between the long-term monitoring goals and the near-term restoration and management priorities in nearly every public meeting since assuming our positions on the Council. These criteria served as a template to help guide our funding decisions for the FY 2004-2006 work plan last year, and once again figured prominently in our funding decisions at our August 23rd meeting. Anyone unaware of our thoughts and policy direction in this regard has not been following the process.

Our FY 05 Invitation for Proposals was just that, an invitation. It, as any other proposal invitation, should not be viewed as a guarantee of funding for any individual project just by the nature of its responsiveness. These proposals compete through the rigorous process of peer, scientific and programmatic review conducted by our volunteer peer reviewers, Science and Technical Advisory Committee (STAC) and EVOSTC staff. This review process is important in formulating advice to the Council regarding the GEM program, and the individuals and entities involved are much appreciated for their contribution. However, this review process is limited to providing advice on specific aspects of our EVOS program. It is at the Council level that this advice is considered in the context of our broader mandates and responsibilities and is balanced with the fiscal realities of our program. We are quite frankly baffled by your assessment that we somehow violated the practices and tenets of science sponsorship and put our individual and agency credibility at risk. Surely you would not suggest the Council abdicate our fiduciary responsibility for the overall EVOS program and act as merely a 'rubber stamp' for the STAC and the staff tasked with providing advice on a single program component.

Certainly in your role as University President, you understand the challenges of balancing any program undertaken with the realities of limited fiscal resources and the necessity of making decisions within a responsible budgetary framework. In 1999, when the Council received Congressional approval to institute a modern investment strategy for the settlement funds, they adopted an endowment approach for the remaining balance of the restoration and research fund and set an annual expenditure cap to preserve its value over time. This Council policy set the amount available for FY 2005 at five million dollars. Adoption of the full slate of new projects recommended by the STAC and ED in the draft work plan, when combined with previous project commitments and program administration needs, would have resulted in exceeding the FY 2005 target by well over one million dollars. In addition, the out year effect of that commitment would be to exceed the projected FY 2006 budget and leave the Council unable to react to short term

needs without breaking the endowment approach. In our view while the Council reserves the latitude to spend either above or below these targets should a specific and pressing need exist, we found no reason to do so in support of the long term program the policy is designed to fund.

Instead of providing a lengthy project by project discussion of our deliberations, we would like to convey the considerations that guided our decisions on individual projects. Along with applying the three criteria cited repeatedly by the State Trustees and listed above, we considered the timing of the project (does this need to be done now or can it wait), if the project would benefit from the revised Science Plan as recommended by the EVOS Science Director in the work plan narrative, and if funding other than EVOS that may be available for an individual project. Let us assure you that regardless of your inference, projects from academic institutions were not singled out or treated any differently than from other entities. This has never been a consideration, and in fact, academic research has comprised a significant portion of the EVOS science program since its inception with over eight million dollars of funding for university projects since 2000 and a number of continuing projects receiving EVOS funding in 2005 and 2006. We believe that EVOS and the University of Alaska have enjoyed a mutually beneficial relationship and remain hopeful that it will continue.

Your letter specifically questions our decision to postpone work in the areas of modeling and synthesis as well as the addition of a project that was not recommended in the draft work plan. As stated in the FY 2005-2007 work plan, "the Science Plan is the point of origin for the Invitation for Proposals and ultimately the Work Plan, so it is a critically important document." You may not be aware that the EVOSTC was advised by the EVOS Science Director that the Science Plan is past due for a much needed update. We made it clear in our deliberations and direction to the EVOS staff that revising the Science Plan is a high priority of the Council. It is our intention that this plan revision integrate the GEM program with the broader restoration mission and better define the 'bridge' to the long-term research emphasis. While we believe that modeling and synthesis are important program areas under GEM, they should await the revision of the Science Plan. We plan to be fully engaged in that revision process.

The single project not recommended in the draft work plan that the Council chose to fund deals with herring, an extremely important species in Prince William Sound that appears on our injured species list and commands a great deal of public attention. This project is a continuation of a very promising pilot project that was previously funded by EVOS.

While you chose to characterize our project selection as bearing little resemblance to our invitation and the advice of our staff and advisory groups, we respectfully disagree. The FY 2005-2007 work plan is in our view an aggressive portfolio of important science, research and management projects. While some disappointment is expected among investigators whose projects did not receive funding, no reasonable person should conclude a conspiracy exists in the process or a mystery surrounds our decisions. The FY 2005 funded project list is, in fact, merely a subset of the projects we invited and our advisors recommended – a subset that lives within our fiscal constraints and serves the broad mission of the EVOSTC.

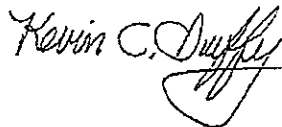
September 17, 2004

In closing we invite your continued interest in the EVOS Trustee Council and our programs. We look forward to continuing the good working relationship between the University policy makers and the Trustee Council and invite you to meet with us to better understand our mission.

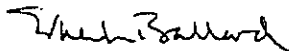
Sincerely,



Attorney General Gregg Renkes



Commissioner Kevin C. Duffy



Commissioner Ernesta Ballard

cc: Gail Phillips, Executive Director, EVOSTC
EVOSTC Federal Members

STATE OF ALASKA

FRANK H. MURKOWSKI
GOVERNOR

DEPARTMENT OF FISH AND GAME

OFFICE OF THE COMMISSIONER

P.O. BOX 25526
JUNEAU, AK 99802-5526
PHONE: (907) 465-4100
FAX: (907) 465-2332

November 2, 2004

Ms. Nancy Bird, President
Prince William Sound Science Center
P.O. Box 705
Cordova, AK 99574

Dear Ms. Bird:

Thank you for your letter of October 11 regarding the *Exxon Valdez* Oil Spill Trustee Council's (EVOSTC) adoption of the FY 2005-2007 work plan. In your letter, you question the evaluation criteria and basis by which we arrived at our funding decisions generally, as well as our specific decisions on several projects. It would be presumptuous for me to try to convey the thoughts of either the entire Council or other individual members as they pertain to individual projects. However, I hope that this letter helps you to better understand the type of considerations and decision process I employed in considering the current work plan.

As you know, the primary mission of the Council remains the restoration and rehabilitation mandated by the terms of the 1991 Memorandum of Agreement under which the Council must operate. Actions taken to implement the Council's mission are governed by the 1994 Restoration Plan. While I am generally supportive of the type of long-term monitoring GEM envisions, I do not view GEM as a whole-cloth replacement for the restoration and rehabilitation activities of the Council. Monitoring and research is only one of many actions specifically referenced in the EVOSTC Restoration Plan. Other major issues continue to exist and restoration actions need to be taken, which demand a portion of our effort and funding. Since assuming my role as a Trustee, I have been consistent in my efforts to move forward a scientific endeavor that is consistent with our restoration and rehabilitation mission.

Our knowledge of the effects of the oil spill, and consequently the need to respond, remains in flux. An example was the revelation in 2001 that substantially more oil remained in Prince William Sound in a substantially more toxic state than anyone had ever believed likely. In addition to the fate and effect of lingering oil, there are a number of species and services that continue to be on our list of injured resources, and there is a need for applied scientific research with a direct management benefit in the spill affected region. In my view, the highest priority of the Council is to undertake projects that have the most direct and immediate restoration effects on injured natural resources and lost or diminished services. Before undertaking long-term projects designed to restore resources through generally broadening our understanding of the oil spill area ecosystem, it is important to first fund those projects that look at spill impacts and may lead quickly and directly to restoration benefits, such as improved natural resource management decisions.

I and the other State Trustees have articulated the need for a balance between the long-term monitoring goals and the near-term restoration and management priorities in nearly every public meeting since assuming our positions on the Council. These criteria served as a template to help guide our funding decisions for the FY 2004-2006 work plan last year, and once again figured prominently in our funding decisions at our August 23rd meeting.

Our FY 05 Invitation for Proposals was just that, an invitation. It, as any other proposal invitation, should not be viewed as a guarantee of funding for any individual project just by the nature of its responsiveness. These proposals compete through the rigorous process of peer, scientific, and programmatic review conducted by our volunteer peer reviewers, Science and Technical Advisory Committee (STAC) and EVOSTC staff. This review process is important in formulating advice to the Council regarding the GEM program, and the individuals and entities involved are much appreciated for their contribution. However, this review process is limited to providing advice on specific aspects of our EVOS program. It is at the Council level that this advice is considered in the context of our broader mandates and responsibilities and is balanced with the fiscal realities of our program.

Certainly in your role as President of the Science Center, you understand the challenges of balancing any program undertaken with the realities of limited fiscal resources and the necessity of making decisions within a responsible budgetary framework. In 1999, when the Council received Congressional approval to institute a modern investment strategy for the settlement funds, they adopted an endowment approach for the remaining balance of the restoration and research fund and set an annual expenditure cap to preserve its value over time. This Council policy set the amount available for FY 2005 at five million dollars. Adoption of the full slate of new projects recommended by the STAC and ED in the draft work plan, when combined with previous project commitments and program administration needs, would have resulted in exceeding the FY 2005 target by well over one million dollars. In addition, another effect of such a commitment would be to exceed the projected FY 2006 budget and leave the Council unable to react to short term needs without breaking the endowment approach. In my view, while the Council reserves the latitude to spend either above or below these targets should a specific and pressing need exist, I found no reason to do so in support of the long-term program the policy is designed to fund.

I would like to convey some of the most important considerations that guided my decisions on individual projects. Along with applying the three criteria cited repeatedly by the State Trustees and listed above, I considered the timing of the project (does this need to be done now or can it wait), if the project would benefit from the revised Science Plan as recommended by the EVOS Science Director in the work plan narrative, and if funding other than EVOS may be available for an individual project. Proposals submitted by your staff were not singled out or treated any differently than those from other entities. I believe that EVOS and the Prince William Sound Science Center have enjoyed a mutually beneficial relationship and remain hopeful that it will continue.

The single project not recommended in the draft work plan that the Council chose to fund deals with herring, an extremely important species in Prince William Sound that appears on our injured species list and commands a great deal of public attention. This project is a continuation of a very promising pilot project that was previously funded by EVOS.

The FY 2005-2007 work plan represents, in my view, an aggressive portfolio of important science, research and management projects. The FY 2005 funded project list is, in fact, merely a subset of the projects we invited and our advisors recommended – a subset that lives within our fiscal constraints and serves the broad mission of the EVOSTC. Although the work plan funding decisions were made by the Council during an open public meeting, I recognize that our rationale for funding or not funding certain projects may not have been well defined during the meeting or easily understood by the public. I appreciate your comments in that regard and will work to improve our efforts in this area.

In closing, I invite your continued interest in the EVOS Trustee Council and our programs. I look forward to continuing the good working relationship between the Science Center and the Trustee Council and appreciate you taking the time to better understand our efforts.

Sincerely,

A handwritten signature in cursive script that reads "Kevin C. Duffy". The signature is written in dark ink and is positioned above the printed name and title.

Kevin C. Duffy
Commissioner

cc: Gail Phillips, Executive Director, EVOS Trustee Council



GREGG D. RENKES
ATTORNEY GENERAL OF ALASKA


October 29, 2004

Ms. Nancy Bird
President
Prince William Sound Science Center
PO Box 705
Cordova, AK 99574

Dear Ms. Bird:

Thank you for your October 11, 2004 letter regarding the Trustee Council's approval for funding certain projects. I understand your need for more information on our evaluation criteria for funding future projects. By copy of this letter I am forwarding your request to Gail Phillips, EVOS Executive Director, for response.

Sincerely,


Gregg D. Renkes
Attorney General

cc: Gail Phillips, Executive Director

STATE OF ALASKA

DEPT. OF ENVIRONMENTAL CONSERVATION
OFFICE OF THE COMMISSIONER

FRANK H. MURKOWSKI, GOVERNOR
410 Willoughby Ave., Ste 303
Juneau, AK 99801-1795
PHONE: (907) 465-5065
FAX: (907) 465-5070
<http://www.state.ak.us/dec/>

October 21, 2004

Nancy Bird
President
Prince William Sound Science Center
P.O. Box 705
Cordova, AK 99574

Dear Ms. Bird:

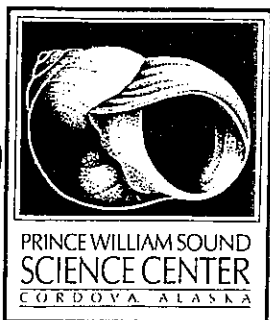
Thank you for your recent inquiry regarding EVOS Trustee Council funding decisions. I am forwarding your letter to Gail Phillips, EVOS Trustee Council Executive Director, who can provide a summary of the Trustees' objectives and actions. As you know, the Trustees act only with unanimous consent and Gail appropriately speaks for the entire Council. Again, thank you for your correspondence.

Sincerely,



Ernesta Ballard
Commissioner

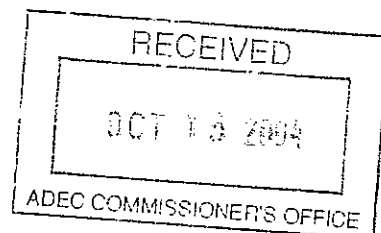
cc: Gail Phillips, Executive Director, EVOS Trustee Council
EVOS Trustee Council



P. O. Box 705
Cordova, Alaska 99574
(907)424-5800 (ph.)/(907)424-5820 (fax)

October 11, 2004

Ernesta Ballard
Commissioner
Alaska Department of Environmental Conservation
410 Willoughby, Suite 303
Juneau, AK 99801-1795



Dear Commissioner Ballard:

I am writing to inquire about the Trustee Council's approval of 12 projects for funding in FY05-FY07. For future planning purposes, it would help me to understand why 10 of the total 18 projects recommended for funding were approved and two projects that received mixed reviews were also awarded.

As you may remember, two of the 30 projects considered were submitted by members of my staff. One of those – ShoreZone Mapping for Prince William Sound (by C. Schoch) – was recommended for funding by both the two committees and the Science and Executive Directors. There were seven other projects recommended across the board for funding which also were not awarded. What was it about these projects that caused them not to be funded, particularly given that two projects with mixed reviews were supported?

We were actively involved in development of the Gulf Ecosystem Monitoring (GEM) program and reiterate its importance to our region. Our mission has always advocated for long-term, community based research and monitoring that will assist resource managers and improve our understanding of Prince William Sound's complex ecosystems. Part of that work involves building strong and lasting collaborations with state and federal agencies and others who share an interest in sustaining and/or enhancing Prince William Sound's many resources.

In order to effectively plan and respond to research opportunities for my staff, I want to better understand the evaluation criteria and basis for the Trustee Council's recent decisions. Thank you very much for your advice or recommendations.

Sincerely,

Nancy Bird
Nancy Bird
President

cc: Gail Phillips, Executive Director

*Dear Nancy
Referring your letter to Gail Phillips
who can provide a summary of the Trustee's
direction and action*

*As you know the Trustees act
only with unanimous consent and
Gail appropriately speaks for the
entire council.*



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

October 9, 2003

Gail Phillips
Executive Director
Exxon Valdez Oil Spill Trustee Council
440 W. 5th Avenue, Suite 500
Anchorage, AK 99501

Dear Gail:

I am writing to express concern at the cancellation of the Trustee Council meeting scheduled last Friday, particularly because the notice I received indicates a meeting *may* be scheduled in November but could also be delayed into 2004. The programs supported by the Council are relied on by not only researchers and institutions, but also the communities in which those activities occur. Prince William Sound Science Center projects awaiting approval focus on very important Alaskan community and resource issues, including:

- Impacts of Seafood Waste Discharge in Orca Inlet, Prince William Sound (in collaboration with ADEC, ADF&G, Cordova seafood processors and the Native Village of Eyak)
- Trophic dynamics of intertidal soft-sediment communities: interaction between bottom-up & top-down processes (a continuing project on the Copper River Delta Flats examining the physical/chemical and biological factors limiting or regulating invertebrate community dynamics)

We also have several projects on the “defer funding” list which will result in a better understanding of Prince William Sound’s ocean current structure and, also, the exchange of plankton populations between the Gulf of Alaska and the Sound.

We are cooperators with other State of Alaska agencies, use resident scientists, and involve community members. The FY04 work plan was delayed last spring, due to understandable transitions, but further delay in adoption of this work plan will result in some major setbacks.

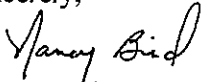
The major entities funding research in Alaska – the Trustee Council, North Pacific Research Board, University of Alaska, Oil Spill Recovery Institute and others – have worked hard in the past few years to develop stronger ties and ensure complementary programs and funding support. I look forward to expanding these collaborations and building a strong foundation for quality, long-term research programs conducted in Alaska by Alaskans that will provide critical data that can be applied to the many resource-based issues that support our communities.

Delays in adoption of work plans result in uncertainties and, in some cases, lapses in funding support for ongoing programs. Collaborations and partnerships are difficult when uncertainty prevails. I fully respect the Trustees' responsibility and role in determining programs but am concerned as to whether they recognize the potential impacts further delays can have on long-term partnerships, programs and ultimately, communities.

On a separate note, thanks again for inviting me to the investment workshop held Sept. 24. I have a steep learning curve in this department, so I greatly appreciated the opportunity to attend this very educational meeting.

Please let me know if there's anything I might do to express support for the work of you and your staff.

Sincerely,



Nancy Bird, President

Exxon Valdez Oil Spill Trustee Council

441 W. 5th Ave., Suite 500 • Anchorage, Alaska 99501-2340 • 907/278-8012 • fax 907/276-7178

November 20, 2004



Mr. Bob Shavelson
Cook Inlet Keeper
P.O. Box 3269
Homer, Alaska 99603

Dear Mr. ~~Shavelson~~ *Bob*:

Thank you for your letter regarding the Trustee Council's process and the project funding results for their FY 2005 Work Plan. The Council has asked me to respond on their behalf. I hope these remarks will answer your questions.

The Council's decisions regarding the FY 05 Work Plan were made pursuant to the Memorandum of Agreement and the Consent Decree governing the use of the funds recovered by the State and Federal governments and the Restoration Plan approved by the Trustee Council in 1994. As these documents point out, the mission of the Council is to restore the natural resources injured by the Exxon Valdez oil spill and to provide for meaningful public participation in the restoration process.

The FY 05 Invitation and Work Plan underwent a thorough and strenuous review by the Council's staff, the science community, legal advisors and the general public. The Council considered all the comments and recommendations made by the staff, the science community and the public when it made its funding decisions. These decisions were necessarily made with restoration in mind rather than any science sponsorship.

Although the FY 05 funding decisions were made by the Council during an open public meeting, the Council recognizes that its rationale for funding or not funding certain projects may not have been well defined during the meeting or easily understood by the public. The Trustees appreciate your comments in that regard and will work to improve their efforts in this area.

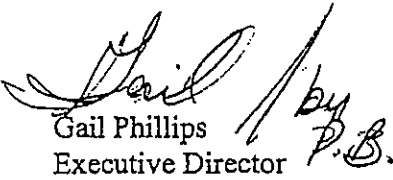
In response to your question, there was no meeting between the Trustees and the liaisons that the public was not a part of. At one time during the meeting, the liaisons gathered together to discuss any last minute details that they could advise the Trustees about before the Trustees took formal action.

As you know, our agendas are well published in an adequate time frame before the meetings. One of the first items of business for any of our meetings is that of public participation. Since the FY 2005 projects were a major part of the agenda, the public was again given the opportunity to speak to these projects at the beginning of the meeting.

We appreciated the efforts put forth in the Cooper proposal. The projects that were approved by the Trustees exhausted available funds and there was not money to fund all the projects that were submitted.

We hope that you will continue to work with us for approving projects such as Joel's in the future. Please consult with Phil and Richard when you have the opportunity in order to prepare a project that can be submitted again to the Trustees for consideration.

Sincerely,


Gail Phillips
Executive Director

Cc: Trustee Council



COOK • INLET • KEEPER

Protecting Alaska's Cook Inlet watershed and the life it sustains

September 3, 2004

Gail Phillips, Executive Director
Exxon Valdez Trustees Council
441 West 5th Avenue, Suite 500
Anchorage, AK 99501

RE: EVOS TRUSTEES COUNCIL PROTOCOLS & PRIORITIES

Dear Ms. Phillips:

I. INTRODUCTION

I listened to the Council's August 23, 2004 meeting by telephone, and while a considerable portion of the meeting was held in executive session, I was alarmed not only by the Council's funding decisions for FY 2005, but also by the manner in which they reached them. With the hope of better understanding the Council and its processes, I have addressed questions below to you and the Council, and I would appreciate your response in writing at your earliest convenience.

II. QUESTIONS

a. Was the meeting between the liaisons for the Trustee Council Boardmembers publicly noticed and/or open to the public? I understand liaisons for the federal and state Trustees met on the morning of August 23rd specifically to discuss project funding for FY 2005. I am unaware, however, of any meaningful public discussion at the Council's August 23rd meeting regarding FY 2005 projects.

b. Why did the Cooper proposal fail to receive funding? The EVOS Trustees Council invited submission of the Cooper proposal, and the proposal received unanimously strong support from the Trustees Council's peer reviewers, Scientific and Technical Advisory Committee, Public Advisory Committee, Science Director and Executive Director. As the Draft FY 2005 Work Plan noted, the Cooper proposal was "consistent with GEM strategies and [the EVOS TC's] Science Plan" and "highly leveraged, with nearly 50% of project costs provided from other sources." Furthermore, the Cooper project ranked higher in the Trustees Council's priority list than other projects which received funding (in fact, at least one project which received a "do not fund" recommendation was funded). Finally, the project design would help understand Dolly Varden, whose recovery status after the EVOS remains unknown. Yet with no public discussion whatsoever, and no dialogue with the Science and Public Advisory Committees, the Council summarily excluded the Cooper proposal and other proposals from its list of funded research projects for FY 2005.

Gail Phillips Letter
September 3, 2004
Page 2

III. CONCLUSION

From the time of its formation, the EVOS Trustees Council has adhered to protocols that ensure fair and open consideration of research proposals brought before it. Importantly, Trustees Council staff, peer reviewers and the Science and Public Advisory Committees historically have been afforded the deference and respect their considerable expertise deserves. The August 23rd Trustees Council meeting marked a stark departure from these practices, and the common-sense "good government" principles they reflect. As a result, without further information explaining the Council's processes, the Council's recent actions will have cast a pall over the objectively and legitimacy of the Council's decision making process.

Thank you for your attention to this important matter, and I look forward to your timely response. If you have any questions regarding this letter, please feel free to contact me at 907.235.4068 ext 29 or joel@inletkeeper.org.

Very truly yours,



Joel Cooper
Research Director



Center for Alaskan Coastal Studies, Inc.

P.O. Box 2225, Homer, Alaska 99603 • 907/235-6667 • Fax 907/235-6668 • Email cacs@xyz.net • www.akcoastalstudies.org

January, 2005

Gail Phillips
Executive Director
Exxon Valdez Oil Spill Trustee Council
441 West Fifth Avenue – Suite 500
Anchorage, AK 99501

Dear Gail,

I am enclosing a newsletter that we produced last fall to summarize the results of 20 years of conducting the Kachemak Bay CoastWalk program. We appreciate the support of the Trustee Council in the further development of this program as a model for community involvement in the GEM nearshore monitoring program and your personal help with this project. A full-color version of this newsletter is posted on our website along with the CoastWalk database and an acknowledgement of your support.

Sincerely,

Marilyn Sigman
Executive Director
January, 2005



printed on recycled paper

Positive Trends:

☺ No more abandonment of vehicles and derelict boats – Zones 4,5,10, and 13

☺ Giant Clam digger, first noted in 1987 and every year thereafter, finally removed in 2002!

☺ Relatively little litter and debris found on most south shore beaches; decreasing trend in Zones 21,22,24,26

☺ Fishing gear debris decreasing in Zones 2, 3, 6, 8, 13,14, 15

☺ No more beach garbage dumps!

Negative Trends:

☹ Litter increasing around access points in Zone 1,7,12 (plus camping/human waste problems)

☹ Evidence of camping and fire rings increasing

☹ Evidence of vehicle use in most City of Homer beach zones, including closed areas; one new ATV trail bulldozed to beach.

Trends of Dubious Distinction

☺ Shift in marine debris types in several zones from fishing and boating to litter from recreational use of beach (glass debris and bottles, aluminum cans, plastics).

☺ Addition of structures or fill or debris to control bluff erosion (Zones 6,7,8,10,12) + the sea wall (Zone 4)

Unusual Events/ Observations

Severe erosion process in Zone 12, 1988-92. Estimated movement of 40,000 cubic feet of clay onto the beach in one month.

20 Years of CoastWalks - 21 Years of Changing Shores

The time was fall of 1984.

Peterson Bay Field Station and the Center for Alaskan Coastal Studies had just hosted its first school group and summer tours. Only a few spruce bark beetle larvae were crunching away beneath the bark of trees in Kachemak Bay forests. The Bay's single kayak tour company had stored their boats and the two across-the-bay lodges in China Poot and Tutka Bay had completed their seasons. Well-fed Alaskans had harvested King, Dungeness, and Tanner crab and almost 9,000 gallons of cockles and Butter and Pacific Littleneck clams in Kachemak Bay and Lower Cook Inlet. Oil flowed steadily and uneventfully through the Trans-Alaska Pipeline system and onto tankers that navigated successfully through the ice bergs and rocks of the Gulf of Alaska.

A small group of people hatched the idea of the annual Kachemak Bay CoastWalk - a walk along stretches of the Kachemak Bay shoreline once a year to observe how it changed from year to year. They were interested in the natural cycles of change in beaches subject to a 27' foot tidal range and connected to a "superhighway" of nutrients and marine life brought to the Bay by the ocean currents. They also were concerned that as more and more people were attracted to live, work and recreate on the awe-inspiring beaches of this beautiful Bay, their activities would become a large factor in the changes that would occur. But the other thing they had in common was their sheer enjoyment of a walk on a familiar beach whose cycles, patterns, and complexities were part of their extended sense of "home."

Now, in 2004, we can look back at the changes that have occurred.

A warmer climate has rippled through the forests in the form of the spruce bark beetles that have eaten their way through thousands of acres of trees in the Bay's watersheds. Shrimp, the base of an oceanic food web, have all but vanished. The sport harvest of 62 king crab in 1984



"I love this stretch of beach in spite of unpleasant memories from post-Exxon days." Toby Tyler, Zone 1, 1996 & 2001

proved to be the last before the season was closed and the shellfish harvest of 1984 was never equaled. Several wildlife species that use the Bay that were abundant in 1984 are now species with conservation concerns in some part or all of their range: beluga whales, Steller's sea lions, harbor seals, sea otters, sea ducks, and Kittlitz's murrelet. And, in a single event in 1989, eleven million gallons of crude oil were spilled into the Gulf of Alaska marine ecosystem, of which the Bay is a part.

Use of our shoreline and beaches have increased dramatically. The shoreline has gradually become lined in a number of areas with homes, businesses, and recreational cabins, and spotted in others with private and public docks and moorings, trailheads, kayak landing spots, and beach parks. A half-mile of seawall has been built in an attempt to protect coastal properties from the process of beach erosion. The Homer Spit has become a seasonal suburb of Homer, with acreage created for storing logs and chips and spaces for RVs with cable TV connections. Sixteen businesses offer water taxi and marine tours, eleven provide kayak tours or rental kayaks, and eleven lodges provide overnight stays on the south side of the bay.

But appreciation and stewardship of our beaches have increased dramatically during the same period. Kachemak Bay State Park and its shoreline has been expanded considerably and the entire bay has been designated a National Estuarine Research Reserve. An annual Shorebird Festival attracts thousands whose enjoyment depends on the integrity of coastal wetland habitats. The City of Homer has a Beach Policy Committee charged with heading off conflicts and



negative changes to beach habitats. In addition to CACS, the Islands and Ocean Visitor Center and Pratt Museum orient thousands of community members and visitors to the natural and cultural history of the bay and opportunities to learn more, experience more, and sustain its diversity and productivity.

CoastWalk Education

From the mouth to the head of the bay, the schools along the shores of Kachemak Bay have played an active role in CoastWalk. Teachers quickly discovered that by having their students participate in this event, their students received an exciting hands-



on science experience, in addition to assisting with the documentation of the coastal changes of their community's shorelines.

Teachers use the CoastWalk program to support topics that they are teaching in their classrooms, like the scientific process, marine ecology, ocean pollution, climate change and stewardship. In addition, teachers have found it helpful that CACS has been able to provide a naturalist to both come into their class to prepare the students for their CoastWalk and to assist them on the day of the shoreline monitoring and beach clean-up event.

Ray Vining, a science teacher at Port Graham School, summed up nicely why he thought the program was beneficial to students and the larger community. "The students learned about stewardship of the intertidal zone and gained a deeper appreciation of the biodiversity of our beaches. Students felt that they were a part of an important scientific enterprise. The



community expressed satisfaction with the students learning through hands-on activities using the outdoors as a classroom."

"Considerably more oil was found in the Kachemak State Park beach directly to the west of Neptune Bay. Approximately 1/2 gallon of mousse globs up to 6 inches in length and oiled debris was collected on the west facing beach that faces Sixty-foot Rock." Anne Wrieland, Zone 23, 1989

Unusual Occurrences

With a network of over 150 volunteers, a strength of the program is being able to send walkers out to detect any unusual occurrences along the shores of Kachemak bay. These volunteers, while doing their annual CoastWalk, can "keep an eye out" for specific marine debris or abnormal wildlife observations.

For example, in 2001 CoastWalkers looked for Kachemak Bay Research Reserve's drift cards that were used for the Reserve's surface current study in Kachemak Bay and Lower Cook Inlet. CoastWalkers also looked for the presence of the Flat-Bottomed Sea Star, which showed up in very high numbers that year.

This same year the CoastWalk Coordinator also learned about a container spill in the Western North Pacific. The container was filled with shoes. Walkers were asked to record brand names, types, size and serial numbers for any shoes found. The data that were collected were turned into the federal agency monitoring ocean currents.

Other efforts have focused on surveying beaches following the Exxon Valdez oil spill and, in 2004, documenting dead or fatigued common murre found on local beaches.

The CoastWalk program has proved to be helpful not only in providing the annual observations used by CACS, but also in creating a pool of resources for the community to observe and record unusual occurrences along the Kachemak Bay coastline.

"I have walked the beach over the last 30 years. Most surprising was a large number of crab molts (Helmet crab) and thousands of Asturias amurensis (Flat-bottomed star) washed up, half-alive, although there was no high wave surge or storm." Michael McBride, Zone 21, 2003

Participating Schools:

Chapman School

Magpie Academy

Odyssey Academy

Otter Beach Educational Center

Kachemak-Selo

Susan B. English School (Seldovia)

Port Graham School

Nanwalek School

Homer Flex School

Smokey Bay School

Participating Youth Groups:

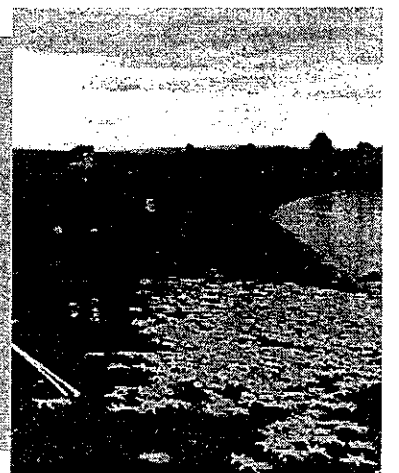
Homer Boy's and Girl's Club

Choices for Teens

Boy Scouts

Cub Scouts

Homer United Methodist Church



Top Ten Marine Debris Items Collected 2002-2003

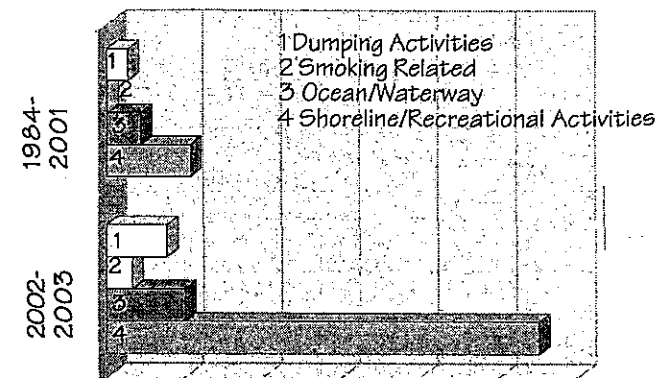
Beverage Cans	617
Fast Food Containers	581
Beverage Bottles (plastic)	523
Construction Materials	335
Caps, Lids	303
Beverage Bottles (glass)	246
Bags/Wrappers	202
Rope	177
Cup, Plates, Forks, Knives, Spoons	147
Cigarettes/Filters	128

Top Ten Marine Debris Items Collected 1984-2001

Beverage Cans	238
Beverage Bottles (plastic)	108
Car Parts	76
Buoys/floats	73
Rope	72
Beverage Bottles (glass)	49
Construction Materials	41
Fish Nets	40
Clothing, Cloth	37
Bags/Wrappers	36
Caps, Lids	36

"There was far less trash than in past years, but so many cast-away water bottles of all shapes and sizes, one even with a message inside," Toby Tyler, Zone 1, 2001

Source of Debris Comparison



Total Pieces Collected

Partnerships & Financial Support

CoastWalk could not be accomplished without the support of many business partners and financial supporters

Grantors:

Alaska Conservation Foundation, Alaska Sea Grant, Exxon Corporation (1989 intensive surveys), Exxon Valdez Oil Spill Trustee Council, National Fish and Wildlife Foundation, Oracle Corporation, U.S. EPA, U.S. Fish and Wildlife Service Alaska Coastal Program, West Marine/Cook Inlet Keeper

2003 Zone Sponsors:

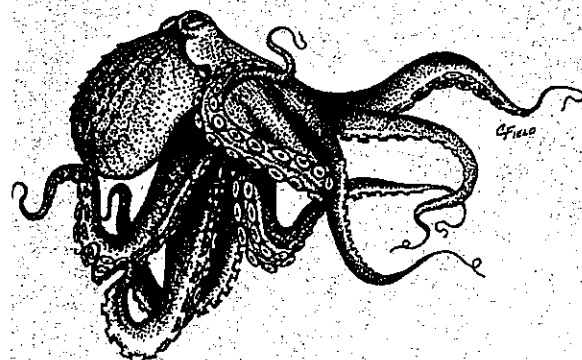
Homer Brewery, Tutka Bay Lodge, Emerald Air Service, Lands End Resort, Homer Real Estate
Donations of water taxi trips & kayak use for the south side zones: Bay Excursions, Mako's Water Taxi, Otter Cove Resort

Center for Alaskan Coastal Studies, Inc.

P. O. Box 2225
Homer, AK 99603

Non-Profit
Organization
U.S. Postage

PAID
Permit #40
Homer, Ak 99603



2004 CoastWalk

Information and sign-up:
Center for AK Coastal Studies
235-6667
Zones available, Sept. 9-26



The Center for Alaskan Coastal Studies has coordinated the annual effort to monitor the Kachemak Bay shoreline for 20 years. Volunteers choose a predetermined section of beach to walk during the three weeks of CoastWalk and collect data on observations

"I loved taking a more careful look at what surrounded me. It somehow brought me closer to the beauty I never fail to notice."
Roberta Highland, Zone 7, 1988

of marine, bird and mammal life, signs of human use and impacts and any noticeable changes to their stretch of beach. This year CoastWalk volunteers will be piloting a ground-truthing assessment for help with a cooperative shoreline mapping project in coordination with Cook Inlet Regional Citizen Advisory Commission (CIRCAC).

2004 marks the 20th Kachemak Bay CoastWalk. In 2004, Toby Tyler and members of the McBride family will again walk and contemplate the changes occurring to "their" Kachemak Bay beaches since 1984 when they participated in the first CoastWalk. They will be joined by a host of community organizations and residents, including owners of residents of recreational cabins and lodges along its shoreline have participated repeatedly in this community event. Please join us!

CACS
P.O. Box 2225
Homer, AK 99603
Phone 235-6667
Fax 235-6668
www.akcoastalstudies.org

Center for Alaskan Coastal Studies

Bringing You the Nature of Alaska Since 1982

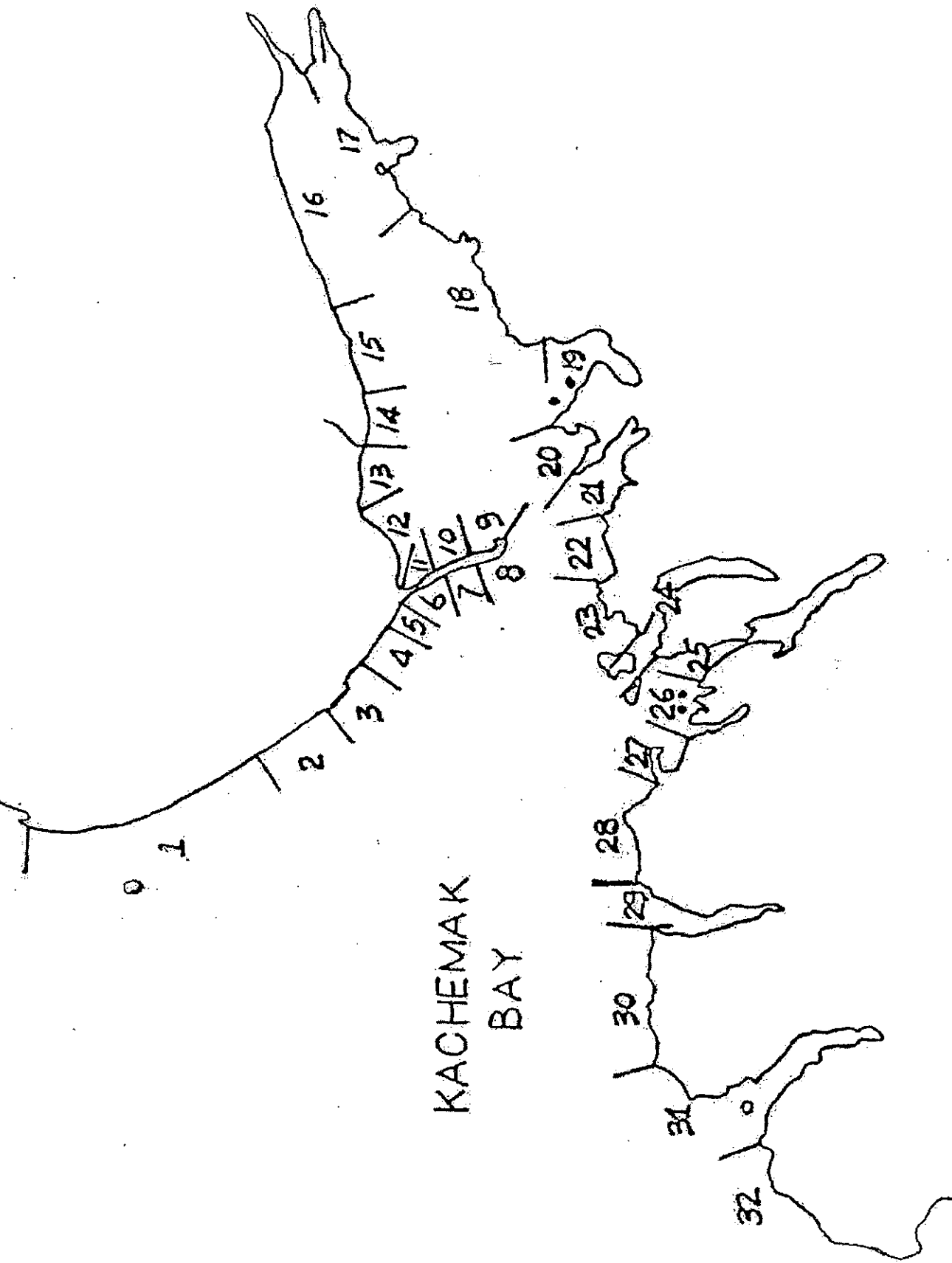
COASTWALK ANNIVERSARY EDITION 2004

CoastWalk is a unique community science and stewardship program with a three part mission to build community awareness of the importance of our local marine habitats, to gather data to detect long term trends in biodiversity, and to observe the effects of human impacts on our shore.



"Erosion over winter cut beach another 2', taking with it some of the last traces of prehistoric middens in Neptune Bay. Two or three have vanished in the last 10 years,"
Anne W'eland, Zone 23, 1989

CoastWalk Zones





Exxon Valdez Oil Spill Trustee Council
441 W. Fifth Ave., Suite 500
Anchorage, AK 99501

December 30, 2004

TO INDIVIDUAL TRUSTEES VIA EMAIL

Re: Request for Addition of PAC Question and Answer Period as Regular Agenda Item

Dear Trustee Council members:

At the Council's December 10, 2004 meeting, I and other members of the Council's Public Advisory Committee (PAC) provided testimony during the standard public comment period provided near the beginning of each Council meeting. Since several others had already mentioned the same concerns that I intended to raise, I chose to ask for a response from the Council rather than restate the same issues.

The Council's response was that the public comment period is a time only for public comment, not a time for dialogue or "question and answer" discussion with the Council. This did not surprise me because I had never seen the Council answer a question or engage in dialogue with anyone during the public comment period.

Afterward I was reflecting on this and on the PAC's meeting with the Council earlier this year, at which both the PAC and Council members present expressed an interest in improved and more informal communication opportunities between our groups. For example, Council members encouraged PAC members to speak up during Council meetings if appropriate, despite the somewhat formal appearance of the meeting room that can make unsolicited remarks from attendees seem inappropriate. Any such comment, however, would need to address the agenda item under discussion, not some other topic of interest to a PAC member. Additionally, assuming a desired topic were on the agenda, a PAC member in attendance might have to wait hours before that item surfaced for discussion, depending on its location on the agenda. Thus, despite our mutual interest in better informal communication and feedback, the December 10 meeting suggested to me that current opportunities for in-person discussion with the Council regarding topics of interest to the PAC are, for practical purposes, limited to the unidirectional statements allowed during the public comment period.

While recently perusing the PAC's approved Charter, however, I found the following language: "The Trustee Council's regular agenda shall include a period during which the Public Advisory Committee's representative(s) may report on its activities, ask questions of the Trustee Council,

and be available for questioning by the Trustee Council." This simple provision addresses our mutual desire for improved means of informal communication quite nicely and I regret that I failed to suggest it earlier, even were it not expressly set forth in the Charter.

Since having a regular agenda item for Trustee Council-PAC communication, including the opportunity for questions and answers from each group, is both a good idea and a component of the PAC's Council-approved charter, I request that the Council incorporate that agenda item into each future Council meeting. I am optimistic that this simple change will significantly improve the quality of dialogue between the PAC and the Council, and I look forward to our continued work together in the future.

Feel free to contact me with any questions or comments you may have.

Sincerely,

Patrick Lavin
National Wildlife Federation
750 W. 2nd Ave., Suite 200
Anchorage, AK 99501
(907) 339-3909

cc: Public Advisory Committee
Science and Technical Advisory Committee
Gail Phillips, Executive Director
Phil Mundy, Science Director

DECEMBER 16, 2004

TO: GAIL PHILLIPS, EXEC. DIR.
EVOS TRUSTEE COUNCIL
FAX: 907-276-7178

FROM: KEN ADAMS
CORDOVA, AK
PHONE: 907-424-5456, E-MAIL: KADAMS@GCI.NET

RE: EVOS TRUSTEE COUNCIL ISSUE

DEAR GAIL:

WE HAVE TAKEN THE LIBERTY OF SENDING A COPY OF A LETTER SENT OUT EARLIER TODAY TO KURT FREDRIKSSON OF AJEC. THE SAME LETTER WAS SENT TO EACH OF THE TRUSTEES, THAT IS, ADDRESSED TO THEM INDIVIDUALLY.

I'D LIKE TO CALL YOUR ATTENTION TO THE CONTENT OF THE LETTER AS IT IS OF IMPORTANCE TO US STAKEHOLDERS IN PRINCE WILLIAM SOUND AND THE COLLABORATIVE TEAM WE'VE ASSEMBLED RELATIVE TO THIS PROJECT.

I'D APPRECIATE YOUR CONSIDERATION OF THIS MATTER AND AM AVAILABLE TO ADDRESS ANY QUESTIONS YOU MAY HAVE

REGARDING THIS ISSUE.

YOURS TRULY, Ken Adams

December 16, 2004

Mr. Kurt Fredriksson, Deputy Commissioner
Alaska Department of Environmental Conservation
410 Willoughby Street, Suite 303
Juneau, AK 99801-1795

*Sent to all Trustees
and Alternates*

Dear Mr. Fredriksson:

Mr. Ross Mullins and I, coordinators of the current EVOS Trustee Council supported project entitled "Implementing the Pink Salmon Fry Survival Model: Phase 1-Project Development"(050757), attended the Trustee Council meeting Friday, December 10 in Anchorage. We listened attentively to the day's proceedings, especially discussion of project funding priorities for FY 06. We were disappointed to hear the recommendation not to go forward with this implementation. We'd like to call to your attention several reasons why re-consideration for this project is appropriate. It is both surprising and alarming that the modeling, management applications, economic benefit to the resource dependent community priorities, to which our proposal responded, have been overlooked. It was the response to these very same priorities which provided the basis for funding this project in August just four months ago.

Our intention in FY 05 is to do the necessary planning for the implementation of this model which was developed within the Sound Ecosystem Assessment (SEA) program (PWS Restoration Project 320) funded by the Trustee Council from 1994 to 1999. Unfortunately, little of this knowledge was ever applied. We seek to correct this dilemma and to apply SEA products for improved management and economic benefit for the stakeholder community. We are pleased to report that we have made good progress in developing a three year science plan to guide our collaborative monitoring and model implementation efforts. This is truly a collaborative program and involves a number of the former SEA principle investigators, personnel from the Prince William Sound Science Center, ADF&G, GLOBEC, and the region's hatcheries.

For several years we have been involved in the process of community needs identification, resolution of identified needs and application of SEA ecosystem science for stakeholder benefit. Implementation of this model offers a means of achieving this goal. Specifically, utilization of our collaborative monitoring and modeling program offers improved fishery management and hatchery operations, and combined with a modest ADF&G companion proposal, improved pink salmon return forecasting. In recent years pink salmon forecasts have varied widely from actual return numbers. Improvement of forecasting will benefit the region's processors, hatcheries, fishermen, and consequently the general economies of the resource dependent communities. Research and informational assets residing in PWS are extensive. Utilization of these assets offers the likelihood of significant resource management improvements and other gains for this region's stakeholders. We urge your re-consideration and request funding for this project's continuation.

Please find relevant excerpts from the GEM FY 05 Invitation and also selections from our FY05 proposal, accompanying this letter, to help clarify our intentions and responsiveness to the invitation.

In conclusion, we'd also like to bring to your attention the fact that we have developed the collaborative team of scientists and resource managers with expertise to bring this project forward as well as an interactive website for project participants. This is a communication necessity in view of the varied locations of our collaborators. The likelihood of developing these assets again, we feel, is very unlikely. We therefore urge your reconsideration for the value our project offers the PWS resource dependent community and funding for project implementation beginning in FY06.

Yours truly,

Kenneth Adams *Ross Mullins*
Kenneth Adams Ross Mullins

Prince William Sound Fisheries Research Application and Planning
PO Box 1848
Cordova, AK 99574

C.C. GAIL PHILLIPS, EVOS T.C. COUNCIL
ALAN AUSTERMAN, FISHERY POLICY ADVISOR
TO THE GOVERNOR

Cherri Womac

From: Stacy Studebaker [tidepoolak@ak.net]
Sent: Thursday, December 16, 2004 12:27 PM
To: Cherri Womac
Cc: Gail Phillips; Torie Baker; Brenda L. Norcross; Charles P. (Chuck) Meacham; Bob Patterson; Douglas L. (Doug) Mutter; Ed Zeine; Edward Page; Gary Fandrei; Jason Brune; John Gerster; Larry Evanoff; Lisa Ka'aihue; Martin Robards; Mead Treadwell; Pat Norman; Patrick Lavin; Randy Hagenstein; Ron Peck; Andy Teuber, Jr.; Robert J. Kopchak
Subject: Re: Appointment letters on their way



EVOS TC
ents 121004.do

Hi Cherri,

Thanks for the information and I do plan on attending the science symposium and PAC meeting. I registered on line for the symposium.

As for the agenda of the PAC meeting, I would like to suggest a couple of important items that we should get an update on.

STATUS OF SMALL PARCEL HABITAT PROGRAM. Earlier this year, a habitat committee was formed that met three times to write a new application and set of guidelines for future nominations for the small parcel habitat restoration program. It was the committee's understanding that our draft would be presented to the Trustee Council for their editing and approval. We haven't heard anything since our last committee meeting.

STATUS OF 2005-2007 GEM WORKPLAN. Many PAC members, members of the scientific community, University of Alaska, and the general public have expressed great concern over the TC's funding decisions at the August 23rd meeting. Several PAC members voiced their concerns in writing and in person during the public comment period at the Dec. 10th TC meeting. I would like to know how the TC plans on addressing these concerns and answering their questions since some of them focus on the viability of our committee to have any meaningful future input in the public process. (see attached document-my testimony)

Many thanks and I look forward to seeing you in January.

Sincerely,
Stacy Studebaker

December 10th, 2004

TO: Gail Phillips and the EVOS Trustee Council

FROM: Stacy Studebaker, EVOSTC PAC member

RE: The Trustee Council's decision (August 23rd, 2004 meeting) for funding the 2005-2007 GEM Workplan.

I have been a member of the EVOSTC Public Advisory Committee for the last eight years representing Recreational Users and the Kodiak Archipelago. I have a Masters degree in Science Teaching and recently retired from a long career of teaching high school science in Kodiak. I have been adjunct faculty of the Kodiak College since 1982 where I continue to teach.

During my tenure on the EVOS PAC, I have been involved in the development of the GEM Program from its very beginning. Institutional memory is one advantage I have, having served under two different executive directors, two governors, many different federal and state trustees, and two Department of the Interior Secretaries. I know and greatly appreciate the magnitude of the time, effort, scientific and public review, and public funds that have gone into the development of the Restoration Plan and the GEM Program as it stands today, ready to begin. If implemented the way it has been envisioned, the GEM Program stands to serve as a universal model for marine ecosystem monitoring.

But recently I became aware of a radical departure from the public process by which the funding decisions have been made for the Restoration Plan and for launching the GEM Program with the 2005-2007 GEM Workplan. Some recent actions by the Trustee Council at the August 23, 2004 meeting have drastically jeopardized the Restoration Plan and the GEM Program as planned, envisioned, published, and communicated to the public and scientific community.

I am here today to voice a number of my concerns and ask for some explanations, which I believe the TC owes the Public Advisory Committee, the Science and Technical Review Committee, the EVOSTC staff, the scientific community, and the general public.

To make sure that what I am saying today is accurate, I consulted the October 1994 Record of Decision for the Exxon Valdez Oil Spill Restoration Plan, otherwise known as the legal bible for this institution. If I am out of line, I'm sure that the esteemed Mr. Mutter will correct me.

PROCESS

It is my understanding from some people present at the August 23rd, 2004 TC meeting that the TC made funding decisions based on deliberations that took place behind closed doors and not in public. I believe this was a violation of process and procedures and would like you to give an explanation for why this occurred.

Another rather drastic deviation from past process is that the TC funded their own list of projects many of which were not recommended or even considered by the Science Director, The Science and Technical Advisory Committee or the Public Advisory Committee because they did not fit the criteria for the GEM Program.

Both committees had met previously to review, discuss, and make their recommendations based on the criteria established in the GEM Program.

This does not include the considerable time each individual took to read every proposal prior to the meetings. The PAC discussed the docket publicly, proposal by proposal, with the science director, and chairman of the STAC as we have done in most previous years. We rolled up our sleeves and took our task seriously to be sure

we were representing the injured resources and the public honorably while making our recommendations to launch the GEM Program that we have worked so hard on.

I really want to go on record here that I believe there has been a serious violation of policies and procedures.

At the August 23rd meeting, the Science Director had prepared a presentation to brief the TC on the 2005-2007 Workplan projects that were recommended for funding by the reviewers and committees. The TC did not want to see the presentation so the public never got to see what had been recommended through the established review process. Instead, after the closed door meeting, the TC presented their own list for funding. **I would like to know how and why you made the decisions you did? What was your rationale for funding these projects? Project by project, we have to justify our decisions and recommendations so why don't you?**

Here are some other serious deviations from our recommendations and the established policies.

UNIVERSITY OF ALASKA PARTICIPATION

The University of Alaska has been a major traditional player in the research for the Restoration Plan and for planning and implementing the GEM Program. The TC chose not to fund any of their proposals many of which were recommended by the STAC, PAC and the Science Director. **How do you justify your decision and explain this to university scientists many of whom have been the core researchers of exemplary EVOS funded work?**

COMMUNITY INVOLVEMENT

Community monitoring and involvement has been identified as a major, central component of GEM. Considerable time and funds have been spent to establish this component of GEM. It has been recognized as an important way to compile more and extensive databases on the Gulf of Alaska. **Key projects that were identified, already ongoing, and recommended by the STAC and PAC were discarded by the TC. How do you justify this?**

MEANINGFUL PUBLIC PARTICIPATION

On page 7 of the Policies Common to All Action Alternatives in the 1994 Record of Decision Plan, it says, "Restoration must include meaningful public participation at all levels – planning, project design, implementation, and review. "

The key word in that sentence is "must". The TC actions that I have described above certainly negate the efforts of the public in this instance and are therefore legally questionable. **How can the PAC continue any meaningful participation in the process if their recommendations aren't considered in the TC decision-making?** I don't really think any of the PAC members want to go through the superficial motions at our meetings just to create an illusion of public process for the TC. We are far too busy and our time is far too valuable to waste.

Likewise, how can you expect the staff of this organization to answer to and work with the scientific community and public when the TC doesn't follow its own rules?

Do the Public Advisory Committee and the Science Technical Advisory Committee have a worthwhile future role in the public process of this organization?

It seems pretty clear that the integrity of this organization has been compromised by these recent actions. I don't know how we gain back the trust of the scientific community and the public. How can we repair the damage done to the GEM Program to get it back on track unless the TC funding decision for the 2005-2007 Workplan is withdrawn and we pretend like the August 23rd meeting never happened? You could admit your mistake and we could replay the August 23rd meeting the way it was supposed to happen. That would be the most honorable thing to do.

I greatly appreciate this opportunity and look forward to receiving your answers to my questions.

Sincerely,

Stacy Studebaker

P.O. Box 970

Kodiak, AK 99615



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Anchorage Daily News (AK)
 February 3, 2005 \${SECTION:+
 Section: Alaska} \${EDITION:+
 Edition: Final} \${PAGE:+
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Oil spill trustees defy council norms \${SUBHEAD:+

Compass: Points of view from the community}

\${BYLINE:+

STACY STUDEBAKER

Commentary} \${SOURCE:+

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The state and federal governments established the **Exxon Valdez Oil Spill Trustee Council** to oversee the restoration of resources injured by the 1989 **Exxon Valdez oil spill**. The **council** is composed of representatives from three federal agencies and three state agencies. I have served on the **council's** Public Advisory Committee for the last nine years and, along with more than a dozen other committee members, I volunteer countless hours each year to promote sound science and a healthy marine ecosystem in the **spill**-affected area. Since its inception, the **council** has embraced open and democratic procedures to foster the debate and scrutiny needed to promote valuable scientific research on the resources and ecosystems damaged by the **oil spill**. In fact, the chartering documents establishing the **council** mandate open discussion and meaningful public participation. Such open dialogue often gets heated as scientists, citizens and policy-makers hash out the relative merits of specific proposals. But to paraphrase an old adage, democracy is the worst form of government -- except for all the rest, and at the **trustee council**, this means the best way to ensure scientifically valid research is to engage in the rigorous peer review and deliberate discussions that produce reasoned outcomes.

Recently, however, these democratic norms have been brushed aside and replaced with secret meetings and off-the-record decisions. For example, at its Aug. 23, 2004, meeting, the **trustee council** and its support staff met in private discussions to make funding decisions on various scientific research proposals for the next several years. These meetings were not properly publicized, nor were they open for public participation as required by open meeting laws and **council** policies.

Furthermore, the **council** violated its own rules when it refused to publicly discuss the reasoning behind its research proposal decisions. This is especially troubling because th

council rejected proposals that had received high marks from peer reviewers, **council** staff and members of the Public Advisory Committee and Scientific and Technical Advisory Committee. While the **council** cannot be expected to rubber-stamp every proposal that receives strong endorsements during the proposal review process, it does have an obligation to publicly explain the reasoning behind its decisions. To do otherwise is a stick in the eye to the many scientists, policy-makers and concerned Alaskans who work hard to make the **council** an example of peer-reviewed, publicly accountable science.

University of Alaska Fairbanks President Mark Hamilton summed up public concerns in a letter to the **council** shortly after the August 2004 meeting: "Your decisions appear to have been made without public consultation or open discussion, and to contradict the very principles and priorities which you yourselves have consistently espoused. Violation of the practices and tenets of scientific sponsorship which have for generations guided successful research in this country -- including peer review, openness, and transparency -- puts at risk the scientific credibility of not only yourselves as **trustees**, but the organizations you represent."

Openness and transparency are the fountainheads of democracy, and rigorous and serious debate are the seeds of successful science. The **council trustees** -- state **trustees** Gregg Renkes, Wayne Regelin and Kurt Fredriksson, and federal **trustees** Joe Mead, Drew Pearce and Jim Balsiger -- have an obligation to current and future generations of Alaskans to ensure that **Exxon Valdez** science rises above the din of partisan sniping. Alaska's spectacular marine resources are simply too important to squander behind closed doors.


Stacy Studebaker represents recreational users on the **council's** Public Advisory Committee. 

Illustration:

Photo 1: Stacy Studebaker_020305.jpg



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TRADITIONAL ENVIRONMENTAL KNOWLEDGE IN FEDERAL NATURAL RESOURCE MANAGEMENT AGENCIES

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OFFICE OF SUBSISTENCE MANAGEMENT AND ISSUES AND CHALLENGES OF INTEGRATING TEK INTO SUBSISTENCE FISHERIES MANAGEMENT

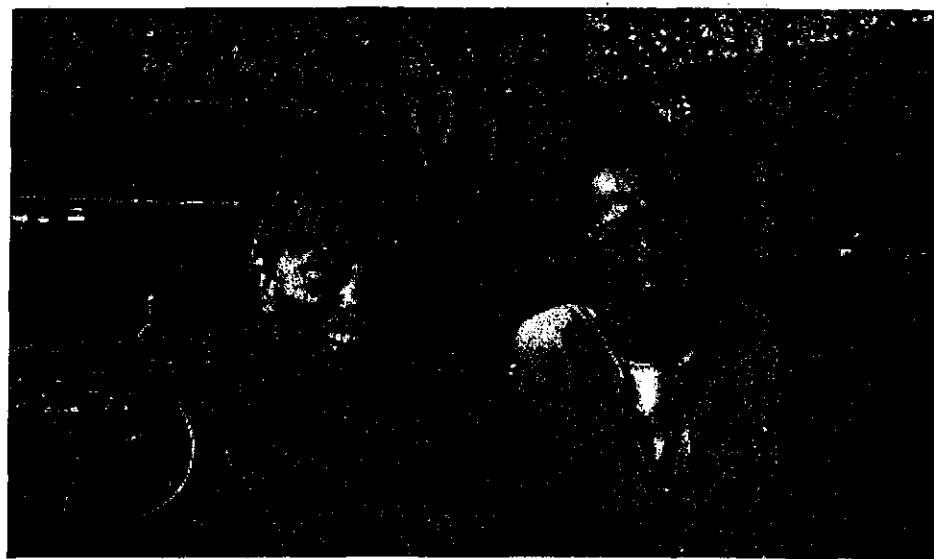
*By Polly Wheeler
and Amy Craver*

Introduction

The intent of this article is to introduce a relatively new federal program funding social science research on fisheries in Alaska. We discuss some of the challenges of this developing applied social science program, specifically focusing on some of the issues raised by research involving the collection and analysis of traditional ecological knowledge (TEK) and its application to fisheries management in Alaska. We highlight several projects funded through the program, and close with some observations on elements of successful projects.

Background

As a result of an impasse between the state and federal governments over-management of subsistence, the federal government assumed management authority for subsistence hunting, trapping, and fishing (on non-navigable waters) on federal conservation units in Alaska in 1990; management authority was expanded to include fisheries on all federally managed public lands and waters in 1999 (for further information see Buklis, 2002; Thornton, 1998). The federal program introduced a huge level of complexity to subsistence management, with the involvement of five federal agencies (USDA Forest Service, and four Department of Interior agencies: Bureau of Indian Affairs, Fish and Wildlife Service, National Park Service and Bureau of Land Management), the Federal Subsistence Board (comprised of the Alaska heads of the five agencies) and 10



Polly Wheeler (right) and Amy Craver

Regional Advisory Councils¹. These five federal agencies have a patchwork of jurisdiction across the state, with responsibility for management of subsistence on about 60% of the lands in the state.²

The Fisheries Resource Monitoring Program (Monitoring Program) was initiated in 2000, in response to federal assumption of management authority for subsistence fisheries. Housed within the federal Office of Subsistence Management (OSM), the Monitoring Program is a unique, multidisciplinary, multi-million dollar fisheries research program authorized by Section 812 of ANILCA (Alaska National Interest Lands Conservation Act).³ The purpose of the Monitoring Program is to fund projects that provide information for federal subsistence fisheries management. On an annual basis, monies are divided up by region and type (1/3 to projects focusing on Harvest

Monitoring and Traditional Ecological Knowledge [HM-TEK], 2/3 to Stock Status and Trends [SST] projects). Projects funded under the HM-TEK data type include standard subsistence harvest assessment projects, which provide information on community harvest estimates (and often information on demographics, economics, as well as resource use and sharing information), as well as projects focusing on the collection and analysis of TEK. SST projects include conventional biological projects (i.e., counting towers, weirs, and age-sex-length sampling), as well as innovative projects utilizing radio-telemetry, genetics, and other technologies.

Project proposals are initially reviewed by staff anthropologists and biologists, and ultimately by a Technical Review Committee comprised of disciplinary experts who are also representatives of different state and federal

agencies. Proposals are evaluated for technical merit, strategic priority, direct application to or association with a federal subsistence fishery, the importance of information for federal fisheries management, capacity building⁴ efforts, and past performance of investigators. To date, 167 projects (some one year in duration, most multiyear) have been funded statewide. While most of the projects have state or federal agency staff as an investigator, about 1/3 to 1/2 of all of the projects have staff from tribal or rural organizations serving as co-investigators.

A unique aspect of the Monitoring Program is its specific focus on projects involving the collection and analysis of TEK. In designing the program, its architects clearly understood the utility of TEK for providing information about customary and traditional patterns of harvest and use of subsistence species. Perhaps more importantly, however, they recognized that TEK can provide rich context for understanding harvest survey information, as well as detailed qualitative information useful for interpreting biological and environmental phenomena. In recognizing the value of TEK for fisheries management, the design of the program implicitly addressed fundamental questions often raised with regard to TEK, namely, is it an appropriate focus for research and should it be used in management? The answer is clearly yes, but the larger questions of how best to conduct TEK research and how best to incorporate research findings into management remain. Thus, the very uniqueness of the program design has also been one of its greatest challenges.

Perhaps not surprisingly, the fisheries management arena in Alaska has historically been rooted in the natural sciences. Management agencies have generally focused on hiring biologists to research the status, trends, and life history characteristics of different fish species. And while there is recognition that people use the resource, the emphasis of most research has been on biology. Management agencies have sometimes recognized that there is value in understanding the patterns of use by people dependent on the resource, but it has not

been until fairly recently that they have shown interest in the knowledge held by people dependent on the resources. And while there may be interest, the greatest challenge continues to be how to best utilize this information. Thus, while most natural resource managers acknowledge that people have valuable information based on their long term dependence, use, and observation of natural resources, how to incorporate this information into management remains a challenge.

Issues and Challenges

With its clear structural guidelines, the Monitoring Program provides a unique opportunity to address some of the underlying issues regarding application of TEK. As with any new program, however, opportunities also present challenges, and we address some of the larger ones herein. While one of the greatest challenges for the Monitoring Program is in incorporating TEK into fisheries management (as discussed above) consideration of this raises several related methodological and analytical issues. Specifically, two key issues in terms of application of TEK include: 1) methods for documenting TEK; and 2) approaches for summarizing, analyzing and presenting TEK.

Methods for Documenting TEK

An ongoing concern with regard to documenting TEK (that is, beyond should it be done) is how to best collect information in the context of its application to fisheries management. Because TEK is typically some combination of worldview and technical knowledge, employing a variety of data collection methods helps to better understand and address the interrelated, component parts that comprise the complex whole. Towards this end, investigators funded through the Monitoring Program have generally focused on four different means of collecting TEK: interviews, mapping, place names, and taxonomies.

Most investigators utilize the standard ethnographic approach of key informant interviews with local experts, recognizing that because their

knowledge is based on lifetimes of firsthand observation and on knowledge passed down from previous generations, these individuals often possess a wealth of insights into the habits, seasonal movements, and availability of various fish species. A key methodological issue directly affecting how or if the information will be used in management is how investigators select and/or characterize their key informants. Systematic identification of a sample of experts or highly knowledgeable participants is vital to the success of TEK projects. While there is a tendency among some investigators to want to protect the identity of local experts, this can be counterproductive, as fisheries managers (among others) are often interested in what qualifies someone as an expert, and specifically, how or why were they selected to be interviewed. While this is typically tied to an individual's long term residence in a place or her particular skill as a fisherperson, regardless of what qualifies a person as an expert, researchers should include a description of the selection process, as the source of qualitative information is a means to evaluate its utility.

Because interviews alone cannot capture all aspects of TEK, investigators are encouraged to utilize other approaches to documenting TEK. Specifically, maps and drawings can be used as prompts and as a means of eliciting information, as well as for providing further explanation. In addition to maps, place names can provide another important means of understanding how people understand their natural environment, as they convey important information about peoples' understanding of their physical environment. Finally, taxonomies can provide insights into how people structure information.

Approaches to Organizing and Presenting TEK

A continuing challenge for investigators funded through the Monitoring Program is what to do with the information once it is collected, specifically the organization, analysis, and presentation of TEK. Approaches typically fall into

two general camps. Some investigators include minimal introductory comments followed by lengthy interview transcripts, so as to allow the speaker to present the information in his or her own voice. Others provide rich context for analysis and understanding, typically by summarizing information by topic and/or drawing on biological information for comparison purposes. Given the focus of the Monitoring Program on the application of information to fisheries management, we have found the latter approach to be most useful.

Several investigators have developed databases as an alternative means for organizing and presenting TEK. In these instances, the goal of the database is generally to convert existing TEK narrative text data into a retrievable, usable format computer accessible CD-ROM (using specially designed software). Entries are typically worded by general categories dealing with topic area, species and geographic area. The strength of the database approach is that narratives are searchable; however, a downside is that the data lacks contextual nuances, and it is in its raw form and not summarized. Although the underlying goal of the database approach is to make interviews with local residents readily available to agency staff, the study community, and the public, we have found that they are not generally widely used. It may be that databases are most useful as a means to an end, rather than an end in and of itself. That is, databases can provide a useful repository for information, and if well designed, can provide a wealth of information for additional analysis. However, the lack of direct application to fisheries management is a significant disadvantage within the context of the Monitoring Program.

Case Studies

The previous discussion highlighted some of the issues and challenges of collecting and applying TEK to fisheries management. The four case studies below provide several specific examples of successful projects with clear application to fisheries management.

TEK and Harvest Assessment of Non-salmon on the Koyukuk River

A collaborative effort between the Alaska Department of Fish and Game (ADF&G), Tanana Chiefs Conference, Inc. (the regional nonprofit organization representing 43 Interior Tribes), and a private researcher, the goal of this two year project was to collect TEK on and assess the harvest of non-salmon species utilized by residents of the seven Koyukuk River communities. Using a two-pronged approach, both TEK and harvest information was collected on all non-salmon species utilized by Koyukuk River residents. Non-salmon species have long been important to local subsistence economies in Interior Alaska, due in large part to their year-round availability, but use and local understanding these fish in the Koyukuk area is not well understood by western scientists. The Koyukuk River is complex with different species available in the upper and lower reaches, different fishing patterns, and different gear types used. This study aimed to fully document these uses and differences. Researchers conducted a census survey, collecting household level harvest, use, and sharing information by species for over 240 households (96% of total households in region). In addition, researchers tapped into the rich body of local knowledge through interviews with 29 residents of the region, most of them elders and all of them known for their expertise in fish and fishing in their region. Interviews with these local experts provided information on topics such as when and where whitefish are ripe with eggs; what month burbot livers swell with oil; when blackfish congregate at lake ice openings; and how and when whitefish move through local streams, sloughs, and lake systems. These practical insights can help biologists learn more about aspects of spawning biology, fat metabolism and the seasonal movement of fish, particularly for species about which they know very little. Through collection of taxonomies, researchers found that in many cases the people of the Koyukuk drainage had a different, more detailed organization of fish species than western



photo by Polly Wheeler

Salmon Hanging at a Yukon River Fish Camp

science. As an example, respondents offered three Koyukon terms for a Alaskan blackfish; one general term applicable to all blackfish—*oonyheyy*—and two terms that pertain to blackfish of a particular size, condition, or time of year. The term *toonoon* was used to refer to those blackfish in late winter that become bloated and filled with water, and *k'edzeel baanh* is the term used for the largest blackfish that reach eight to ten inches in size. These terms demonstrate a rich Native taxonomy for a fish that western science knows by a single name.

North Slope (Anaktuvuk Pass) Subsistence Fish Harvest Assessment

A collaborative effort between ADF&G, the North Slope Borough and the City of Anaktuvuk Pass, the goal of this two year project was to assess the harvest of a variety of non-salmon species utilized by the Nunamiut Eskimos of Anaktuvuk Pass, and to produce a basic ethnography of Nunamiut fishing that provides a deeper temporal perspective than what is captured in harvest assessment (but which provides important context for understanding that information). The harvest assessment

component of this project gathered information on household harvest and use, fishing locations, productivity, effort, gear types, and participation rates. Key informant interviews focused on descriptive Nunamiut natural history information on key fish species. In addition, investigators also collected place names in an effort to understand how Nunamiut understand their natural environment. Through this work they found that Nunamiut place names fall into three general categories: one which includes memorializing a person or an event to a particular area, secondly a description of a physical or geographic landmark, and finally those place names which are linked to environmental conditions and provide information about an area's resource base. An example of the latter category is *Paiaug*, a section of the upper Anaktuvuk River where Dolly Varden can be found year round in open water (Spearman 2004). This information is not only interesting from an ethnographic perspective, it can provide valuable context for understanding species distribution and environmental changes over time.

Traditional Clan Subsistence Territories of Dry Bay and Traditional Tlingit Knowledge of Salmon Management and Ecology of Dry Bay, Alsek River Area

This project was a collaborative effort between a Tlingit anthropologist and a National Park Service anthropologist. Drawing on ethnohistorical and ethnographic methods, this project compares traditional Tlingit knowledge of salmon management to the contemporary management styles of the Tlingit people. The goal of this project is to describe traditional tribal territories through interviews with house, clan, and tribal elders who are active resource users to delineate the clan territories and reconstruct the role of clan affiliation in traditional determinations of resource allocation and management. Key informant interviews with Tribal elders focused on collecting firsthand information on traditional fishing sites in the Yakutat area. Elders discussed locations of clan fish camps as well as the timing of the arrival of salmon to

streams and lakes within specific tribal territories. The information collected in the key informant interviews was then used to contribute to the development of an annotated GIS map intended to further document the historical and contemporary territories throughout the Alsek River Area (Dry Bay). Key informant interviews and annotated maps supplement each other and are used to provide a holistic perspective for evaluating the future management as salmon abundance and harvest pressure change over time.

One of the more promising approaches in the applied research realm is in projects that incorporate both western science and traditional knowledge. The Monitoring Program recently funded one such project, entitled *A Radio Telemetry and Traditional Ecological Knowledge Study of the Seasonal Migrations and Important Habitats of Humpback and Broad Whitefish in the Kanuti National Wildlife Refuge*. This project proposes a unique and synthetic approach to understanding whitefish ecology by blending western science and TEK. Part of the study consists of a radio telemetry study looking at whitefish in the Kanuti National Wildlife Refuge. Radio transmitters will be implanted in 30 humpback and 30 broad whitefish in Kanuti River in 2004. The fish will then be tracked by air and boat for 13 months, identifying feeding, over-wintering and spawning habitats. The process will be repeated on the South Fork of the Koyukuk River in 2005. This information will then be compared with TEK on whitefish ecology, focusing on life history/biological information including habitat preferences, spawning & rearing areas, and seasonal movements of fish). Using both approaches, investigators will then develop a synthetic model of whitefish ecology. This is a vitally important resource in many parts of Alaska, and a species about which little is known.

Conclusion

After funding and administering well over 50 projects dealing in some way with TEK, we have some observations

about the characteristics of the investigators and projects that appear to best address the parameters of our program. As noted, the Monitoring Program has a specific focus, namely to provide information for federal subsistence fisheries management. As such, funded projects have a clear mandate, and we have identified several key characteristics of successful projects.

First and foremost, investigators that generally have the greatest success in bridging the gap between TEK and western science tend to have long-term relationships with the people and community with whom they are working, they often can speak and/or write the language, and they actively participate in the activities they are writing about. This latter point is important for two reasons. First, it provides researchers with credibility both at the local level and also when working with their biologist counterparts in the management realm. Second, when researchers have first hand experience with and know a lot about their topic, they know what questions to ask, and as important, how to integrate and organize different kinds of information in a management context. Additionally, having sound relationships with other researchers and managers can help to focus research questions, particularly if there are critical research or management issues.

Another critical element for successful TEK projects is documenting TEK in a rigorous manner. This includes systematically identifying experts and demonstrating or qualifying their knowledge of a particular place or skill. Clearly, managers and the general public can recognize expertise; documentation of such expertise by researchers helps to situate and substantiate the information collected. Rigor in methods of collection is also essential; regardless of which method(s) one uses, being able to replicate the process is, in part, what makes research scientific (Johnson 1990). In general, the most successful researchers are the ones that have been trained in and use traditional ethnographic field methods, with associated generation of detailed field notes and documentation of information. As a

related idea, researchers that employ a variety of data collection methods, including standard ethnographic interviewing, participant observation, spatial mapping, and native taxonomies and place names to document descriptions of trends in harvests and use patterns, fish populations, and fish ecology (among others), generally collect and provide the most useful information for use in management. Practically speaking, utilizing the complete ethnographic "tool kit" leads to more holistic and applicable information.

Ultimately, the goal of the Monitoring Program is to provide fisheries managers with the best information available to ensure opportunities for continued subsistence use of fisheries resources for future generations. This goal is achieved in large part when investigators work to incorporate TEK into research and management. In so doing, local people are active and informed participants in the research and management process and their knowledge is a valuable contribution to management.

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Endnotes

¹For the purposes of federal subsistence management, Alaska is divided into ten geographic regions, each of which has a Regional Advisory Council (Council). Councils are comprised of 10- 13 local residents representing sport, commercial, and subsistence hunting and fishing interests. In addition to providing a public forum for addressing subsistence issues, Councils review policies and management plans, and provide recommendations and important information to the Federal Subsistence Board.

²The federal government's management authority for subsistence is limited to uses by federally qualified users on federal public lands. The state has management authority for subsistence, commercial and sport uses on all state lands, and commercial and sport uses on federal lands.

³Section 812 of ANILCA specifically reads: "...The Secretary, in cooperation with the State and other appropriate Federal agencies, shall undertake research on fish and wildlife and subsistence uses on the public lands, seek data from, consult with and make use of, the special knowledge of local residents engaged in subsistence uses; and make

the results of such research available to the State, the local and regional councils established by the Secretary or State pursuant to §805, and other appropriate persons and organizations."

"For the purposes of the Monitoring Program, capacity building is defined as increasing the ability of Tribes, rural organizations and non-profit organizations to participate meaningfully in federal subsistence fisheries management and research. This is implemented in part through requiring that investigators funded through the Monitoring Program work with local and native organizations for project identification, administration, and operation.

Disclaimer: Views expressed by the authors do not necessarily represent the views of the U.S. Fish and Wildlife Service or the federal government.

Polly Wheeler is currently the lead social scientist for the Fish and Wildlife Service, Office of Subsistence Management, Fisheries Information Service. She has worked in the realm of natural resource management and policy throughout Alaska for the past twenty years. In addition to working in the public sector, Polly has worked for tribes and tribal groups in a variety of capacities, and is adjunct faculty with the University of Alaska. Polly earned her Ph.D. in anthropology from the University of Alberta in 1998. She can be reached at polly_wheeler@fws.gov.

Amy Craver is employed as an anthropologist for the Fish and Wildlife Service, Office of Subsistence Management, Fisheries Information Service. She is also affiliated with University of Alaska Anchorage as a research associate and adjunct instructor. Amy's work in rural Alaska has focused on community-based research, oral history, and household rural economies. Amy earned an M.A. degree in folklore from Indiana University and is currently completing her Ph.D. Amy can be reached at amy_craver@fws.gov. ■

From LAND *and* WATER

THE FEDERAL SUBSISTENCE MANAGEMENT PROGRAM NEWSLETTER

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Office of Subsistence Management

3601 C Street, Suite 1030 / Anchorage, Alaska 99503

Phone: (907) 786-3888 / Toll Free: (800) 478-1456

Fax: (907) 786-3898 / E-mail: subsistence@fws.gov

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Regional Director: Rowan Gould

Assistant Regional Director: Tom Boyd

Editor/Writer: Maureen Clark

Design: Penny Panlener

Layout: Karen Laubenstein, Michael Brooks

Contributing Editors: Melinda Hernandez, Carl

Jack, Steve Kessler, Dan LaPlant, Tom Boyd,

Bill Knauer, Pete Probasco, Beth Spangler, Polly

Wheeler, Ann Wilkinson and Amy Craver



By this time of year you've probably gathered your fill of Alaska's summer bounty. My family is enjoying salmon and whitefish after a robust fishing season. I picked raspberries



Mitch Demientieff of Nenana has served as chairman of the Federal Subsistence Board since 1995.

and highbush cranberries with my grandchildren, and I am looking forward to spending time at my hunting camp. It's a busy time, but we will enjoy the results of our labors throughout the coming months.

When we've met our needs for the winter we can look forward to the future and to next year's hunting and fishing. We can think of what we might do differently and how we might

make our efforts more productive.

Perhaps you have some ideas about how to make Federal subsistence fishing, hunting and trapping regulations work better for you and your community. The Federal Subsistence Board considers proposals to change regulations every year for all regions of the state. On page 11 of this newsletter, you will find a chart that outlines how Federal subsistence regulations are made. Whether you choose to propose a change to the regulations, comment on a proposal, attend a Regional Advisory Council meeting, or attend a Federal Subsistence Board meeting, I encourage you to participate in this process. Share your knowledge and opinions.

Also in this edition of our newsletter (page 7), you can read about two people who participated in this regulatory process and are now enjoying the results of their efforts. This summer, Richard

Stokes of Wrangell celebrated the establishment of a subsistence fishery on the Stikine River while Teri Rofkar of Sitka has been busy working with mountain goat wool obtained from a Special Action hunt to teach traditional Tlingit weaving.

The work of changing regulations isn't always easy but, like fishing, hunting, and putting food by for the months ahead, the results are well worth it.

Sincerely,

Mitch Demientieff
Chairman,
Federal Subsistence Board

MEETING CALENDAR

Fall 2004 Regional Advisory Councils

SEPTEMBER

8-9 North Slope — *Barrow*
22-23 Seward Peninsula — *Nome*
27-28 Bristol Bay — *Dillingham*
27-30 Southeast — *Juneau*

OCTOBER

5 Kodiak/Aleutians — *King Cove*
5-6 Eastern Interior — *Eagle*
8 Northwest Arctic — *Kotzebue*
10-11 Western Interior — *Anvik*
12-13 Southcentral — *Soldotna*
14-15 Yukon-Kuskokwim Delta — *Bethel*



Federal Subsistence Board Meeting:

JANUARY 11-13, 2005 — *Anchorage*
Egan Civic and Convention Center

Meeting dates and locations are subject to change.

NEWS IN BRIEF

Unit 2 deer subcommittee formed

The Southeast Federal Subsistence Regional Advisory Council, with the consent of the Federal Subsistence Board, has formed a subcommittee to address deer management issues in Unit 2 in Southeast Alaska. Prince of Wales Island makes up most of Unit 2.



The purpose of the subcommittee is to develop a management approach that ensures the long-term conservation of Unit 2 deer, maintains the rural subsistence priority on Federal public lands, and minimizes adverse effects on non-subsistence hunters who also rely on Unit 2 deer.

There is evidence that the deer population within Unit 2 has declined and it appears competition for deer from non-subsistence hunters has increased in recent years. As a result the Federal Subsistence Board approved regulations providing for a Federally-qualified rural subsistence hunt prior to the regular State season. This was consistent with the advice of the Regional Advisory Council. However, there are still concerns that rural residents are not meeting their needs and that non-subsistence hunters are unable to continue their traditional Unit 2 deer harvest practices. This cooperative deer management planning effort is intended to help find a workable solution to these problems.

The subcommittee is chaired by Don Hernandez of Point Baker and will consist of 11 members and one alternate. Included are three members of the Southeast Regional Advisory Council, a Tribal representative from Prince of Wales Island, a Ketchikan hunting guide and a sport hunter, and subsistence hunters from Wrangell, Ketchikan and Prince of Wales Island. Alaska Department of Fish and Game and USDA Forest Service staff will provide support to the planning process and will serve as non-voting members of the subcommittee.

The subcommittee plans to hold five meetings, from November through April, and will report on its progress

at the Southeast Council meeting in February 2005. The meetings will be held in various communities throughout the affected region to ensure that all interests will be heard during the planning process.

Among the topics the subcommittee will examine are deer population data, including distribution and trends within Unit 2; harvest data; regulatory enforcement; changes in patterns of use; changes in access to deer; changes in the local economies; changes in the ecosystem brought about by second growth in logged areas; predator-prey relationships; and the subsistence provisions in the Alaska National Interest Lands Conservation Act (ANILCA). The subcommittee also will identify what additional information is needed for long-term management of the deer population within Unit 2.

Any regulatory proposals to come out of the cooperative planning process would be available for public comment during the winter of 2006 and would be presented to the Federal Subsistence Board for a decision in May 2006. Changes may also be considered to State regulations by the Alaska Board of Game. ■

Federal Subsistence Board takes action on wildlife regulatory proposals

The Federal Subsistence Board took action on more than 80 proposals to change subsistence hunting and trapping regulations on Federal lands in Alaska during its May 18-20 meeting in Anchorage. Among the changes approved by the Board:

Handicraft regulations

The Board adopted a proposal to allow the sale of handicrafts made with brown bear fur and/or claws from bears taken for subsistence use in Southeast Alaska, the Eastern Interior and Bristol Bay regions. It also clarified its intent to continue to allow the sale of handicrafts made with black bear fur and/or claws taken for subsistence statewide, as has been allowed under Federal regulations since July 1, 2002. An informational flier provides further details on what is allowed under these regulations. It is available from the Office of Subsistence Management and from Federal field offices.

Moose hunting moratorium

The Board approved a five-year moratorium on moose

[continued on page 4]

NEWS IN BRIEF *(Continued from page 3)*

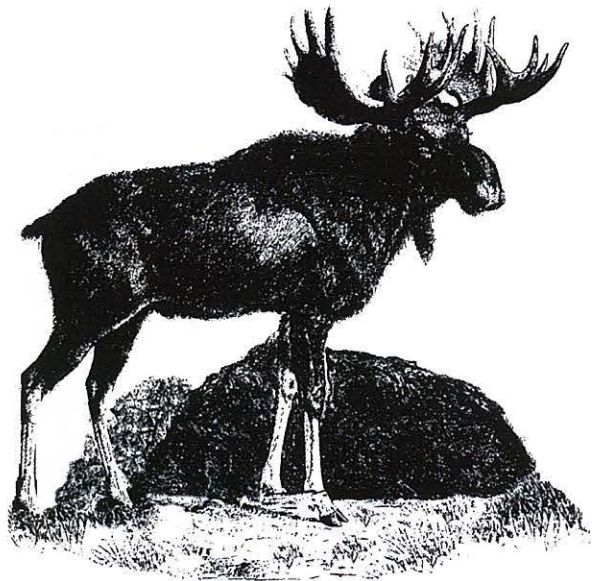
hunting in the lower Kuskokwim River drainage, in order to boost the moose population there (see page 5). This was similar to action taken by the Alaska Board of Game.

Central Kuskokwim moose conservation

The Board approved three proposals aimed at reducing the moose harvest in the central Kuskokwim region to help conserve declining moose populations there. These proposals were the result of a local planning effort. The new regulations implement key provisions of the Central Kuskokwim Moose Management Plan.

Among the changes approved by the Board are the elimination of the winter moose hunting seasons in Unit 19(A), harvest restrictions, and the shortening of the fall season in Unit 19(B). Managers say elimination of the winter hunts was necessary because this is when cow moose are most often taken. Reducing the harvest of cows is expected to help increase the number of calves born within the Central Kuskokwim moose population.

It is hoped that this action by the Board, in combination with other State proposed reductions in resident and nonresident hunting will help stem the decline and boost the moose population in the region.



Predator management policy

The Board adopted a predator management policy. The policy recognizes the impact that predators can have on animals valued by subsistence users. It also recognizes that predator control may be an appropriate management tool to provide for subsistence needs.

However, the policy notes that, under the Alaska National Interest Lands Conservation Act (ANILCA), the Federal Subsistence Board regulates subsistence uses of fish and wildlife. ANILCA also defines subsistence uses as "...for direct personal or family consumption..." As a result, activities such as predator control or habitat management are not within the authority of the Federal Subsistence Board and are the responsibility of the individual Federal land management agencies. ■

Secretary approves appointment of State Liaison

Secretary of the Interior Gale Norton, with the concurrence of the Secretary of Agriculture, has approved the appointment of Alaska Department of Fish and Game Commissioner Kevin Duffy, or his designee, to serve as a liaison to the Federal Subsistence Board.



ADF&G Commissioner Kevin Duffy

"I appreciate the State's participation on the Board at a policy level," Secretary Norton said in announcing the decision last April. "The important contributions by the State Liaison will assist in the successful resolution of the challenging issues facing the members of the Board."

Duffy is a graduate of the University of Washington and holds a master's degree in Public Administration. He joined ADF&G in 1981 to work on salmon issues. He represented Alaska in Pacific Salmon Treaty negotiations and serves as a member of the North Pacific Fisheries Management Council.

The appointment follows Gov. Frank Murkowski's request that a representative of the State be appointed as a nonvoting member of the Board. The 1992 Record of Decision that established the structure of the Federal Subsistence Management Program allows for a State liaison to the Board.

The Chairs of the 10 Federal Subsistence Regional Advisory Councils also serve as liaisons to the Board, providing recommendations on subsistence regulations and policies. ■

Lower Kuskokwim moose hunting moratorium begins

Managers say local support is critical to its success

Moose hunting in the lower Kuskokwim River drainage is closed for the next five years, in an effort to boost the moose population in the region.

The moose hunting moratorium, which took effect July 1, is the result of action by both the Federal Subsistence Board and the Alaska Board of Game. The moratorium will remain in effect for five years, or until the population grows to 1,000 moose.

Population dwindled, despite good habitat

Wildlife managers say moose habitat along the lower Kuskokwim River drainage is capable of supporting considerably more moose than currently reside there. A 2002 survey estimated there were 94 moose in the region. Managers say the harvest of moose out of season, particularly cow moose, is the primary reason that a moose population has never become established.

When the moose population grows to 1,000, a bulls-only season will be opened. There will be no cow hunt unless habitat degradation occurs from excessive moose browsing. Managers think the moose population in the lower Kuskokwim will grow to at least 2,000 moose if residents abide by the new regulations.

Villages give their support

Local support is critical to the success of the moratorium, say managers. The Lower Kuskokwim Fish and Game Advisory Committee has worked for several years with the Alaska Department of Fish and Game, the U.S. Fish and Wildlife Service, and area villages on this issue. A dozen lower Kuskokwim River villages have passed resolutions supporting the moratorium.

Yukon-Kuskokwim Delta Federal Subsistence Regional Advisory Council member Robert Nick of Nunapitchuk is among those encouraging residents to abide by the moratorium.

"I hope all the hunters respect the closure and don't hunt the moose as we rebuild," Nick said. He compares the effort to rebuild the moose population with efforts to rebuild the salmon population. Abiding by the moratorium will mean greater hunting success in the future, he said.

"The last few years many hunters have been unsuccessful in the tundra villages," he noted. "They spent a considerable amount of time and money on prepara-



tion, gas, and outboard repair and very few hunters got a moose."

Caribou available as a substitute

The effect of the lower Kuskokwim moose moratorium on subsistence users is expected to be minimal, because a large number of caribou have been wintering in the Kuskokwim River drainage in recent years, providing an alternate source of meat.

"We have an excellent substitute in the caribou and there's still plenty of beaver," said Nick.

Lower Yukon moratorium serves as model

Residents of the Lower Kuskokwim need only look to their neighbors to the north for proof that a moratorium can be successful in boosting the moose population. A five-year moratorium on the Lower

Yukon, downriver from Mountain village, resulted in a substantial increase in the moose population and in hunting success there. Hunters say they no longer need to travel far from their villages to find a moose. As a result of the moratorium, the moose population on the Lower Yukon no longer requires separate management from the rest of the Yukon River drainage and the moose hunting season there has been extended to the full month of September. ■

"I hope all the hunters respect the closure and don't hunt the moose as we rebuild."

-Robert Nick

Bridging the divide

Visits aimed at finding common ground between regions

The community of King Cove hosted two Western Alaska subsistence fishermen and Federal subsistence staff in June, while Federal Subsistence Board chairman Mitch Demientieff visited the Nome area in August. The visits were intended to help promote a greater understanding of the issues that have sometimes divided Western Alaska subsistence fishermen and those who fish commercially in the Area M region of the North Pacific.

Interior Secretary declines to intervene

In May, Interior Secretary Gale Norton announced that she would not extend Federal jurisdiction to intervene in the Area M commercial fisheries. The Federal Subsistence Board had received petitions seeking the intervention after the Alaska Board of Fisheries liberalized regulations for the Area M commercial salmon fisheries. The petitioners expressed concern that the State's action would hurt subsistence salmon fisheries in Western Alaska and the Bristol Bay region. In announcing her decision, the Secretary said the Board's April public meeting on the issue marked a milestone in the dispute in that both sides agreed on the need for more information and on the need to work together to better manage salmon runs.

"We encourage seizing this moment of opportunity in an otherwise long and divisive resource conflict," she said.

Subsistence, commercial fishermen meet

Della Trumble, who chairs the Kodiak/Aleutians Federal Subsistence Regional Advisory Council, was one of the organizers of the visit to King Cove. Trumble said she thinks those who made the trip got a better understanding of the region.

"I think it opened their eyes to how we survive out here. We spent a lot of time in the harbor talking to a lot of the boat owners. The majority of them are local," she said. "The visit was a positive step forward for the people in our region. A lot of people were thrilled that it happened. It's

something we've been wanting for a long time."

Northwest Arctic Regional Advisory Council member Raymond Stoney of Kiana and Seward Peninsula Council member Peter Buck of White Mountain were among those who made the trip to King Cove. They toured the community, visited the cannery, attended the Firemen's Ball and went out to the fishing grounds with commercial fishermen. Stoney said he learned more about those who live along the Alaska Peninsula and the Aleutians and said he hoped the visit would be followed by more.

"This is the beginning. I certainly hope our trip was not the only one. It

probably would be good for other areas, especially Bristol Bay," Stoney said.

Chairman visits Nome

At the Federal Subsistence Board's public meeting on the Area M issue in April, Chairman Mitch Demientieff said he would visit the Seward Peninsula region to hear local concerns about the strength of salmon runs there.

While the waters on much of the Seward Peninsula region are under State jurisdiction, the Federal government has an interest in working with the State to make sure subsistence needs are being met, Demientieff said.



Chairman Mitch Demientieff meets with residents of the Nome area.

The visit included a public meeting at the Nome Eskimo Community Hall and visits to fishery projects operated by Kawerak Inc. on the Snake and Eldorado rivers. ■



Northwest Arctic Council member Raymond Stoney of Kiana talks with fisherman Vernon Wilson of the FIV Aleutian Star as he loads his catch onto the tender American Way.

Celebrating success in Southeast

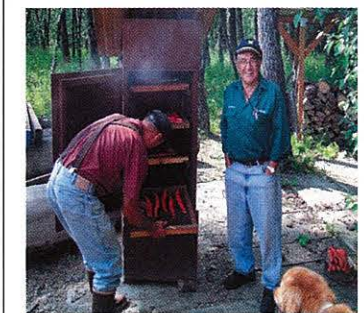
Stikine River fishery

Southeast Regional Advisory Council member Richard Stokes of Wrangell welcomed visitors from the Forest Service to the Stikine River on July 9 to celebrate the new Stikine River subsistence sockeye fishery. Among those who attended was the Forest Service Regional Forester and Federal Subsistence Board member, Denny Bschor.

Because the Stikine River begins in Canada and flows into Southeast Alaska, Stikine River salmon are managed under provisions of the Pacific Salmon Treaty. The Pacific Salmon Commission reached agreement on a subsistence sockeye fishery in February. The Alaska Department of Fish and Game was instrumental in gaining the Commission's support for the fishery. ADF&G is continuing its efforts to gain approval for subsistence

coho and chinook fisheries on the Stikine.

Stokes first submitted a proposal for a Federal subsistence fishery on the Stikine more than six years ago. He said he



Richard Stokes at the Stikine celebration.

was pleased to see his efforts pay off and was happy to welcome those who helped make it possible.

"It was great. We really enjoyed it. We looked forward to it for so long," Stokes said.

He gave visitors a historical and cultural overview of fishing on the river and the group enjoyed freshly smoked salmon prepared by a local subsistence fisherman.

Residents of Wrangell, Petersburg, Meyers Chuck and outlying areas are eligible to harvest sockeye under the new Federal subsistence regulations. Forty permits were issued for the fishery. Final numbers are not yet available, but the harvest is believed to be fewer than 200 fish.

Stokes says he is already looking ahead and preparing his nets for next year. ■



Freda Lang, Alice Titell and Irene Jimmy comb the wool of a goat harvested under a Special Action permit.
—By Melinda Hernandez
USDA Forest Service

Teri Rofkar calls them her "dream goats" and the soft, dense wool from the hides makes it easy to see why.

Rofkar, whose Tlingit name is Chas' Koowu Tla'a, recently received two hides laden with wool from goats harvested under a Special Action permit issued by the Federal Subsistence Board. Rofkar is a weaver of Ravens Tail robes and is one of the few weavers creating new regalia. She passes on the traditional techniques to beginning weavers at the Southeast Alaska Indian Cultural Center.

In cooperation with the Sitka Tribe of Alaska, Rofkar sought the Special Action permit for a spring goat hunt. The regular mountain goat season is from August through December. But it is in spring that goat wool is easiest to work with because it detaches from the hide in preparation for shedding when warm weather arrives. This makes it easier to separate the wool from the guard hairs, which must be removed before spinning.

Ben Johnson, Erin Kitka and Jack Lorrigan of the Sitka Tribe served as the designated hunters. The two goats were harvested from central Baranof Island in the Tongass National Forest. The meat was distributed through the traditional foods program at Sitka Tribe of Alaska. The horns will go to local artists, the hooves to dance groups for ceremonial regalia, and the hides will be made into drums.

Rofkar's 12 students were able to take much more wool from the two billies than initially anticipated and the group was pleasantly surprised with the quality of the wool. They have begun what Rofkar calls the "humbling hard work" of processing the raw wool for use in traditional weaving. ■



Sitka District Ranger Carol Goularte presents the Special Action permit to Teri Rofkar and Sitka Tribe Councilman Gerry Hope. Also present were Ken Coffin of the Forest Service and Jack Lorrigan of the Sitka Tribe.

Experience is the best teacher

Partners Program interns gain knowledge, skills

Ask the interns with the Partners for Fisheries Monitoring Program about how they spent their summer and you will hear about salmon surveys, sampling techniques, stream ecology, fish genetics and harvest calendars. They can tell you about the workings of weirs, counting towers, sonar, aerial surveys, radio telemetry and archaeological excavation. And when they mention their training in note taking, cultural awareness, ATV safety, first aid, bear safety, watercraft safety and outboard motor repair you realize they have had a very full summer, indeed.



Peter Kaiser

Every year, the biologists and anthropologists who work with the Partners for Fisheries Monitoring program mentor interns to promote understanding of fisheries biology, fisheries management, the importance of subsistence in rural Alaska, and the role of traditional ecological knowledge in fisheries management. The internships also provide these young people with a chance to explore careers.

This summer, six students participated in the program, serving as interns with the Tanana Chiefs Conference,



Front: Theresa Woldstad, Kay Larson-Blair, Simon Thomas, Amy Askoak
Back: Valli Peterson, Terina Trefon, Amy Lindsley, Tim Dyasuk, Not pictured: Demetri Gust, Peter Kaiser.

Bristol Bay Native Association, Council of Athabascan Tribal Governments, Kuskokwim Native Association and Native Village of Eyak. Four additional interns with the Bristol Bay Native Association were jointly funded by the Partners Program and the Tribal Colleges and Universities Program.

They brought their enthusiasm and curiosity to their work at field projects and, by the end of the summer, they had gained knowledge and skills that will serve them well in their careers.

"This summer has been a great learning experience," said Kay Larson-Blair, a student at the University of Alaska Anchorage.

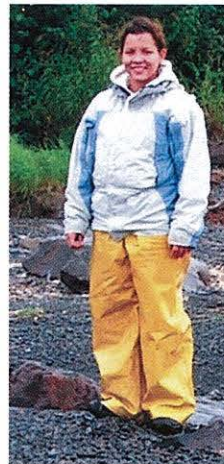
Valli Peterson, a student at the University of Alaska Southeast, agrees and credits those who mentored her. "Each one of the people that you work with, they kind of take you under their wing."



Theresa Woldstad



Simon Thomas



Kay Larson-Blair

2004 Partners for Fisheries Monitoring Interns

Council of Athabascan Tribal Governments—Simon Thomas

Tanana Chiefs Conference—Valli Peterson

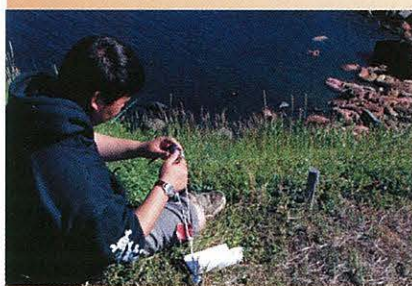
Kuskokwim Native Association—Pete Kaiser

Native Village of Eyak—Amy Lindsley

Bristol Bay Native Association—Kay Larson-Blair

and Tim Dyasuk

Partners/Tribal College and Universities Interns—Amy Askoak, Theresa Woldstad, Terina Trefon and Demetri Gust.



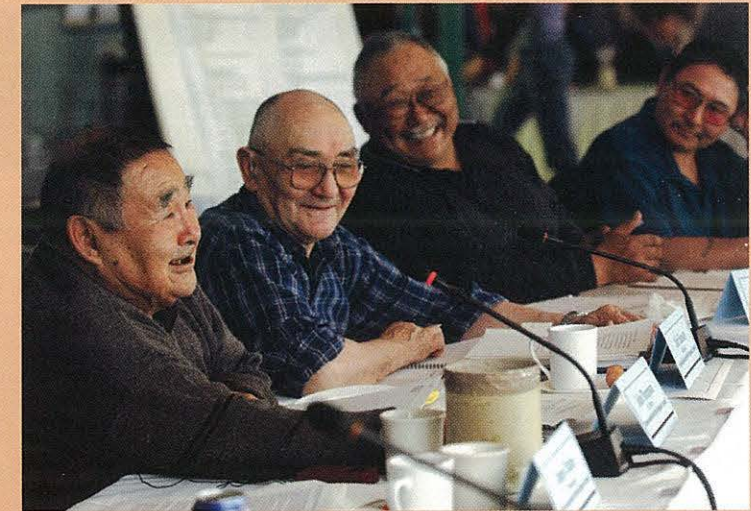
Tim Dyasuk

For more information about the Partners for Fisheries Monitoring internship program, contact Beth Spangler at (907) 786-3888 or (800) 478-1456 or by e-mail, beth_spangler@fws.gov.

Volunteers Needed

Would you or someone you know like to serve on a Federal Subsistence Regional Advisory Council? The Federal Subsistence Board is accepting nominations and applications from those interested in serving on one of the 10 Regional Advisory Councils that advise the Board on subsistence fishing, hunting and trapping regulations.

- Each appointment is a 3-year term.
- Each Council meets at least twice a year.
- Seats are open to subsistence, commercial and sport users.
- Membership is open statewide.



Members of the Yukon-Kuskokwim Delta Council, 2003

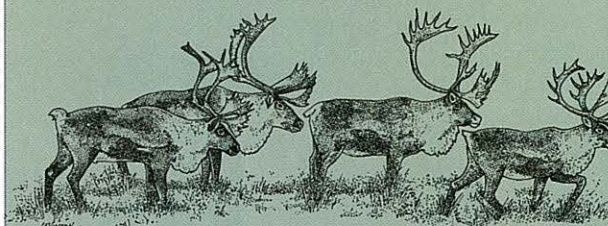
Deadline: January 2, 2005

For an application packet or more information, contact Ann Wilkinson at (907) 786-3676 or (800) 478-1456 or by e-mail at ann_wilkinson@fws.gov.

Wildlife Proposal Deadline

Proposals to change Federal Subsistence hunting and trapping regulations will be accepted through October 22, 2004.

The Federal Subsistence Board will consider changes to seasons, harvest limits, methods of harvest, and customary and traditional use determinations for the harvest of wildlife at its May 2005 meeting.



For more information on submitting proposals, contact the Office of Subsistence Management at (907) 786-3888 or (800) 478-1456.

Subsistence Student Art Contest

The Federal Subsistence Management Program is sponsoring a subsistence art contest for students in grades K-12. The two grand prize winners' artwork will be published on the covers of the 2005-2006 Federal subsistence fisheries and wildlife regulation books.

Entries must be postmarked no later than November 12, 2004. Winning entries will be selected by the Chairs of the Regional Advisory Councils in January 2005.

For guidelines, entry forms and more information, contact Maureen Clark at the Office of Subsistence Management at (907) 786-3953 or (800) 478-1456.

fish camp • shellfish • wildlife • trapping
hunting • potlatch • caribou • fishwheels
cutting • drying • cooking • boats • nets

Beyond Salmon *continued from page 1*

research questions.

In several instances, researchers found that the people of the Koyukuk drainage had a very different, and possibly more detailed, understanding of fish species than does western science. As an example, the Native systems for classifying fish take into account the particular size of the fish, its condition, or the time of year it is available. Researchers identified five different terms for Alaskan blackfish. As lead author Dave Andersen notes in the report, "These five terms, and there may be others, point to a very rich Native taxonomy for a fish that Western science knows by a single name."

The interviews with these local experts also provided information on topics such as when and where whitefish are ripe with eggs; what month burbot livers swell with oil; when black fish congregate at lake ice openings; and how and when whitefish move through local streams, sloughs, and lake systems. These practical insights can help biologists learn more about aspects of spawning biology, fat metabolism and the seasonal movement of fish.

Andersen writes, "The viewpoint of the traditional Koyukon fisherman (as harvester) and the modern biologist (as scientist) may appear dramatically different at first glance, but the utilization of fish for food has everything to do with understanding fish behavior, anatomy, biology and life history." ■

For a copy of "Traditional Ecological Knowledge and Contemporary Subsistence Harvest of Non-Salmon Fish in the Koyukuk River Drainage, Alaska," contact Polly Wheeler, Ph.D., at (907) 786-3888 or (800) 478-1456, or by e-mail at polly_wheeler@fws.gov.



The community burbot trap near Hughes, January 2002



Photos by
Dave
Andersen

Fresh Koyukuk River
sheefish are piled in an
Allakaket smokehouse to
freeze.



Jack Reakoff (left) of Wiseman maps important fish habitat and fishing locations for researcher David Andersen.

Photo by Barb Andersen



A fisherman pulls pike from his gillnet set in an ice-free channel of the Koyukuk River.

How Federal Subsistence Regulations Are Made

Every year the Federal Subsistence Board receives dozens of proposals to change subsistence fishing, hunting and trapping regulations on Federal public lands and waters. These proposals may include requests to change season dates, harvest limits or methods of harvest. Some rural residents may seek a customary and traditional use determination, which grants a priority for taking a particular species of fish or wildlife in a specific area. The Board considers proposals to change regulations for all regions of the state each year and anyone may submit a proposal. Here is how the process works:

Call for Proposals:

Twice each year, the Federal Subsistence Board issues a call for proposals to change regulations. The deadline for making proposals to change wildlife regulations occurs in late October, while the deadline for fisheries proposals comes in late March. Deadline dates vary from year to year. For the exact dates, contact the Office of Subsistence Management at (800) 478-1456 or (907) 786-3888 or by e-mail at subsistence@fws.gov.

Regional Advisory Councils Meet:

Federal Subsistence Regional Advisory Councils meet and develop proposals for their region.

Proposals Published, Comments Accepted:

Proposals developed by the Regional Advisory Councils, and those submitted by the public and agencies, are published for review and comment.

Staff Analysis:

Proposals are analyzed by Federal regional teams to examine the biological and socio-cultural effects of each proposal.

Regional Councils Develop Recommendations:

Regional Councils meet, review the analyses and public comments on proposals for their region and develop recommendations to the Federal Subsistence Board. The Councils may support, oppose, modify or defer each proposal, based on the staff analyses, public testimony and their knowledge of subsistence resources and uses.

Interagency Staff Committee Review:

The Interagency Staff Committee makes recommendations to the Board on the proposals. The Staff Committee is made up of senior staff from the National Park Service, U.S. Fish and Wildlife Service, Bureau of Indian Affairs, Bureau of Land Management and USDA Forest Service. Regional Advisory Council chairs and the Alaska Department of Fish and Game also participate in this process.

Federal Subsistence Board Meeting:

The Board meets in January to take action on fisheries proposals and in May to take action on hunting and trapping proposals. For each proposal, the Board considers the Council recommendations, staff analysis, Interagency Staff Committee recommendation, comments from the Alaska Department of Fish and Game and public comments. The Board can decide to adopt, oppose, modify or defer action on any proposal. The Board may choose to reject a Council recommendation if it is not supported by substantial evidence, violates recognized principles of fish and wildlife conservation, or would be detrimental to the satisfaction of subsistence needs.

New Regulations are Published and Distributed to the Public:

Fishing regulations take effect April 1. Hunting and trapping regulations take effect July 1.

APCM MARKET EXCHANGE

VOLUME 6, DECEMBER 2004

www.apcm.net

Alaska Permanent Capital Welcomes Two Professional Associates



Jeffrey (Jeff) B. Pantages, CFA

Jeff Pantages joined Alaska Permanent Capital Management in January, 2005 as its Chief Investment Officer. He brings to APCM over 25 years of investment experience primarily in the fixed-income market.

Prior to joining APCM, Jeff was Senior Vice President and Director of Fixed Income for Members Capital Advisors, based in Madison, Wisconsin. Previously, he held positions as the CIO for Security Benefit Group; Managing Director at Prudential Insurance and Fixed Income Portfolio Manager for Alliance Capital Management and Mellon Bank. He began his career in 1978 as a credit analyst for Armco Insurance Group.

Jeff was awarded an MS in management from Massachusetts Institute of Technology, Boston where he was a Sloan Fellow. He has an MA from the University of Wisconsin and his BA from Simon Fraser University, Vancouver, B.C., Canada. He earned the Chartered Financial Analyst designation from the Association of Investment Management and Research in 1986. Jeff has spoken and published on many aspects of the investment management business.

"2004 marked a new high in assets under management at APCM. We look forward to a great 2005, especially with two new professionals added to our staff. Over the next several months Mary Lou and I will be introducing Jeff Pantages to the community. As you can see, Jeff will be providing quarterly commentary in this newsletter."

However, feel free to call him and ask investment questions anytime."

Evan D. Rose, CEO



Julee Duhrsen, CFA, CPA

Joins Alaska Permanent Capital Management as an Analyst with primary responsibilities in Compliance and Portfolio Analysis.

Previously, Julee held positions with Arctic Slope Consulting Group, Cook Inlet Region, Inc. and KPMG.

Julie earned her MBA from the University of Alaska Fairbanks, received her BS in Mathematics from the University of Houston and also attended the US Air Force Academy.

Upcoming Events

Southwest Alaska Municipal Conference Economic Summit & Annual Membership Meeting

January 27-28 2005

Hotel Captain Cook, Anchorage

Contact: Aileen 907-562-7380

Alaska Association of Municipal Clerks Annual Conference

February 3-5, 2005

Westmark Baranof, Juneau

Contact: Laurie Sica or Beth McEwen

907-586-5278

Alaska Government Finance Officers Association Spring 2005 Conference

April 13-15, 2005

Best Western, Kodiak

For information on Alaska Permanent Capital Management (APCM) or if you have an idea for the newsletter, please visit the website at www.apcm.net

Mary Lou Pratt, Vice President, Marketing
(907) 646-3509, marylou@apcm.net

2004 Year in Review and a Forward Look at 2005

Jeffrey B. Pantages, CFA,
Chief Investment Officer
Alaska Permanent Capital Management Company

Economist John Kenneth Galbraith once said, "In so far as the economic outlook is concerned, economists are divided into two camps, those that don't know and those that don't know that they don't know!" Indeed, forecasting the economy and the financial markets can be a humbling experience. Nevertheless, let's begin the New Year with a review of 2004 and outlook for 2005, including our view on relative value in the financial markets, with a particular emphasis on the bond market.

The "consensus" outlook was recently summarized in the Wall Street Journal as follows:

"The U.S. economy will see modest, but healthy growth of about 3.6%, subdued inflation and only slight rises in interest rates this year, according to a survey of economists. The forecast is based on the assumptions that oil prices will stabilize or decline and that the weaker dollar will make US business more competitive and help tame the trade deficit."

If correct, that forecast of 3.6% would be down from an estimated 4.5% advance in the U.S. last year. The world economy in general grew strongly in 2004 led by a surprising 3.2% gain in Japan, while China continued to deliver a + 9% growth. At that pace China will surpass Japan as the world's second largest economy in 10 years. Not surprisingly, the inflexible and over-regulated European economies plodded along at 1.8% growth last year.

The expected slowdown in 2005 is due to several factors that are hard to argue with. Consumer debt levels are high and the savings rate is near zero. And, while rising home prices have made consumers wealthier, the "take out" refinancing boom has petered out. Furthermore, job growth has been modest, owing to cautious CEO's and partly because productivity gains have obviated the need to hire more workers. Consumers will likely pull in their horns in 2005.

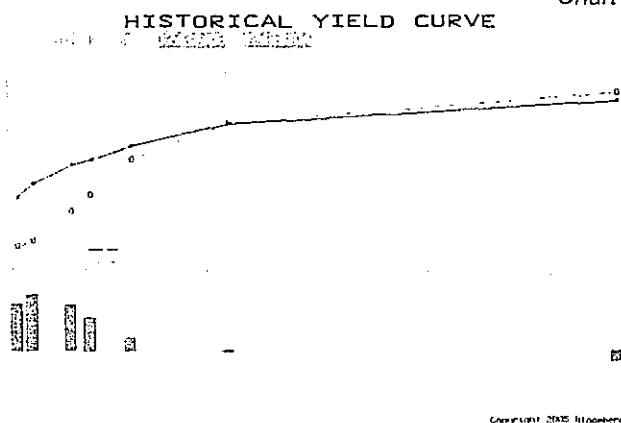
Additionally, the effects of previous years' tax cuts are waning. Our sense is that the President is serious about trying to restrain spending and in fact the federal budget deficit looks to be narrowing.

The other big deficit is on the trade front. We import a lot more than we export. At around 6% of GDP the trade deficit is large, unsustainable, and has led to a weak dollar on foreign exchange markets. That weaker dollar makes US goods cheaper abroad and should help turn the deficit eventually. But, it is a slow process and requires a willingness on the part of foreigners to recycle dollars back into our financial markets. Asian foreign central banks have been big buyers

of U.S. bonds over the past year, and if they "go on strike" and diversify into other currencies, the greenback could fall sharply, hurting our markets. While not likely, it is certainly possible and is a wild card in the outlook. Business spending picked up in 2004 and will likely continue this year. Corporations have rebuilt their balance sheets and are holding large cash positions. Last year's strong 20% earnings gains for the S&P 500 companies contributed to solid returns in the stock market in 2004. This year profit growth is likely to be more subdued and in the 5% to 10% range.

After bringing interest rates to a 45 year low, the Federal Reserve began hiking the federal funds rate in June, raising it in 1/4 increments to 2 1/4 % by yearend. While short term interest rates rose sharply, the big surprise was longer bond yields, which after rising through mid year rallied back to end 2004 about where they started! Chart 1 shows this "flattening" in the yield curve last year.

Chart 1

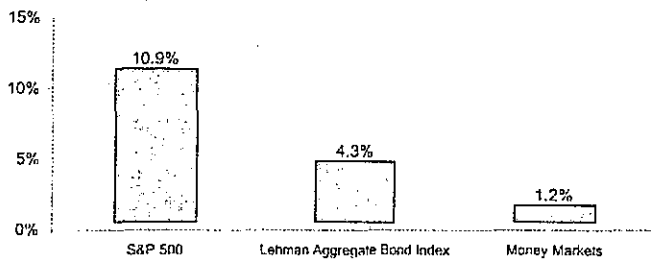


No doubt longer bonds in 2004 were helped by strong foreign central bank demand owing to Asian government foreign currency intervention. More fundamentally, while reported inflation rose to 3.3% in 2004, partly because of a record \$55 per barrel price for oil, the so-called "core" CPI measure, which excludes food and energy, remained tame at 2.2%. Bonds need good inflation news to perform well and the market focused on the "core" rate last year, viewing the oil spike as temporary.

At this juncture Fed policy is still quite "accommodative" and we believe that a target fed funds rate of 3 1/2 to 4% by year end is most likely. It is unlikely that longer securities would continue to perform well in this environment.

2004 Financial Market Returns

Chart 2



Financial Markets

The economic backdrop last year provided for solid returns in the financial markets. Indeed cash was trash providing a paltry 1.2% return. Large company stocks, as tracked by the S&P 500, rose for the second year in a row; up 10.9%.

The Lehman Aggregate Index provided a 4.3% total return for the year. Within the bond market, so-called spread product (non-Treasuries) performed the best, with corporate bonds leading the way as seen in Chart 3. This chart shows the "excess returns" over and above that earned by U.S. Treasuries. Corporates "beat" Treasuries last year by 160 basis points, while the other sectors, MBS, ABS and Agencies, also did well.

A better economy, improving credit worthiness, and yield hungry investors drove yield spreads narrower across the board. To further illustrate this, consider the fact that the return on lower rated BBB bonds exceeded that of AAA rated bonds by 250 basis points.

Where do you put your money in 2005? There are no obvious answers as most of the markets look fairly valued—at best. Frankly, the best opportunities may lie outside the US where valuations are lower and the potential for currency gains is appealing.

Closer to home, stocks should outperform bonds over the next few years. Modest earnings growth and full valuations in the stock market suggest 5 to 10% gains as a reasonable expectation.

Bonds are likely to struggle as interest rates remain under upwards pressure. We said that last year too! But that's our story and we're sticking to it! And with quality spreads narrow, our bias is to upgrade credit quality in portfolios as the year progresses. While such an approach can result in modest underperformance if trends continue, there is simply little upside potential in lower quality bonds. Patience here will pay off down the road.

Finally, while cyclical challenges face the markets, we remain optimistic about the future. Yes, terrorism and Iraq are on the radar screen. Sure, social security reform is likely to drag on. Consumer debt is high and housing may be bubbly. The airlines and auto companies face significant headwinds. But someone very wise once

said "I've worried about a thousand things in my life, most of which never came true." Of course, we're bond investors and natural worrywarts!

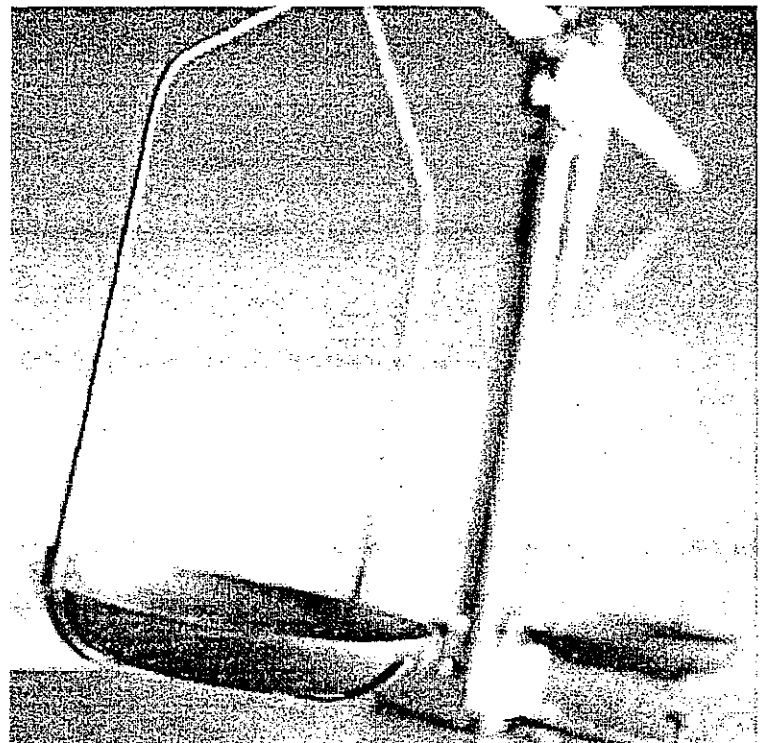
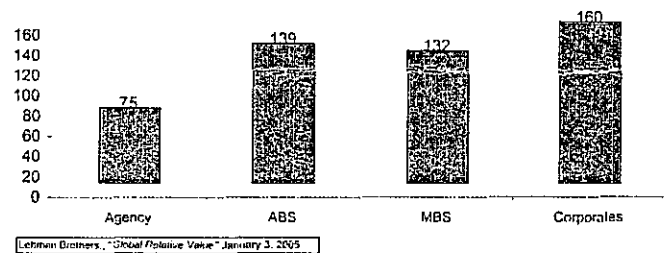
The big picture is this. The march of technology and innovation continues to push productivity and growth higher. As an example, Google recently announced that it would "digitize" all the books in several of the world's major libraries and make them available free of charge over the internet. The spread of information and knowledge throughout the world available via the World Wide Web is one of the great achievements in history. Its impact is far reaching and in many ways unimaginable.

Add to this mix the spread of democracy, freedom, and movements towards free markets. Consider the trends in free trade and globalization that bring many different goods to our shores at reasonable prices. Competition is a wonderful thing! The result is a rising standard of living throughout the world.

Thanks for your business and confidence in us over the years. Best of luck in 2005. Many happy returns!

Excess Returns by Sector (bp)

Chart 3



ALASKA PERMANENT CAPITAL
MANAGEMENT COMPANY

900 W. 5th Ave., Suite 601
Anchorage, AK 99501

XX
EXECUTIVE DIRECTOR
EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
441 W 5TH AVE STE 500
ANCHORAGE AK 99501-2340



Capacity Building and TEK in the Fisheries Resource Monitoring Program


Prepared for

The Exxon Valdez Oil Spill Trustee Council

Polly Wheeler
Office of Subsistence Management
polly_wheeler@fws.gov
February 4, 2005

Discussion Outline

- ✓ Introduction
- ✓ The Fisheries Resources Monitoring Program
 - ✓ What is it?
 - ✓ Purpose/Goals of Monitoring Program
 - ✓ Unique aspects of the program
 - ✓ TEK and its challenges
- ✓ Changing Paradigms
- ✓ Capacity Building
 - ✓ What is it?
 - ✓ How to do it?
 - ✓ Why?
- ✓ Concluding remarks



Fisheries Resource Monitoring Program (FRMP)

- Housed within the USFWS, Office of Subsistence Management
- Implemented consistent with Section 812 of ANILCA to address gaps in the information needed for the effective management of subsistence fishery resources

Fisheries Resource Monitoring Program (FRMP)



- \$7.2 Million Program/year
- ~ 85 Projects/year
- Inter-disciplinary, science based
- Blends western sciences with Traditional Ecological Knowledge



Fisheries Resource Monitoring Program (FRMP)

Stock Assessment

- Weirs
- Sonar Counters



Harvest Assessment

- Post season/in-season
- Village and household surveys



Traditional Ecological Knowledge

- Collection, documentation, analysis

Purpose of the Fisheries Resource Monitoring Program (FRMP)

- Provide information in support of Federal subsistence fisheries management program
 - Manage and conserve subsistence fisheries
 - Ensure priority is given to subsistence uses
 - **Build capacity** in rural organizations to participate in fisheries management



Fisheries Resource Monitoring Program (FRMP)

- Multidisciplinary:
 - Social science perspective plays essential role
 - Traditional Ecological Knowledge
 - Harvest Assessment
 - Blending social and biological sciences
 - Capacity Building
 - Projects
 - Partners Program



Fisheries Resource Monitoring Program (FRMP)

Issues and Challenges with TEK Projects

- How best to collect TEK in the context of its application to fisheries management
- Emphasize disciplinary expertise and rigor and replicability in all methods
 - i.e., identify key informants and what qualifies them as experts?
 - Use combination of methods for eliciting information
 - Maps, placenames, taxonomies

Fisheries Resource Monitoring Program (FRMP)

Issues and Challenges with TEK Projects

- Databases are a means to an end, not an end in and of themselves; lack of direct application to fisheries management is a disadvantage
- Approaches that incorporate combination of disciplines can be the most effective
 - Try to get at the same information from different perspectives
 - E.g., Kanuti Whitefish project

Fisheries Resource Monitoring Program (FRMP)

•TEK Beaver-Whitefish Interactions

- Examined ecology of Yukon Flats, role of beavers in affecting whitefish populations

•TEK of Yukon River Salmon

- developed video, talking about what TEK is, and provided some examples of application to management

•TEK and Subsistence Uses of Non-Salmon Species on Koyukuk River

- combined harvest assessment with TEK, included section on management application

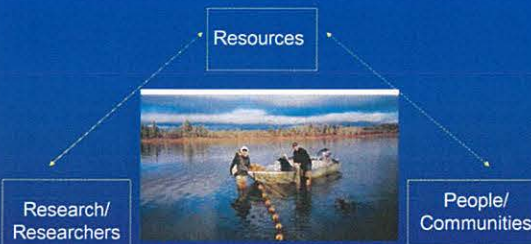
•TEK of Whitefish in Kotzebue Sound

- Extensive collection of knowledge of 59 locals

Traditional Research Paradigm



Emerging Research Paradigm



Capacity Building

- “Capacity building is a risky, murky, messy business with unpredictable and unquantifiable outcomes, uncertain methodologies, contested objectives, many unintended consequences, little credit to its champions and long time lags” (Morgan, 1999).



What does Capacity Building Mean for the FRMP?

- Increasing the ability of Alaska Native, rural and non-profit organizations to participate meaningfully in federal subsistence fisheries management and research
- Increasing ability of researchers to work outside their disciplines



Why Build Capacity?

If research is to be a positive component of the rural Alaska social and physical environment, it must respect and involve, local communities and people in appropriate ways



How to Build Capacity?

- Insisting that all projects funded through the program include some form of capacity building
- Help organizations build expertise by providing funding so that they can hire and train experts and develop internships



Capacity Building As Measured by Levels of Involvement in FRMP Projects

Community Control	Projects are locally derived, administered and managed; full responsibility for project management is delegated to or assumed by the community
Partnerships	Partnerships of equals between state and federal agencies and local users; joint decision making is institutionalized
Collaboration	Community/regional organization is involved in policy and decision making about project objectives
Cooperation	Use of local knowledge and research assistants; some research and assessment activities contracted to local entities
Developing partnerships	Partnerships in project development may start; common objectives sought
Communication	Two way communication begins; research plans to include and reflect local concerns
Consultation	Communities/regional organizations are consulted on projects; feedback from research findings go to community
Informing	Communities/regional organizations are informed about projects; communication is one way

Community Control

FRMP Projects w/ strong Capacity Building Efforts

- **TEK Camp in Ft. Yukon**
 - ADF&G/ CATG/ TCC
- **TEK and Subsistence Uses of Non-Salmon Species in Grayling, Anvik Shageluk and Holy Cross**
 - ADF&G/TCC
- **TEK and Subsistence Salmon Monitoring**
 - Sitka Tribe of Alaska and ADF&G
- **North Slope (Anaktuvuk Pass) Subsistence Fish Harvest Assessment**
 - ADF&G, City of AP, and North Slope Borough

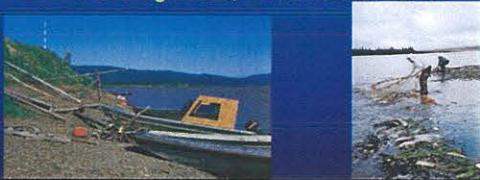
Partners for Fisheries Monitoring

- The goal of the Partners Program is to build capacity and expertise of Alaska and rural organizations to meaningfully participate in subsistence management and research



Partners for Fisheries Monitoring

- The purpose of the program is to:
 - Build capacity
 - Ensure local involvement
 - Promote cooperative partnerships among Alaska Native and rural organizations, state and federal agencies, academia and others



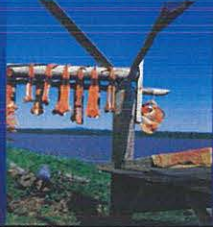
Partners for Fisheries Monitoring

- Based on a competitive process, regional, Alaska Native or local non-profit organizations received funding to hire professional biologists or social scientists and associated interns
- Currently, there are:
 - 6 biologist positions (AVCP, BBNA, CATG, KNA, TCC)
 - 2 social scientist positions (BBNA, NVE)



Challenges of Capacity Building

- Its hard, and its time consuming
- Requires letting go, perhaps losing some control
- Requires sensitivity to cultural, disciplinary differences
- It doesn't always work
- Turn over of people/staff



What Makes Success?

- Long term working relationship with communities
- Meet communities where they are at
- Acknowledge strengths and weaknesses of all involved, and build on them
- Sustained periods in the community
- Flexibility
- Take time for trainings and feedback



Questions/Comments?



Exxon Valdez Oil Spill Trustee Council

441 W. 5th Ave., Suite 500 • Anchorage, Alaska 99501-2340 • 907/278-8012 • fax 907/276-7178



January 18, 2005

The Honorable Tim Joyce
Mayor, City of Cordova
P.O. Box 1210
Cordova, Alaska 99574

Dear Mayor Joyce:

The *Exxon Valdez* Oil Spill Trustee Council has reviewed your December 2, 2004 proposal seeking funding for the proposed Cordova Center and obtained advice from both the Alaska Department of Law and the United States Department of Justice on its consistency with the legal constraints under which we expend funds from our natural resource damages settlement with Exxon.

Our highest priority is the restoration of those natural resources and services that were injured, to the extent that such restoration is feasible and not disproportionately expensive. Neither the construction of facilities nor the implementation of public education projects *per se* constitutes restoration of natural resources and proposals for such projects therefore demand close scrutiny. Thus, when the Trustee Council was approached about funding the Institute of Marine Science (as the Alaska SeaLife Center was known in its developmental stages), the Trustee Council was cautioned that proposals for construction of facilities whose primary function will be something other than the restoration of natural resources demand close scrutiny. As a result of such scrutiny, the Trustee Council funded only the research and wildlife rehabilitation components of that facility and then only after satisfying itself that the research needs of the Trustee Council could not be met by either existing or planned programs and facilities and that construction of the Institute of Marine Science would be cost-effective compared to expansion of existing facilities. The Trustee Council was advised not to, and did not, fund the education and tourism components of that facility.

The Cordova Center's connection to restoration appears to be less closely linked to restoration than the Institute of Marine Science. According to the City's proposal, the Cordova Center's primary spill-related function would be education of the public about the *Exxon Valdez* oil spill (EVOS) generally and the Trustee Council's program in particular. Plans for the Cordova Center include conference space, in which EVOS-related meetings and symposia could be held; a library in which the results of Gulf Ecosystem Monitoring (GEM) studies could be made available; display space that could house EVOS history exhibits and information about advances in technology spawned by the spill; a center for oil spill response training; an area where public involvement opportunities in the GEM program could be published and a visitors' center that would support recreation and tourism services affected by the spill. The Trustee Council is already engaged in extensive public outreach --

through its public meetings, the annual symposium in Anchorage, visits by staff to spill-affected towns and villages, contributions to ARLIS (the research library) and its website. Some of the spill-related elements of the Cordova Center which were designed to make it a centrally located facility for the Trustee Council's public outreach program pertaining to the GEM program are duplicative of ongoing activities of the Council and therefore would not be a wise expenditure of our limited resources.

To the extent that the City is relying on education of resource managers as a basis for obtaining restoration monies, we note that the dissemination of information obtained from the restoration process for use in the management of natural resources is a normal agency management function and therefore not a basis for expending settlement funds. Similarly, to the extent that the City is relying on the Cordova Center's support of tourism and recreational opportunities in the spill area as a basis for seeking settlement monies, the Trustee Council, in restoring services interrupted by EVOS, has been advised to make expenditures that are aimed at restoring the natural resources on which those services depend, rather than on subsidizing the services themselves.

In short, it is highly questionable whether investing \$6.8 million in a facility in Cordova would be an appropriate use of settlement monies.

Beyond the legal concerns associated with the funding of the Cordova Center, there are fiscal concerns. As you may know, the Trustee Council resolved in 1999 to limit its expenditures for non-habitat-related projects to approximately \$5 million each year. For fiscal 2005, which began in October of 2004, the Trustee Council has already committed to expend more than \$4 million. Similarly, the Trustee Council has committed to expend \$2,200,000 in fiscal 2006 on multi-year projects, plus an additional \$1,800,000 on internal projects and costs, thereby limiting discretionary funding to approximately \$600,000. The results of scientific studies conducted during 2001 have led the Council to re-orient its priorities to address unexpected lingering oil issues. As a consequence, the Trustee Council may spend additional monies on restoration activities associated with lingering oil and a review of the injured species list, thereby reducing even further the monies available for other projects, such as the Cordova Center, during this fiscal year and next.

Both legal and fiscal concerns make it unlikely that the proposal would be adopted by unanimous vote of the Trustee Council. If you feel that it would be worthwhile to make a presentation at our next meeting, which is set for February 4, 2005, please contact me to ensure that an appropriate time slot is included on the agenda for this purpose.

Sincerely,



Gail Phillips
Executive Director

Cc: Trustee Council