13.08.01 Jan 99 (2 of 2)

13.08.01 – Reading File

January 1999

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax:907/276-7178

MEMORANDUM

TO: Bruce Wright / NOAA

FROM: Molly McCammon
Executive Director

RE: Extension of Due Date: Final Report
Project 97163C / APEX: Diet Overlap, Prey Selection, Diet Feeding Periodicity and Potential Food Competition Among Forage Fish Species

DATE: January 29, 1999

I received Mr. Hulbert's January 25, 1999 memo requesting an extension of the due date for the above referenced report. The due date has been extended twice already, from the original date of April 15, 1998 to September 30, 1998 and then to December 30, 1998. Under these circumstances, I do not feel that another extension is appropriate. Rather, we will indicate in our records that the report (which will consist in part of draft manuscripts) is still in progress but is now overdue.

cc: Bob Spies, Chief Scientist

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax:907/276-7178

MEMORANDUM

TO: John Piatt / USGS-BRD

FROM: Molly McCammon
Executive Director

RE: Extension of Due Date: Final Report
Project 98163N / APEX -- Effects of Diet Quality on Postnatal Growth of Seabirds: Captive Feeding Trials

DATE: January 29, 1999

This memo is to confirm an extended due date of March 31, 1999 for the final report on Project 98163N/Effects of Diet Quality on Postnatal Growth of Seabirds: Captive Feeding Trials. I understand that this additional time is needed because of the author, Marc Romano, being ill.

cc: Bob Spies, Chief Scientist
Dede Bohn, USGS-BRD Liaison
Dan Roby, OCWRU/Dept. of Fish and Wildlife

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax:907/276-7178

January 29, 1999

Traci Watson
News Department
USA Today
100 Wilson Blvd
Arlington, VA 22229

Dear Traci;

Enclosed is the information you requested. I am sending you:

a) 1998 Annual Report (this has helpful budget & habitat info)
b) Restoration Reserve Newsletter (How should we spend $140 million?)
c) Info about the 10th Anniversary symposium that will take place in March.
d) Restoration Notebook series
e) Draft Update on Injured Species.

If you need anything else, don't hesitate to call. Happy reading.

Sincerely,

Joe Hunt
Communications Coordinator

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax:907/276-7178

TO: Restoration Work Force

FROM: Sandra Schubert
Project Coordinator

RE: FY 00 Invitation Review Draft & Additional Revisions to Injury Update

DATE: January 29, 1999

1. Please find attached a draft of the *Invitation to Submit Restoration Proposals for FY 00.* A Restoration Work Force meeting will be held **Thursday, February 4 at 9:00 a.m.** to discuss and finalize the invitation. Please call, fax, or e-mail Stan Senner or myself prior to that date if you identify issues that we should be aware of going into the meeting. The invitation is scheduled to go to the printer February 10 and be mailed to PIs and other potential proposers February 16.

   Regarding the introduction section, some of the dates in the schedule for development of the work plan have shifted slightly, but the major milestones are unchanged (invitation published mid-February, proposals and annual/final reports due April 15, Trustee Council action early August).

   The invitation and restoration strategies section reflects the proposed changes to the injured resources list that were circulated earlier this month. Additional changes may be required once the Trustee Council takes action on the injury update.

   Regarding the instructions section, there are no substantive changes from last year and the structure of the DPD and Detailed Budget remains unchanged. Proposers are informed that in FY 00 the annual workshop will take place over three days during the period January 17-28, 2000 (actual dates to be announced later). The University of Alaska's indirect rate is clarified and language is added to clarify that universities from other states need not use the BAA process.

2. Also attached are proposed revisions to the injury update that was circulated earlier this month. The update will be discussed at the February 4 Restoration Work Force meeting.

PROPOSED SUBSTANTIVE CHANGES IN THE JANUARY 1999 DRAFT *UPDATE ON INJURED RESOURCES AND SERVICES*

pp. 2-3 (inside front cover and facing page): Remove "Dear Reader" letter and substitute new "Introduction."

p. 4: replace Table of Resources and Services with new version.

p. 6: drop words "Proposed Revision" with reference to the Common Loon recovery objective (i.e., this will no longer be proposed, it will have been adopted).

p.10: drop words "Proposed Revision" with reference to the Harlequin Duck recovery objective (i.e., this will no longer be proposed, it will have been adopted).

p. 14: substitute new text for marbled murrelet account, including original rather than new recovery objective. Purpose of changes is to clarify that murrelets are neither stable nor increasing, which is what was required by original objective.

p. 15: substitute new text for Pacific herring. Clarifies that the species is showing signs of recovery but clearly is not fully recovered.

pp. 16-17: substitute new text for pink salmon. Indicates that pink salmon is recovering, and that original recovery objective has not been satisfied (thus, the species is not yet fully recovered). Indicates that Trustee Council will revisit recovery objective in the future to incorporate concern about population and local exposure to oil.

pp. 19-20: substitute new text for sockeye salmon, incorporating new information; use original not new recovery objective.

DRAFT

[substitute inside front cover and facing page]

Introduction

History and Purposes of the List

In November 1994, the Trustee Council adopted an official List of Injured Resources and Services as part of the *Restoration Plan*. This list serves three main purposes:

1. It is representative of injuries caused by the oil spill and cleanup efforts and helps the Trustees and the public track the status of important fish, wildlife, and other resources and services. The fish and wildlife species on this list include ones that are thought to have suffered population-level or sublethal injuries, but it does not include every species or resource that suffered some degree of injury. For example, carcasses of about 90 different species of oiled birds were recovered in 1989, but only 10 species of birds are on the list of injured species.

2. It helps guide priorities for implementation of the *Restoration Plan*. This was especially important in 1994 when the plan was first implemented, but the list still serves to highlight resources that are in need of attention. For example, what additional work can be undertaken to clarify the status of Recovery Unknown resources, or what can be done, if anything, to help move resources from Not Recovered to Recovering or from Recovering to Recovered?

3. Finally, when taken as a whole, the list of injured resources helps the Trustees and the public track recovery of the overall ecosystem and the functions and human services that the ecosystem provides. For example, neither the ecosystem nor the service of commercial fishing can be judged to have recovered from the effects of the oil spill until keystone resources, such as Pacific herring, are themselves fully recovered. (See below.)

Chapter 4 of the *Restoration Plan* indicates that the List of Injured Resources and Services will be reviewed periodically and updated to reflect what is learned from scientific studies and other sources of information, such as from traditional and local knowledge. Each time the list is reviewed, a resource's progress or lack of progress toward recovery is evaluated with reference to a recovery objective that is as concrete and measurable as possible. Sometimes the recovery objectives themselves are changed to reflect new insights about the nature of the injury and the best ways to evaluate recovery status. The table on page _ includes brief descriptions of what each recovery category means.

The List of Injured Resources and Services was first updated in September 1996. At that time, for example, the bald eagle was upgraded from Recovering to fully Recovered. In 1999, the 10th year after the oil spill, several more changes have been made. One more resource, river otter, is now considered to be fully Recovered, and five resources--black oystercatchers, clams, marbled murrelet, Pacific herring, sea otter--are upgraded to Recovering. One resource, common loon, is moved from Recovery Unknown to Not Recovering. Five resources remain as Recovery Unknown.

The List of Injured Resources and Services can be updated at any time that new information is available. It is likely, however, that the next evaluation of changes in recovery status for all injured resources and lost or reduced services will be in year 2001, 10 years after the 1991 settlement between the governments and Exxon and initiation of the restoration program.

Ecosystem Perspective and Recovery

The List of Injured Resources consists mainly of single species and resources, but, as noted above, it provides a basis for evaluating the recovery of the overall ecosystem, its functions, and the services that it provides to people. In fact, through the *Restoration Plan*, the Trustee Council adopted an ecological approach to restoration, and the studies and projects it sponsored have been increasingly ecological in character.

Page 35 of the *Restoration Plan* defines ecosystem recovery as follows:

> Full ecological recovery will have been achieved when the population of flora and fauna are again present at former or prespill abundances, healthy and productive, and there is a full complement of age classes at the level that would have been present had the spill not occurred. A recovered ecosystem provides the same functions and services as would have been provided had the spill not occurred.

Using this definition, the coastal and marine ecosystem in the oil-spill region has not recovered from the effects of the oil spill. Keystone species, such as Pacific herring and harbor seals, have not fully recovered, nor has the composition of biological communities, such as in intertidal habitats. Although full ecological recovery has not been achieved, the spill-area ecosystem is still largely intact and functioning and well on the way to recovery 10 years after the *Exxon Valdez*.

It also is important to understand that ecosystems are dynamic and would have changed even in the absence of the oil spill. Baseline data describing fish and wildlife populations, to say nothing of complex intertidal and subtidal communities, were generally poor. For this reason, it was and is difficult to evaluate injury to individual resources and the ecosystem in general. As the time since the oil spill grows longer, it also is more and more difficult to separate what may be lingering effects of the spill from changes that are natural or caused by factors unrelated to the oil spill. In fact, what we see is often an interaction between oil effects and natural changes, such as the effects of the 1998 El Niño on common murres in the Barren Islands.

Recovery Unknown

Limited data on life history or extent of injury; current research not complete or inconclusive.

Cutthroat trout
Designated Wilderness Areas
Dolly Varden
Kittlitz's murrelet
Rockfish

Not Recovering

Species are showing little or no clear improvement since spill injuries occurred.

Common loon
Cormorants (3 spp.)
Harbor seal
Harlequin duck
Killer whale (AB pod)
Pigeon guillemot

Recovering

Substantive progress is being made toward recovery objective. The amount of progress and time needed to achieve recover vary depending on the resource.

Black Oystercatcher
Clams
Marbled murrelets
Pacific herring
Sea otter

Archaeological resources**
Common murres
Intertidal communities
Mussels
Pink salmon
Sediments
Sockeye salmon
Subtidal communities

Recovered

Recovery objectives have been met.

Bald eagle
River otter

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Resources in boldface have each moved forward on this Recovery Line during the most recent update (February 9, 1999)

Substitute for table on p. 4

Human Services
Recreation & tourism
Commercial fishing
Passive uses
Subsistence

DRAFT

[substitute for PAHE account on p. 15]

PACIFIC HERRING

Injury and Recovery

Pacific herring spawned in intertidal and subtidal habitats in Prince William Sound shortly after the oil spill. A significant portion of these spawning habitats as well as herring staging areas in the sound were contaminated by oil. Field studies conducted in 1989 and 1990 documented increased rates of egg mortality and larval deformities in oiled versus unoiled areas. Subsequent laboratory studies confirm that these effects can be caused by exposure to Exxon Valdez oil, but the significance of these injuries at a population level is not known.

The 1988 prespill year-class of Pacific herring was very strong in Prince William Sound, and, as a result, the estimated peak biomass of spawning adults in 1992 was ~~at a record level~~ very high. Despite the ~~record~~ large spawning biomass in 1992, the population exhibited a density-dependent reduction in size, and in 1993 there was an unprecedented crash of the adult herring population. A viral disease and fungus were the probable immediate agents of mortality, but such other factors as competition for food may have reduced herring fitness and survival. Laboratory investigations since the population crash have shown that exposure to very low concentrations of Exxon Valdez oil can compromise the immune systems of adult herring and lead to expression of the viral disease. The extent to which the exposure to oil contributed to the 1993 disease outbreak is uncertain.

Numbers of spawning herring in Prince William Sound remained depressed through the 1995 season. In 1997 and 1998 ~~there were limited commercial harvests for herring in the sound, but the population has yet to recruit a highly successful year-class, which is fundamental to recovery~~the spawning biomass was about double that of ~~this species~~1994, the season following the crash, and there were limited commercial harvests for herring in the sound. ~~Thus~~Clearly, ~~while it is clear that the Pacific herring is in the process of recovering, a full recovery~~however, the population has ~~not been achieved~~yet to recruit a highly successful year-class, which is fundamental to recovery of this species. On this basis, it appears that the Pacific herring is in the process of recovering, but a full recovery has not been achieved.

Because the Pacific herring is extremely important ecologically and commercially and for subsistence users, the Trustee Council has made a major investment in restoration projects that benefit herring. In the area of habitat protection, Trustee Council funds have acquired more than 1,200 miles of upland shorelines, some of which will help protect water quality in areas used by spawning herring. Research sponsored by the Trustee Council also has identified bays that are important as herring nursery and overwintering areas, and this information will be useful to natural resource managers for decisions about siting facilities or planning responses to future oil spills.

The Trustee Council's Sound Ecosystem Assessment has resulted in new understanding of the importance of body condition in determining overwintering survival of herring and in the influences of the Gulf of Alaska in herring productivity within Prince William Sound. Techniques for improving stock and spawning biomass assessments through spawn deposition

surveys and hydroacoustic and aerial surveys also have been supported by the Trustee Council. On-going research on herring disease in relation to commercial fishing practices, such as the enclosed "pound" fisheries, have direct implications for management of the herring fishery. Improvements in knowledge about the biology and ecology of herring and in assessment and management tools will enhance conservation and management of this species over the long term.

Recovery Objective

Pacific herring will have recovered when the next highly successful year class is recruited into the fishery and when other indicators of population health are sustained within normal bounds in Prince William Sound.

DRAFT

[substitute for PISA account on pp. 16-17]

PINK SALMON

Injury and Recovery

Certain features of the life history of pink salmon made this species highly vulnerable to damage from the oil spill. As much as 75 percent of wild pink salmon in Prince William Sound spawn in the intertidal portions of streams, where embryos deposited in the gravel could be chronically exposed to hydrocarbon contamination in the water column or leaching from oil deposits on adjacent beaches. When juvenile pink salmon migrate to saltwater they spend several weeks foraging for food in nearshore habitats. Thus, juvenile salmon entering seawater from both wild and hatchery sources could have been exposed to oil as they swam through oiled waters and fed along oiled beaches. Trustee Council-sponsored studies have documented two primary types of injury due to the exposure of these early life stages: First, growth rates in both wild and hatchery-reared juvenile pink salmon from oiled parts of the sound were reduced. Second, there was increased egg mortality in oiled versus unoiled streams.

In the years preceding the spill, returns of wild pink salmon in Prince William Sound varied from a maximum of 23.5 million fish in 1984 to a minimum of 2.1 million in 1988. Since the spill, returns of wild pinks have varied from a high of about 12.7 million fish in 1990 to a low of about 1.9 million in 1992. The decade preceding the oil spill was a time of very high productivity for pink salmon in the sound, and, given the tremendous natural variation in adult returns, it is impractical to measure directly the extent to which wild salmon returns since 1989 were influenced by the oil spill. Based on intensive studies, including mathematical models, carried out following the spill, wild adult pink salmon returns to the sound's Southwest District in 1991 and 1992 were most likely reduced by a total of 11 percent.

Reduced juvenile growth rates in Prince William Sound occurred only in the 1989 season, but higher egg mortality persisted in oiled compared to unoiled streams through 1993. No statistically significant differences in egg mortalities in oiled and unoiled streams were detected in 1994 through 1996, but in 1997 there was again a difference. It is not clear whether the 1997 difference was due to the effects of lingering weathered oil, perhaps newly exposed by storm-related disturbance of adjacent beaches, or due to other factors. Patches of weathered oil still persist in or near intertidal spawning habitats in a few of the streams used by pink salmon in southwestern Prince William Sound. It is possible that patches of oil may be exposed as winter storms shift stream beds back and forth and result in local episodes of increased pink salmon egg mortality. The duration, scale, and number of any such events now would be ~~very~~ limited in comparison to the situation that existed in the southwestern sound in 1989-1993. Therefore, the biological impact of exposure to any such lingering oil ~~should not~~ is unlikely to limit pink salmon populations, assuming there are no drastic negative changes in the quality of freshwater habitats and ocean rearing conditions. ~~Thus, with the exception of~~

Since the Trustee Council's recovery objective specifically requires a ~~few streams with patches~~sequence of ~~lingering oil in the southwestern sound, there is no longer any basis to suspect that the oil spill is affecting pink salmon populations in the sound~~two years each of odd-

and even-year runs without differences in egg mortality, this recovery objective clearly has not been met. ~~Overall,~~Thus, the Trustee Council continues to find that pink salmon ~~have recovered~~ are recovering from the effects of the ~~Exxon Valdez~~ oil spill, but that full recovery has not been achieved. Following this February 1999 *Recovery Update*, the Trustee Council will consider a revised recovery objective that takes into account the overall status of the pink salmon population and local exposure to hydrocarbons due to lingering oil in intertidal stream spawning habitats.

The Trustee Council has made a major investment in studying the effects of the oil spill on pink salmon and in improving conservation and management of wild stocks in Prince William Sound. Studies on the effects of oil on pink salmon have led to new insights about how oil can affect salmon, especially in regard to the toxicity of even very small concentrations of weathered oil on early life stages. This information will be useful in evaluating water quality standards for oil in water and in contingency planning for future oil spills.

The Trustee Council has sponsored several projects directed at improved management of pink salmon. One of the most beneficial projects sponsored by the Trustee Council was development and implementation of a thermal mass marking project in Prince William Sound. This project, which is now being sustained by the Alaska Department of Fish and Game and the Prince William Sound Aquaculture Association, puts a unique mark on the otoliths (ear bone) of hatchery-reared fry released in the sound. Technicians can readily identify these fish when they are caught as returning adults. This information is used for in-season adjustments of harvests (times and areas) to better protect wild stocks and to more fully utilize hatchery stocks when doing so does not jeopardize wild stocks of pink salmon. Another project sponsored by the Trustee Council characterized the genetic stock structure of pink salmon in the sound. The results of this project will improve confidence that management actions are adequately protecting the genetic diversity of small wild stocks.

Throughout Alaska there is increasing recognition of the importance of changes in marine ecosystems on the growth and survival of salmon. The Trustee Council has funded the Sound Ecosystem Assessment (SEA) project to explore oceanographic and ecological factors that influence production of pink salmon and Pacific herring in Prince William Sound. These factors include such things as the timing of spring plankton blooms and changes in circulation patterns that link the sound to the Gulf of Alaska. These natural factors are likely to have the greatest influence on year-to-year returns in both wild and hatchery stocks of pink salmon. A final report from the SEA Project is due at the end of FY 1999.

Pink salmon have been major beneficiaries of the Trustee Council's habitat protection program. The more than 600,000 acres of land protected through the Trustee Council program include 280 streams with spawning and rearing habitat for salmon. Wild populations of pink salmon have been enhanced by creating or providing access to additional spawning habitat, such as the Port Dick spawning channel on the outer Kenai coast. This project is expected to result in production of additional pink salmon available for commercial harvest each year.

Recovery Objective

Pink salmon will have recovered when population indicators, such as growth and survival, are

DRAFT

[substitute for MAMU account on p. 14]

MARBLED MURRELETS

Injury and Recovery

The northern Gulf of Alaska, including Prince William Sound, is a key area of concentration in the distribution of marbled murrelets. The marbled murrelet is federally listed as a threatened species in Washington, Oregon, and California; it also is listed as threatened in British Columbia.

The marbled murrelet population in Prince William Sound had declined before the oil spill. The causes of the prespill decline are not known for certain, but environmental changes in the late 1970s probably reduced the availability or quality of prey resources. There is, nonetheless, clear evidence that oil caused injury to ~~the~~ marbled ~~murrelet population~~ murrelets in the sound. Carcasses of nearly 1,100 Brachyramphus murrelets were found after the spill, and about 90 percent of the murrelets that could be identified to the species level were marbled murrelets. Many more murrelets probably were killed by the oil than were found, perhaps as much as 7 percent of the spill area population.

The recovery of the marbled murrelet population in Prince William Sound is assessed primarily through standard marine bird boat surveys. Based on ~~the~~ a recent analysis of data from boat surveys carried out ~~through 1998, there has been no statistically significant increase in the sound's~~ in July for most years from 1989-1998, densities of marbled ~~murrelet population since the spill~~ murrelets increased substantially in oiled parts of the sound during 1990-1993, but declined again in 1996 and 1998. ~~There~~ Densities of murrelets in unoiled parts of the sound also ~~is no evidence of a further~~ declined in 1996 and 1998, so the reason for the recent declines in both oiled and unoiled areas is probably due to some factor other than the oil spill.

The Trustee Council's recovery objective requires a stable or increasing population for marbled murrelets; stable or increasing productivity would indicate that recovery is underway. ~~Based on the information above~~ The marbled murrelet population is not now stable nor increasing, ~~it appears that this species is at least recovering~~ but the increase in oiled areas from ~~the effects of the oil spill~~ 1990-1993 is a positive sign. In addition, marbled murrelet productivity, as measured by surveys of adults and juveniles on the water in Prince William Sound, appears to be within normal bounds. On these bases, it appears that the marbled murrelet is at least recovering from the effects of the oil spill.

Marbled murrelets have been a major focus of the Trustee Council's restoration program, including both habitat protection and research and monitoring activities. Marbled murrelets are known to nest in large, mossy trees within stands of old-growth forest. Following the oil spill, Trustee Council researchers identified specific habitat types and areas within the spill zone that are especially valuable to nesting murrelets. Much of the 600,000 acres of habitat protected with Trustee Council funds is forested, including significant habitat that is suitable for and used by nesting murrelets (for example, on Afognak Island).

In the area of research and monitoring, the Trustee Council's Alaska Predator Ecosystem

Experiment (APEX) project is investigating the relationship between marbled murrelet declines and the availability and abundance of forage fish, such as Pacific herring, sand lance, and capelin. It appears that there is a direct correlation between the availability of forage fish and production of young murrelets, based on the presence of juvenile murrelets on the water in Prince William Sound. Historical trawl data analyzed as part of this project supported a decision by the North Pacific Fishery Management Council to limit bycatch of forage fish in commercial fisheries and to preclude the startup of fisheries targeting forage fish (not including herring).

Recovery Objective

Marbled murrelets will have recovered when their populations are stable or increasing. Stable or increasing productivity will be an indication that recovery is underway.

[substitute for SOSA account on p. 19-20]

DRAFT

SOCKEYE SALMON

Injury and Recovery

Commercial salmon fishing was closed in Prince William Sound and in portions of Cook Inlet and near Kodiak in 1989 to avoid any possibility of contaminated salmon being sent to market. As a result, there were higher-than-desirable numbers (i.e., "overescapement") of spawning sockeye salmon entering the Kenai River and also Red and Akalura lakes on Kodiak Island. Research carried out following the spill demonstrated that initially these high escapements produced an overabundance of juvenile sockeye that then overgrazed the zoo-plankton, thus altering planktonic food webs in the nursery lakes. The result was lost sockeye production as shown by reduced growth rates during the freshwater part of the sockeye life history and declines in the returns of adults per spawning sockeye. Although sockeye freshwater growth tended to return to normal within two or three years following the overescapement, there are indications that these systems are less stable for several years after an initial overescapement event.

The negative effects of the 1989 overescapement on sockeye productivity, as measured by return per spawner, in the Kenai River watershed were readily apparent for returns from the brood years 1989-1992. Returns from the 1993-1995 brood years are not complete because some of these fish are still at sea, but returns to date show promise that management efforts have been successful in restoring the returns per spawner to normal levels. The sockeye salmon of the Kenai River watershed are recovering from the effects of the 1989 overescapement.

Production of zooplankton in both Red and Akalura lakes on Kodiak Island has rebounded from the effects of the overescapement at the time of the oil spill. By 1997, Red Lake had responded favorably in terms of smolt and adult production and was at or near prespill production of adult sockeye. At Akalura Lake~~, however, adult escapements continued to fall below minimum goals through 1997~~ there were low juvenile growth rates in freshwater during the period 1989-92, ~~but the impact~~and these years of ~~overescapement on return per spawner for Akalura sockeye is not clear~~low growth correspond to low adult escapements during the period 1994-97. ~~Fortunately, starting~~Starting in 1993, however, the production of smolts per adult increased sharply and the smolt sizes and age composition suggested that rearing conditions have improved. ~~Current projections now suggest~~This improvement is reflected in a strong adult escapement in 1998; a significant escapement of adults into Akalura Lake ~~in the~~ is also projected in 1999 ~~season~~. The sockeye populations of both Red and Akalura lakes are recovering from the effects of the 1989 overescapement.

There also was concern about overescapement effects in lakes on Afognak Island and on the Alaska Peninsula. However, analysis of sockeye freshwater growth rates of juveniles from Chignik Lake on the Alaska Peninsula did not identify any impacts associated with a 1989 overescape-ment event.

The Trustee Council has made a major investment in the restoration and management of sockeye salmon, especially in the Kenai River system. Research sponsored by the Trustee Council has

documented not only the effects of overescapement events (as described above), but also the mechanism by which the effects are manifested in glacial-lake systems. This work is helping fisheries managers better monitor and predict annual changes in sockeye fisheries. With support from the Trustee Council, genetic stock identification and hydroacoustic stock assessment techniques were developed and are being employed to improve in-season management of the Cook Inlet sockeye fisheries.

Sockeye salmon have benefited greatly from the Trustee Council's habitat protection program throughout the spill area. These acquisitions include streambank, lakeside, and watershed habitats along the Kenai and Moose rivers on the Kenai Peninsula, the Eshamy-Jackpot Bay area of Prince William Sound, the Red and Fraser lakes area on Kodiak Island, and Laura and Pauls lakes on Afognak Island. In addition to habitat acquisition, the Trustee Council sponsored a project to stabilize and restore degraded streambanks on public lands along the Kenai and Russian rivers. This project will restore spawning and rearing habitat important for salmon and enhance recreational fishing, which was a service injured by the oil spill.

Recovery Objective

~~Proposed Revision:~~ Sockeye salmon in the Kenai River system and Red and Akalura lakes will have recovered when adult returns-per-spawner ~~and other indicators of productivity~~ are within normal bounds.

within normal bounds and there are no statistically significant differences in egg mortalities in oiled and unoiled streams for two years each of odd- and even-year runs in Prince William Sound.

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax:907/276-7178

January 29, 1999

Tom Hayden
Newsweek
251 W. 57th St.
New York, NY 10019

Dear Tom.

Enclosed is the information you requested. I am sending you:

a) 1998 Annual Report (this has helpful budget & habitat info)
b) Restoration Reserve Newsletter (How should we spend $140 million?)
c) Info about the 10th Anniversary symposium that will take place in March.
d) Restoration Notebook series
e) Draft Update on Injured Species.

If you need anything else, don't hesitate to call. Happy reading.

Sincerely,

Joe Hunt
Communications Coordinator

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax: 907/276-7178

January 28, 1999

Rich Goossens
US Forest Service
POB 21628
Juneau, Alaska 99801

Dear Rich:

Enclosed is a certificate of appreciation from the *Exxon Valdez* Oil Spill Trustee Council for all your work on behalf of the Council. Having you as part of the Habitat Protection team was a definite plus. Good luck with your future endeavors.

Sincerely,

Molly McCammon
Executive Director

done 1/29
Send poster to w/cert.
Goossens ty

mm/raw

Certificate of Appreciation

The *Exxon Valdez* Oil Spill Trustee Council members extend our deep appreciation to

Rich Goossens

for your many contributions to the restoration of resources and services injured by the *Exxon Valdez* oil spill on behalf of the U.S. Forest Service.

Alaska Department of Fish and Game

Alaska Department of Environmental Conservation

Craig J. Tillery
Alaska Department of Law

National Oceanic and Atmospheric Administration

U.S. Department of the Interior

U.S. Department of Agriculture

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax: 907/276-7178

January 28, 1999

Lisa Thomas
Kachemak Bay National Estuarine Research Reserve
202 West Pioneer Avenue
Homer, Alaska 99603

Dear Lisa:

Enclosed is a certificate of appreciation from the *Exxon Valdez* Oil Spill Trustee Council for all your work on behalf of the Council. You did a great job representing your agency and NVP project. Good luck with your future endeavors. We all miss you.

Sincerely,

Molly McCammon
Executive Director

mm/raw

Certificate of Appreciation

The *Exxon Valdez* Oil Spill Trustee Council members extend our deep appreciation to

Lisa Thomas

for your many contributions to the restoration of resources and services injured by the *Exxon Valdez* oil spill on behalf of the Department of the Interior.

Alaska Department of Fish and Game

Alaska Department of Environmental Conservation

Craig J. Tillery
Alaska Department of Law

National Oceanic and Atmospheric Administration

U.S. Department of the Interior

James A. Wolf
U.S. Department of Agriculture

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax: 907/276-7178

January 28, 1999

Steve Criswell
Jack White Company
3201 C Street Suite 200
Anchorage, Alaska 99503

Dear Mr. Criswell:

I would like to thank you for allowing the *Exxon Valdez* Oil Spill Trustee Council to use the first floor space in the Simpson Building for our meetings last week. It was very convenient and spacious for the Council and the public.

The room has been cleaned up as agreed to by Rebecca Williams and she gave the key to Jim, with your maintenance department. Thanks again.

Sincerely,

Molly McCammon
Executive Director

mm/raw

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax:907/276-7178

MEMORANDUM

To: EVOS Principal Investigators (FY 98 & 99)

From: Molly McCammon
Executive Director

Subject: Bibliography, Symposium, and DPD/Report Deadlines

Date: January 28, 1999

Enclosed with this memorandum is a January 1999 version of the bibliography of peer-reviewed publications resulting from Trustee Council-sponsored research. We plan to distribute a revised version of this bibliography to participants in the *Legacy of an Oil Spill: 10 Years After* Exxon Valdez symposium in March. If you have additions or corrections for this draft, please contact the science coordinator, Stan Senner, no later than February 26, preferably by e-mail (stan_senner@oilspill.state.ak.us).

The bullet (•) in the left margin by some citations indicates that the ARLIS library does not have an official reprint of this paper. Due to copyright laws, ARLIS cannot archive photocopies. If you have reprints of citations marked with a bullet, please send three copies to Stan Senner at the Restoration Office.

The *Legacy of an Oil Spill* symposium, scheduled for March 23-27, 1999, is fast approaching. Most of you have not yet registered. All PIs on Trustee Council-sponsored projects are expected to participate, and you must preregister before March 1 to take advantage of a reduced fee of $70 (the fee jumps to $100 after that). Please register now!

Finally, we expect to mail the *Invitation to Submit Proposals for FY 00* by mid-February. Remember that the deadline for submission of Detailed Project Descriptions for FY 00, as well as for annual and final reports, is April 15, 1999. Please mark this date on your calendar. If you are not going to be able to submit a report on time, it is up to you to request an extension by contacting me or Sandra Schubert.

Thank you, and I look forward to seeing you at the *Legacy of an Oil Spill* symposium.

encl: (1)

cc: Carrie Holba, ARLIS
Robert Spies, Chief Scientist

Bibliography
of
***Exxon Valdez* Oil Spill Trustee Council Funded Research**

January 1999

•Agler, B.A., S.J. Kendall, P.E. Seiser, and D.B. Irons. In press. Abundance of marbled and Kittlitz's murrelets (*Brachyramphus marmoratus* and *brevisrostris*) in southcentral and southeast Alaska. Condor.

Anderson, P.J., J.E. Blackburn, and B.A. Johnson. 1997. Declines of forage species in the Gulf of Alaska, 1972-1995, as an indicator of regime shift. Pages 531-543 in Forage Fishes in Marine Ecosystems: Proceedings of the International Symposium on the Role of Forage Fish in Marine Ecosystems. Alaska Sea Grant College Program Report 97-01.

•Andres, B.A. In press. Effects of persistent shoreline oil on breeding success and chick growth of black oystercatchers. Auk. 116(3).

•_____. In press. Habitat requirements of breeding black oystercatchers. Journal of Field Ornithology.

_____. 1997. The *Exxon Valdez* oil spill disrupted the breeding of black oystercatchers. Journal of Wildlife Management. 61(4):1322-1328.

•_____. 1996. Consequences of the *Exxon Valdez* oil spill on black oystercatchers inhabiting Prince William Sound, Alaska. Ph.D. Thesis. Ohio State University, Columbus.

Babcock, M.M., C.V. Irvine, P.M. Harris, J.A. Cusick, and S.D. Rice. 1996. Persistence of oiling in mussels beds three and four years after the *Exxon Valdez* oil spill. Pages 286-297 in S.D. Rice, 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.

Bain, D.E. and M.E. Dahlheim. 1994. Effects of masking noise on detection thresholds of killer whales. Pages 243-256 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

Ballachey, B.E., J.L. Bodkin, and A.R. DeGange. 1994. An overview of sea otter studies. Pages 47-59 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

•Barber, W.E., L.L. McDonald, W.P. Erickson, and M. Vallarino. 1995. Effect of the *Exxon Valdez* oil spill on intertidal fish: a field study. Transactions of the American Fisheries Society. 124(4):461-476.

Bayha, K. and J. Kormendy, tech. coords. and eds. 1990. Sea Otter Symposium: Proceedings of a Symposium to Evaluate the Response Effort on Behalf of Sea Otters After the *T/V Exxon Valdez* Oil Spill into Prince William Sound. U.S. Fish and Wildlife Biological Report 90(12). 485 pp.

Bechtol, W.R. Changes in forage fish populations in Kachemak Bay, Alaska, 1976-1995. Pages 441-455 in Forage Fishes in Marine Ecosystems: Proceedings of the International Symposium on the Role of Forage Fish in Marine Ecosystems. Alaska Sea Grant College Program Report 97-01.

Ben-David, M., R.T. Bowyer, L.K. Duffy, D.D. Roby, and D.M. Schell. 1998. Social behavior and ecosystem processes: river otter latrine sites and nutrient dynamics of terrestrial vegetation. Ecology. 79(7):2567-2571.

_____, _____, and J.B. Faro. 1996. Niche separation by mink and river otters: coexistence in a marine environment. Oikos. 75:41-48.

Bernatowicz, J.A., P.F. Schempf, and T.D. Bowman. 1996. Bald eagle productivity in south-central Alaska in 1989 and 1990 after the *Exxon Valdez* oil spill. Pages 785-797 in S.D. Rice, 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.

Bittner, J.E. 1996. Cultural resources and the *Exxon Valdez* oil spill: an overview. Pages 814-818 in S.D. Rice, 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.

Blajeski, A., L.K. Duffy, and R.T. Bowyer. 1996. Differences in fecal levels of phorphrin among river otters exposed to the *Exxon Valdez* oil spill. Biomarkers. 1:262-266.

•Blundell, G.M., J.W. Kern, R.T. Bowyer, and L.K. Duffy. In press. Capturing river otters: a comparison of Hancock and leg-hold traps. Wildlife Society Bulletin.

Bodkin, J.L., J.A. Ames, R.J. Jameson, A.M. Johnson, and G.M. Matson. 1997. Estimating age of sea otters with cementum layers in the first premolar. Journal of Wildlife Management. 61(3):967-973.

_____, R.J. Jameson, and J.A. Estes. 1994. Sea otters in the North Pacific Ocean. Pages 353-356 in E.T. LaRoe III, G.S. Farris, C.E. Puckett, and P.D. Doran, eds. Our Living Resources 1994: A Report to the Nation on the Distribution, Abundance, and Health of U.S. Plants, Animals, and Ecosystems. National Biological Service. Washington, D.C.

_____, D.M. Mulcahy, and C.J. Lensink. 1993. Age-specific reproduction in the sea otter (*Enhydra lutris)*: analysis of reproductive tracts. Canadian Journal of Zoology. 71(9):1811-1815.

_____, and M.S. Udevitz. 1994. An intersection model for estimating sea otter mortality along the Kenai Peninsula. Pages 81-95 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

_____, and F. Weltz. 1990. Evaluation of sea otter capture after the *T/V Exxon Valdez* oil spill, Prince William Sound, Alaska. Pages 61-69 in K. Bayha and J. Kormendy, tech. coords. and eds. Sea Otter Symposium: Proceedings of a Symposium to Evaluate the Response Effort on Behalf of Sea Otters After the *T/V Exxon Valdez* Oil Spill into Prince William Sound. U.S. Fish and Wildlife Biological Report 90(12).

Boldt, J. 1996. Condition and distribution of forage fish in Prince William Sound, Alaska. M.S. Thesis, University of Alaska Fairbanks, Juneau Center, Alaska.

Bolger, M., S.H. Henry, and C.D. Carrington. 1996. Hazard and risk assessment of crude oil contaminants in subsistence seafood samples from Prince William Sound. Pages 837-843 in S.D. Rice, R.B. Spies, D.A. Wolfe, and B.A. Wright, eds. *Exxon Valdez* Oil Spill Symposium. American Fisheries Society Symposium Number 18.

•Bowman, T.D., P.F. Schempf, and J.A. Bernatowicz. 1995. Bald eagle survival and population dynamics in Alaska after the *Exxon Valdez* oil spill. Journal of Wildlife Management. 59(2):317-324.

_____, _____, and J.I. Hodges. 1997. Bald eagle population in Prince William Sound after the *Exxon Valdez* oil spill. Journal of Wildlife Management. 61(3):962-967.

Bowyer, R.T., J.W. Testa, and J.B. Faro. 1995. Habitat selection and home ranges of river otters in a marine environment: effects of the *Exxon Valdez* oil spill. Journal of Mammalogy. 76(1):1-11.

_____, _____, _____, C.C. Schwartz, and J.B. Browning. 1994. Changes in diets of river otters in Prince William Sound, Alaska: effects of the *Exxon Valdez* oil spill. Canadian Journal of Zoology. 72:970-976.

Braddock, J.F., J.E. Lindstrom, and E.J. Brown. 1995. Distribution of hydrocarbon-degrading microorganisms in sediments from Prince William Sound, Alaska following the *Exxon Valdez* oil spill. Marine Pollution Bulletin. 30:125-132.

_____, _____, T.R. Yeager, B.T. Rasley, and E.J. Brown. 1996. Patterns of microbial activity in oiled and unoiled sediments in Prince William Sound. Pages 94-108 in S.D. Rice, 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.

Brown, D.W., D.G. Burrows, C.A. Sloan, R.W. Pearce, S.M. Pierce, J.L. Bolton, K.L. Tilbury, K.L. Dana, S.-L. Chan, and U. Varanasi. 1996. Survey of Alaskan subsistence invertebrate seafoods collected in 1989-1991 to determine exposure to oil spilled from the *Exxon Valdez*. Pages 844-855 in S.D. Rice, 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.

Brown, E.D., T.T. Baker, J.E. Hose, R.M. Kocan, G.D. Marty, M.D. McGurk, B.L. Norcross, and J. Short. 1996. Injury to the early life history stages of Pacific herring in Prince William Sound after the *Exxon Valdez* oil spill. Pages 440-447 in S.D. Rice, 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.

_____, B.L. Norcross, and J.W. Short. 1996. An introduction to studies on the effects of the *Exxon Valdez* oil spill on early life history stages of Pacific herring, *Clupea pallasi*, in Prince William Sound, Alaska. Canadian Journal of Fisheries and Aquatic Sciences. 53(10):2337-2342.

Brown, E.J. and J.F. Braddock. 1990. Sheen screen: a miniaturized most probable number technique for oil-degrading microorganisms. Applied and Environmental Microbiology. 56:3895-3896.

Bue, B.G., S.M. Fried, S. Sharr, D.G. Sharp, J.A. Wilcock, and H.J. Geiger. 1998. Estimating salmon escapement using area-under-the curve, aerial observer efficiency, and stream-life estimates: the Prince William Sound example. North Pacific Anadromous Fish Commission Bulletin. 1:240-250.

_____, S. Sharr, S.D. Moffitt, and A.K. Craig. 1996. Effects of the *Exxon Valdez* oil spill on pink salmon embryos and preemergent fry. Pages 619-627 in S.D. Rice, 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.

_____, _____, and J.E. Seeb. 1998. Evidence of damage to pink salmon populations inhabiting Prince William Sound, Alaska, two generations after the *Exxon Valdez* oil spill. Transactions of the American Fisheries Society. 127(1):35-43.

Burn, D.M. 1994. Boat-based population surveys of sea otters in Prince William Sound. Pages 61-80 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

Byrd, G.V., E.P. Bailey, and W. Stahl. 1997. Restoration of island populations of black oystercatchers and pigeon guillemots by removing introduced foxes. Colonial Waterbirds. 20(2):253-260.

Calkins, D.G., E. Becker, T.R. Spraker, and T.R. Loughlin. 1994. Impacts on Steller sea lions. Pages 119-139 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

Carls, M.G., L. Holland, M. Larsen, J.L. Lum, D.G. Mortenson, S.Y. Wang, and A.C. Wertheimer. 1996. Growth, feeding, and survival of pink salmon fry exposed to food contaminated with crude oil. Pages 608-618 in S.D. Rice, 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.

_____, G.D. Marty, T.R. Meyers, R.E. Thomas, and S.D. Rice. 1998. Expression of viral hemorrhagic septicemia virus in prespawning Pacific herring (*Clupea pallasi*) exposed to weathered crude oil. Canadian Journal of Fisheries and Aquatic Sciences. 55:1-10.

_____, A.C. Wertheimer, J.W. Short, R.M. Smolowitz, and J.J. Stegeman. 1996. Contamination of juvenile pink salmon and chum salmon by hydrocarbons in Prince William Sound after the *Exxon Valdez* oil spill. Pages 593-607 in S.D. Rice, 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.

Carlson, P.R. and K.A. Kvenvolden. 1996. Tracking *Exxon Valdez* oil from beach to deepwater sediments in Prince William Sound, Alaska. Pages 109-120 in S.D. Rice, 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.

Carter, H.R. and K.J. Kuletz. 1995. Mortality of marbled murrelets due to oil pollution in North America. Pages 261-269 in Ecology and Conservation of the Marbled Murrelet. USDA Forest Service General Technical Report PSW-GTR-152.

Castellini, J.M., N.J. Meiselman, and M.A. Castellini. 1996. Understanding and interpreting hematocrit measurements in pinnipeds. Marine Mammal Science 12(2):251-264

elewycz, A.G., and A.C. Wertheimer. 1996. Prey availability to juvenile salmon after the *Exxon Valdez* oil spill. Pages 564-577 in S.D. Rice, 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.

Childress, J. and J. Hall. 1998. Oil-spill ecology. Science Teacher. 65(7):32-35.

Collier, T.K., M.M. Krahn, C.A. Krone, L.L. Johnson, M.S. Myers, S.-L. Chan, and U. Varanasi. 1993. Oil exposure and effects in subtidal fish following the *Exxon Valdez* oil spill. Pages 301-305 in Proceedings of the 1993 International Oil Spill Conference: Prevention, Preparedness, Response. American Petroleum Institute Publication 4580. Washington, D.C.

_____, _____, _____, _____, _____, _____, and _____. 1993. Survey of oil exposure and effects in subtidal fish following the *Exxon Valdez* oil spill: 1989-1991. Pages 235-238 in S.D. Rice, 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.

_____, C.A. Krone, M.M. Krahn, J.E. Stein, S.-L. Chan, and U. Varanasi. 1996. Petroleum exposure and associated biochemical effects in subtidal fish following the *Exxon Valdez* oil spill. Pages 671-683 in S.D. Rice, 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.

Cronin, M.A., J.L. Bodkin, B.E. Ballachey, J.A. Estes, and J.C. Patton. 1995. Mitochondrial DNA variation among subspecies and populations of sea otters (*Enhydra lutris*). Journal of Mammalogy. 77:546-557.

•Crowley, D.W. 1993. Breeding habitat of harlequin ducks in Prince William Sound, Alaska. M.S. Thesis, Oregon State University, Corvallis.

Dahlheim, M.E. and C.O. Matkin. 1994. Assessment of injuries to Prince William Sound killer whales. Pages 163-171 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

Dean, T.A., S.C. Jewett, D.R. Laur, and R.O. Smith. 1996. Injury of epibenthic invertebrates resulting from the *Exxon Valdez* oil spill. Pages 424-439 in S.D. Rice, 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.

_____, L. McDonald, M.S. Stekoll, and R.R. Rosenthal. 1993. Damage assessment of coastal habitats: lessons learned from *Exxon Valdez*. Pages 695-697 in Proceedings of the 1993 International Oil Spill Conference: Prevention, Preparedness, Respor[illegible] American Petroleum Institute Publication 4580. Washington, D.C.

_____, M.S. Stekoll, S.C. Jewett, R.O. Smith, and J.E. Hose. 1998. Eelgrass (*Zostera marina* L.) in Prince William Sound, Alaska: effects of the *Exxon Valdez* oil spill. Marine Pollution Bulletin. 36(3):201-210.

_____, _____, and R.O. Smith. 1996. Kelps and oil: the effects of the *Exxon Valdez* oil spill on subtidal algae. Pages 412-423 in S.D. Rice, 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.

DeGange, A.R., B.E. Ballachey, and K. Bayha. 1995. Release strategies for rehabilitated sea otters. Pages 141-151 in T.M. Williams and R.W. Davis, eds. Emergency Care and Rehabilitation of Oiled Sea Otters: A Guide for Oil Spills Involving Fur Bearing Animals. University of Alaska Press. Fairbanks.

•_____, A.M. Doroff, and D.H. Monson. 1994. Experimental recovery of sea otter carcasses at Kodiak Island, Alaska, following the *Exxon Valdez* oil spill. Marine Mammal Science. 10(4):492-496.

_____, and C.J. Lensink. 1990. Distribution, age, and sex composition of sea otter carcasses recovered during the response to the *T/V Exxon Valdez* oil spill. Pages 124-129 in K. Bayha and J. Kormendy, tech. coords. and eds. Sea Otter Symposium: Proceedings of a Symposium to Evaluate the Response Effort on Behalf of Sea Otters After the *T/V Exxon Valdez* Oil Spill into Prince William Sound. U.S. Fish and Wildlife Biological Report 90(12).

_____, D.H. Monson, D.B. Irons, C.M. Robbins, and D.C. Douglas. 1990. Distribution and relative abundance of sea otters in south-central and south-western Alaska before or at the time of the *T/V Exxon Valdez* oil spill. Pages 18-25 in K. Bayha and J. Kormendy, tech. coords. and eds. Sea Otter Symposium: Proceedings of a Symposium to Evaluate the Response Effort on Behalf of Sea Otters After the *T/V Exxon Valdez* Oil Spill into Prince William Sound. U.S. Fish and Wildlife Biological Report 90(12).

_____, and T.D. Williams. 1990. Procedures and rationale for marking sea otters captured and treated during the *T/V Exxon Valdez* oil spill. Pages 394-399 in K. Bayha and J. Kormendy, tech. coords. and eds. Sea Otter Symposium: Proceedings of a Symposium to Evaluate the Response Effort on Behalf of Sea Otters After the *T/V Exxon Valdez* Oil Spill into Prince William Sound. U.S. Fish and Wildlife Biological Report 90(12).

Doroff, A.M. and J.L. Bodkin. 1994. Sea otter foraging behavior and hydrocarbon levels in prey. Pages 193-208 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

Driskell, W.B., A.K. Fukuyama, J.P. Houghton, D.C. Lees, A.J. Mearns, and G. Shigenaka. 1996. Recovery of Prince William Sound intertidal infauna from *Exxon Valdez* oiling and shoreline treatments, 1989 through 1992. Pages 362-378 in S.D. Rice, 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.

Duffy, L.K., R.T. Bowyer, J. W. Testa, and J.B. Faro. 1996. Acute phase proteins and cytokines in Alaskan mammals as markers of chronic exposure to environmental pollutants. Pages 809-813 in S.D. Rice, 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.

_____, _____, _____, and _____. 1994. Chronic effects of the *Exxon Valdez* oil spill on blood and enzyme chemistry of river otters. Environmental Toxicology and Chemistry. 13(4):643-647.

•_____, _____, _____, and _____. 1994. Evidence for recovery of body mass and haptoglobin values of river otters following the *Exxon Valdez* oil spill. Journal of Wildlife Diseases. 30(3):421-425.

_____, _____, _____, and _____. 1993. Differences in blood haptoglobin and length-mass relationships in river otters (*Lutra canadensis*) from oiled and nonoiled areas of Prince William Sound, Alaska. Journal of Wildlife Diseases. 29(2):353-359.

Duncan, P.B. and A.J. Hooten. 1996. Influence of residual and applied oil on intertidal algal recruitment. Pages 238-248 in S.D. Rice, 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.

Ebert, T.A. and D.C. Lees. 1996. Growth and loss of tagged individuals of the predatory snail *Nucella lamellosa* in areas within the influence of the *Exxon Valdez* oil spill in Prince William Sound. Pages 349-361 in S.D. Rice, 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.

Edmundson, J.A., G.B. Kyle, S.R. Carlson, and P.A. Shields. 1997. Trophic-level responses to nutrient treatment of meromictic and glacially influenced Coghill Lake. Alaska Fishery Research Bulletin. 4(2):136-153.

•Fadely, B.S. 1997. Investigations of harbor seal health status and body condition in the Gulf of Alaska. Ph.D. Thesis. University of Alaska Fairbanks.

•Falkenberg, C.S. and R. Kulkarni. 1995. Using spatial access methods to support the visualization of environmental data. Pages 400-403 in Proceedings of Visualization '95. IEEE Computer Society Press.

Fall, J.A. 1990. The Division of Subsistence of the Alaska Department of Fish and Game: an overview of its research program and findings: 1980-1990. Arctic Anthropology. 27(2):68-92.

_____, and L.J. Field. 1996. Subsistence uses of fish and wildlife before and after the *Exxon Valdez* oil spill. Pages 819-836 in S.D. Rice, 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.

Fleeger, J.W., T.C. Shirley, M.G. Carls, and M.A. Todaro. 1996. Meiofaunal recolonization experiment with oiled sediments. Pages 271-285 in S.D. Rice, 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.

Ford, R.G., M.L. Bonnell, D.H. Varoujean, G.W. Page, H.R. Carter, B.E. Sharp, D. Heinemann, and J.L. Casey. 1996. Total direct mortality of seabirds from the *Exxon Valdez* oil spill. Pages 684-711 in S.D. Rice, 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.

Frost, K.J., L.F. Lowry, E.H. Sinclair, J. Ver Hoef, and D.C. McAllister. 1994. Impacts on distribution, abundance, and productivity of harbor seals. Pages 97-118 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

_____, C.A. Manen, and T.L. Wade. 1994. Petroleum hydrocarbons in tissues of harbor seals from Prince William Sound and the Gulf of Alaska. Pages 331-358 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

Gage, T.K. 1998. Effects of invertebrate predators on clam populations in Prince William Sound, Alaska, with implications for the recovery of sea otters from the *Exxon Valdez* oil spill. M.S. Thesis. University of Washington.

•Garrott, R.A., L.L. Eberhardt, and D.M. Burn. 1993. Mortality of sea otters in Prince William Sound following the *Exxon Valdez* oil spill. Marine Mammal Science. 9(4):343-359.

Geiger, H.J., B.G. Bue, S. Sharr, A.C. Wertheimer, and T.M. Willette. 1996. A life history approach to estimating damage to Prince William Sound pink salmon caused by the *Exxon Valdez* oil spill. Pages 487-498 in S.D. Rice, 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.

Golot, G.H., D.B. Irons, and J.A. Estes. 1998. Survival costs of chick rearing in black-legged kittiwakes. Journal of Animal Ecology. 67:827-841.

Greene, B.A. and J.E. Seeb. 1997. SINE and transposon sequences generate high-resolution DNA fingerprints, "SINE-prints," which exhibit faithful Mendelian inheritance in pink salmon (*Oncorhyncus gorbuscha*). Molecular Marine Biology and Biotechnology. 6(4):328-338.

Gundlach, E.R., E.A. Pavia, C. Robinson, and J.C. Gibeaut. 1991. Shoreline surveys at the *Exxon Valdez* oil spill: the state of Alaska response. Pages 519-529 in Proceedings of the 1991 International Oil Spill Conference: Prevention, Behavior, Control, Cleanup. American Petroleum Institute Publication 4529. Washington, D.C.

Haebler, R.J., R.K. Harris, J.M. Pletcher, R.B. Moeller, T.P. Lipscomb, M. Bates, and C. Armitstead. 1990. Pathological examination and collection of toxicological samples from sea otters. Pages 369-374 in K. Bayha and J. Kormendy, tech. coords. and Sea Otter Symposium: Proceedings of a Symposium to Evaluate the Response Effort on Behalf of Sea Otters After the *T/V Exxon Valdez* Oil Spill into Prince William Sound. U.S. Fish and Wildlife Biological Report 90(12).

_____, R.K. Wilson, and C.R. McCormick. 1990. Determining health of rehabilitated sea otters before release. Pages 390-393 in K. Bayha and J. Kormendy, tech. coords. and eds. Sea Otter Symposium: Proceedings of a Symposium to Evaluate the Response Effort on Behalf of Sea Otters After the *T/V Exxon Valdez* Oil Spill into Prince William Sound. U.S. Fish and Wildlife Biological Report 90(12).

Harris, P.M., S.D. Rice, M.M. Babcock, and C.C. Brodersen. 1996. Within-bed distribution of *Exxon Valdez* crude oil in Prince William Sound blue mussels and underlying sediments. Pages 298-308 in S.D. Rice, 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.

Harris, R.K., R.B. Moeller, T.P. Lipscomb, R.J. Haebler, P.A. Tuomi, C.R. McCormick, A.R. DeGange, D. Mulcahy, T.D. Williams, and J.M. Pletcher. 1990. Identification of a herpes-like virus in sea otters during rehabilitation after the *T/V Exxon Valdez* oil spill. Pages 366-368 in K. Bayha and J. Kormendy, tech. coords. and eds. Sea Otter Symposium: Proceedings of a Symposium to Evaluate the Response Effort on Behalf of Sea Otters After the *T/V Exxon Valdez* Oil Spill into Prince William Sound. U.S. Fish and Wildlife Biological Report 90(12).

Harvey, J.T. and M.E. Dahlheim. 1994. Cetaceans in oil. Pages 257-264 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

Hatch, S.A., G.V. Byrd, D.B. Irons, and G.L. Hunt. 1993. Status and ecology of kittiwakes (*Rissa tridactyla* and *R. brevirostris*) in the north Pacific. Pages 140-153 in K. Vermeer, K.T. Briggs, K.H. Morgan, and D. Siegal-Causey, eds. The Status, Ecology, and Conservation of Marine Birds of the North Pacific. Canadian Wildlife Service Special Publication. Ottawa.

Hayes, D.L. and K.J. Kuletz. 1997. Decline of pigeon guillemot populations in Prince William Sound, Alaska, and apparent chai

in distribution and abundance of their prey. Pages 699-702 in Forage Fishes in Marine Ecosystems: Proceedings of the International Symposium on the Role of Forage Fish in Marine Ecosystems. Alaska Sea Grant College Program Report 97-01.

•Hecker, M.K., L.K. Duffy, G.M. Blundell, and R.T. Bowyer. 1997. River otters as a sentinel species: effect and detection of crude oil on the fur of river otters. Pages 100-102 in B. Jessup and J. Mazet, eds. Effects of Oil on Wildlife: Proceedings of the Fifth International Conference on Oil Spills.

Hepler, K.R., P.A. Hanse, and D.R. Bernard. 1996. Impact of oil spilled from the *Exxon Valdez* on survival and growth of Dolly Varden. Pages 645-658 in S.D. Rice, 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.

•Hershberger, P.K., R.M. Kocan, N.E. Elder, T.R. Meyers, J.R. Winton. In press. Epizootology of viral hemorrhagic septicemia virus in Pacific herring from the spawn-on-kelp fishery in Alaska, U.S.A. Diseases of Aquatic Organisms.

Highsmith, R.C., T.L. Rucker, M.S. Stekoll, S.M. Saupe, M.R. Lindeberg, R.N. Jenne, and W.P. Erickson. 1996. Impact of the *Exxon Valdez* oil spill on intertidal biota. Pages 212-237 in S.D. Rice, 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.

Hilborn, R. 1996. Detecting population impacts from oil spills: a comparison of methodologies. Pages 639-644 in S.D. Rice, 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.

•_____, B.G. Bue, and S. Sharr. In press. Estimating spawning escapements from periodic counts: a comparison of methods. Canadian Journal of Fisheries and Aquatic Sciences.

Hom, T., U. Varanasi, J.E. Stein, C.A. Sloan, K.L. Tilbury, and S.-L. Chan. 1996. Assessment of the exposure of subsistence fish to aromatic compounds after the *Exxon Valdez* oil spill. Pages 856-866 in S.D. Rice, 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.

Hooten, A.J. and R.C. Highsmith. 1996. Impacts on selected intertidal invertebrates in Herring Bay, Prince William Sound, after the *Exxon Valdez* oil spill. Pages 249-270 in S.D. Rice, 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.

•Hose, J.E., E.D. Biggs, B.L. Norcross, M.D. McGurk, R.M. Kocan, and J.W. Short. In press. Genetic damage in larval herring following the *Exxon Valdez* oil spill. Canadian Journal of Fisheries and Aquatic Sciences.

_____, M.D. McGurk, G.D. Marty, D.E. Hinton, E.D. Brown, and T.T. Baker. 1996. Sublethal effects of the *Exxon Valdez* oil spill on herring embryos and larvae: morphologic, cytogenetic, and histopathological assessments, 1989-1991. Canadian Journal of Fisheries and Aquatic Sciences. 53(10):2355-2365.

Houghton, J.P., D.C. Lees, W.B. Driskell, S.C. Lindstrom, and A.J. Mearns. 1996. Recovery of Prince William Sound intertidal epibiota from *Exxon Valdez* oiling and shoreline treatments, 1989 through 1992. Pages 379-411 in S.D. Rice, 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.

Irons, D.B. 1998. Foraging area fidelity of individual seabirds in relation to tidal cycles and flock foraging. Ecology. 79(2):647-655.

_____. 1996. Size and productivity of black-legged kittiwake colonies in Prince William Sound before and after the *Exxon Valdez* oil spill. Pages 738-747 in S.D. Rice, 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.

_____. 1992. Aspects of foraging behavior and reproductive biology of the black-legged kittiwake. Ph.D. Thesis. University of California, Irvine.

Iverson, S.J., K.J. Frost, and L.F. Lowry. 1997. Fatty acids signatures reveal fine scale structure of foraging distribution of harbor seals and their prey in Prince William Sound, Alaska. Marine Ecology Progress Series. 151:255-271.

Jewett, S.C., T.A. Dean, and D.R. Laur. 1996. Effects of the *Exxon Valdez* oil spill on benthic invertebrates in an oxygen-deficient embayment in Prince William Sound, Alaska. Pages 440-447 in S.D. Rice, 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.

Johnson, S.W., M.G. Carls, R.P. Stone, C.C. Brodersen, and S.D. Rice. 1997. Reproductive success of Pacific herring (*Clupea pallasi*) in Prince William Sound, Alaska, six years after the *Exxon Valdez* oil spill. Fishery Bulletin. 95:748-761.

•Kanatous, S.B. 1997. High aerobic capacities and the role of intramuscular triglycerides in the skeletal muscles of seals, sea lions and fur seals. Ph.D. Thesis. Texas A & M University, Galveston.

•Kappe, A.L., L. Van de Zande, E.J. Vedder, R. Bijlsma, and W. Van Delden. 1995. Genetic variation in *Phoca vitulina* (the harbor seal) revealed by DNA fingerprinting and RAPDs. Heredity. 74:647-653.

Kendall, S.J. and B.A. Agler. 1998. Distribution and abundance of Kittlitz's murrelets in Southcentral and Southeastern Alaska. Colonial Waterbirds. 21(1):53-60.

•Khan, R.A. 1991. Effect of oil-contaminated sediment on the longhorn sculpin (*Myoxocephalus octodecemspinosus*) following chronic exposure. Bulletin of Environmental Contamination and Toxicology. 47:63-69.

•_____. 1990. Parasitism in marine fish after chronic exposure to petroleum hydrocarbons in the laboratory and to the *Exxon Valdez* oil spill. Bulletin of Environmental Contamination and Toxicology. 44(5):759-763.

Kline, T.C., Jr. 1997. Confirming forage fish food web dependencies in Prince William Sound using natural stable isotope tracers. Pages 257-269 in Forage Fishes in Marine Ecosystems: Proceedings of the International Symposium on the Role of Forage Fish in Marine Ecosystems. Alaska Sea Grant College Program Report 97-01.

Kocan, R.M. 1996. Fish embryos as in situ monitors of aquatic pollution. Pages 73-91 in G.K. Ostrander, ed. Techniques in Aquatic Toxicology. Lewis Publishers, Boca Raton.

_____, M. Bradley, N. Elder, T. Meyers, W. Batts, and J. Winston. 1997. The North American strain of viral hemorrhagic septicemia virus is highly pathogenic for laboratory-reared Pacific herring (*Clupea pallasi*). Journal of Aquatic Animal Health. 9:279-290.

•_____, P. Hershberger, T. Mehl, N. Elder, M. Bradley, D. Wildermuth, K. Stick. 1998. Pathogenicity of *Ichthyophonus hoferi* for laboratory-reared Pacific herring, *Clupea pallasi*, and its early appearance in wild Puget Sound herring. Diseases of Aquatic Organisms. 35:23-29

•_____ and J.E. Hose. In press. Correspondence between laboratory and field observations of sublethal damage in marine fish larvae: lessons from the effects of the *Exxon Valdez* oil spill on Prince William Sound herring. Journal of Toxicology and Environmental Health.

•_____ and _____. 1997. Laboratory and field observations of sublethal damage in marine fish larvae: lessons from the effects of the *Exxon Valdez* oil spill. Pages ___ - ___ in R.M. Rolland, M. Gilbertson, and R.E. Peterson, eds. Chemically Induced Alterations in Functional Development and Reproduction of Fishes. Society for Environmental Toxicology and Chemistry, Pensacola.

_____,_____, E.D. Brown and T.T. Baker. 1996. Pacific herring embryo (*Clupea pallasi*) sensitivity to Prudhoe Bay petroleum hydrocarbons: laboratory evaluation and in situ exposure at oiled and unoiled sites in Prince William Sound. Canadian Journal of Fisheries and Aquatic Sciences. 53(10):2366-2375.

_____, G.D. Marty, M.S. Okihiro, E.D. Biggs, and T.T. Baker. 1996. Reproductive success and histopathology of individual Prince William Sound herring three years after the *Exxon Valdez* oil spill. Canadian Journal of Fisheries and Aquatic Sciences. 53(10):2388-2393.

•Krahn, M.M., D.G. Burrows, G.M. Ylitalo, D.W. Brown, C.A. Wigren, T.K. Collier, S.-L. Chan, and U. Varanasi. 1992. Mass spectrometric analysis for aromatic compounds in bile of fish sampled after the *Exxon Valdez* oil spill. Environmental Science and Technology. 26(1):116-126.

•_____, G. Ylitalo, J. Buzitis, S.-L. Chan, and U. Varanasi. 1993. Review: Rapid high-performance liquid chromatographic methods that screen for aromatic compounds in environmental samples. Journal of Chromatography. 642:15-32.

•_____, _____, _____, _____, _____, T.L. Wade, and T.J. Jackson. 1993. Comparison of high-performance liquid chromatography/fluorescence screening and gas chromatography/mass spectrometry analysis for aromatic compounds in sediments sampled after the *Exxon Valdez* oil spill. Environmental Science and Technology. 27(4):699-708.

_____, _____, _____, C.A. Krone, J.E. Stein, S.-L. Chan, and U. Varanasi. 1993. Screening methods for assessing damage to natural resources following the *Exxon Valdez* oil spill. Pages 699-708 in Proceedings of the 1993 International Oil Spill Conference: Prevention, Preparedness, Response. American Petroleum Institute Publication 4580. Washington, D.C.

Kuletz, K.J. 1996. Marbled murrelet abundance and breeding activity at Naked Island, Prince William Sound, and Kachemak Bay, Alaska, before and after the *Exxon Valdez* oil spill. Pages 770-784 in S.D. Rice, 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.

_____, and S.J. Kendall. 1998. A productivity index for marbled murrelets in Alaska based on surveys at sea. Journal of Wildlife Management. 62(2):446-460.

_____, and D.K. Marks. 1997. Post-fledging behavior of a radio-tagged juvenile marbled murrelet. Journal of Field Ornithology. 68(3):421-425.

_____, _____, N.L. Naslund, N.J. Goodson, and M.B. Cody. 1995. Inland habitat suitability for the marbled murrelet in southcentral Alaska. Pages 141-149 in Ecology and Conservation of the Marbled Murrelet. USDA Forest Service General Technical Report PSW-GTR-152.

_____, _____, _____, and M.B. Cody. 1995. Marbled murrelet activity relative to forest characteristics in the Naked Island area, Prince William Sound, Alaska. Northwestern Naturalist. 76(1): 4-11.

•_____ and J.F. Piatt. In press. Juvenile marbled murrelet nurseries and the productivity index. Wilson Bulletin.

Laur, D.R. and L. Haldorson. 1996. Coastal habitat studies: the effect of the *Exxon Valdez* oil spill on shallow subtidal fishes in Prince William Sound. Pages 659-670 in S.D. Rice, 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.

Lees, D.C., J.P. Houghton, and W.B. Driskell. 1996. Short-term effects of several types of shoreline treatment on rocky intertidal biota in Prince William Sound. Pages 329-348 in S.D. Rice, 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.

•Lehman, N., R.K. Wayne, and B.S. Stewart. 1993. Comparative levels of genetic variability in harbour seals and northern elephant seals as determined by genetic fingerprinting. Pages 49-60 in I.L. Boyd, ed. Marine Mammals: Advance in Behavioral and Population Biology. Symposia of the Zoological Society of London. Clarendon Press. Number 66.

Lindstrom, J.E., R.C. Prince, J.C. Clark, M.J. Grossman, T.R. Yeager, J.F. Braddock, and E.J. Brown. 1991. Microbial populations and hydrocarbon biodegradation potentials in fertilized shoreline sediments affected by the *T/V Exxon Valdez* oil spill. Applied and Environmental Microbiology. 57(9):2514-2522.

•Lipscomb, T.P., R.K. Harris, R.B. Moeller, J.M. Pletcher, R.J. Haebler, and B.E. Ballachey. 1993. Histopathologic lesions in sea otters exposed to crude oil. Veterinary Pathology. 30(1):1-11.

_____, _____, A.H. Rebar, B.E. Ballachey, and R.J. Haebler. 1994. Pathology of sea otters. Pages 265-279 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

Loughlin, T.R., ed. 1994. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego. 395 pp.

_____. 1994. Tissue hydrocarbon levels and the number of cetaceans found dead after the spill. Pages 350-370 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

_____, B.E. Ballachey, and B.A. Wright. 1996. Overview of studies to determine injury caused by the *Exxon Valdez* oil spill to

marine mammals. Pages 798-808 in S.D. Rice, 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.

_____, and E.H. Sinclair. 1994. Sample collection, storage, and documentation. Pages 377-382 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

Lowry, L.F., K.J. Frost, and K.W. Pitcher. 1994. Observation of oiling of harbor seals in Prince William Sound. Pages 209-225 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

•Maniscalco, J. 1996. Seabirds at feeding flocks in Prince William Sound, Alaska. M.S. Thesis, University of Alaska Fairbanks, Juneau Center, Alaska.

_____ and W.D. Ostrand. 1997. Seabird behaviors at forage fish schools in Prince William Sound, Alaska. Pages 175-189 in Forage Fishes in Marine Ecosystems: Proceedings of the International Symposium on the Role of Forage Fish in Marine Ecosystems. Alaska Sea Grant College Program Report 97-01.

Marks, D.K., K.J. Kuletz, and N.L. Naslund. 1995. Use of boat-based surveys to determine coastal inland habitat associations of marbled murrelets in Prince William Sound, Alaska. Northwestern Naturalist. 76(1): 63-72.

_____ and N.L. Naslund. 1994. Sharp-shinned hawk preys on a marbled murrelet nesting in old-growth forest. Wilson Bulletin. 106(3):565-567.

•Marty, G.D., M.S. Okihiro, E.D. Brown, D. Hanes, and D.E. Hinton. In press. Histopathology of adult Pacific herring in Prince William Sound, Alaska, after the *Exxon Valdez* oil spill. Canadian Journal of Fisheries and Aquatic Sciences.

_____, E.F. Freiberg, T.R. Meyers, J. Wilcock, T.B. Farver, and D.E. Hinton. 1998. Viral hemorrhagic septicemia virus, Ichthyophonus hoferi, and other causes of morbidity in Pacific herring (*Clupea pallasi*) in Prince William Sound, Alaska, USA. Diseases of Aquatic Organisms. 32:15-40.

_____, R.A. Heintz, and D.E. Hinton. 1997. Histology and teratology of pink salmon larvae near the time of emergence from gravel substrate in the laboratory. Canadian Journal of Zoology. 75:978-988.

_____, J.E. Hose, M.D. McGurk, E.D. Brown, and D.E. Hinton. 1997. Histopathology and cytogenetic evaluation of Pacific herring larvae exposed to petroleum hydrocarbons in the laboratory or in Prince William Sound, Alaska, after the *Exxon Valdez* oil spill. Canadian Journal of Fisheries and Aquatic Sciences. 54:1846-1857.

_____, J.W. Short, D.M Dambach, N.H. Willits, R.A. Heintz, S.D. Rice, J.J. Stegeman, and D.E. Hinton. 1997. Ascites, premature emergence, increased gonadal cell apoptosis, and cytochrome-P4501A induction in pink salmon larvae continuously exposed to oil-contaminated gravel during development. Canadian Journal of Zoology. 75:989-1007.

Matkin, C.O., G.M. Ellis, M.E. Dahlheim, and J. Zeh. 1994. Status of killer whales in Prince William Sound, 1985-1992. Pages 141-162 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

•_____, G. Ellis, P.O. Olesiuk, and E.L. Saulitis. In press. Association patterns and genealogies of resident killer whales (*Orcinus orea*) in Prince William Sound, Alaska. Fishery Bulletin. 98(1).

_____, D.R. Matkin, G.M. Ellis, E. Saulitis, and D. McSweeney. 1997. Movements of resident killer whales in southeastern Alaska and Prince William Sound, Alaska. Marine Mammal Science. 13(3):469-475.

McDonald, L.L., W.P. Erickson, and M.D. Strickland. 1995. Survey design, statistical analysis, and basis for statistical inferences in coastal habitat injury assessment: *Exxon Valdez* oil spill. Pages 296-311 in Wells, P.G., J.N. Butler, and J.S. Hughes, eds. *Exxon Valdez* oil spill: fate and effects in Alaskan waters. American Society for Testing and Materials ASTM STP 1219.

McGurk, M.D. and E.D. Brown. 1996. Egg-larval mortality of Pacific herring in Prince William Sound, Alaska, after the *Exxon Valdez* oil spill. Canadian Journal of Fisheries and Aquatic Sciences. 53(10):2343-2354.

Mearns, A.J. 1996. *Exxon Valdez* shoreline treatment and operations: implications for response, assessment, monitoring, and research. Pages 309-328 in S.D. Rice, R.B. Spies, D.A. Wolfe, and B.A. Wright, eds. Proceedings of the *Exxon Valde*

Spill Symposium. American Fisheries Society Symposium Number 18.

Miller, G.D., J.E. Seeb, B.G. Bue, and S. Sharr. 1994. Saltwater exposure at fertilization induces ploidy alterations, including mosaicism, in salmonids. Canadian Journal of Fisheries and Aquatic Sciences. 51(Supplement 1):42-49.

•Miller, S.D., G.C. White, R.A. Sellers, H.V. Reynolds, J.W. Schoen, K. Titus, V.G. Barnes, Jr., R.B. Smith, R.R. Nelson, W.B. Ballard, and C.C. Schwartz. 1997. Brown and black bear density estimation in Alaska using radiotelemetry and replicated mark-resight techniques. Wildlife Monographs 133:1-55.

•Moles, A. 1996. Effects of oil laden sediments on behavior and growth of juvenile flatfishes. Ph.D. Thesis. University of Alaska Fairbanks, Alaska.

•_____ and B.L. Norcross. 1998. Effects of oil laden sediments on growth and health of juvenile flatfishes. Canadian Journal of Fisheries and Aquatic Sciences. 55(3):605-610.

•_____ and _____. 1994. Non-avoidance of hydrocarbon laden sediments by juvenile flatfishes. Netherlands Journal of Sea Research. 32:361-367.

_____, S.D. Rice, and M.S. Okihiro. 1993. Herring parasite and tissue alteration following the *Exxon Valdez* oil spill. Pages 325-328 in Proceedings of the 1993 International Oil Spill Conference: Prevention, Preparedness, Response. American Petroleum Institute Publication 4580. Washington, D.C.

Monnett, C.W., L.M. Rotterman, C. Stack, and D. Monson. 1990. Postrelease monitoring of radio-instrumented sea otters in Prince William Sound. Pages 400-420 in K. Bayha and J. Kormendy, tech. coords. and eds. Sea Otter Symposium: Proceedings of a Symposium to Evaluate the Response Effort on Behalf of Sea Otters After the *T/V Exxon Valdez* Oil Spill into Prince William Sound. U.S. Fish and Wildlife Biological Report 90(12).

•Mooers, C.N.K. and J. Wang. 1997. On the development of a three-dimensional circulation model for Prince William Sound, Alaska. Continental Shelf Research. In press.

Morris, B. F. and T.R. Loughlin. 1994. Overview of the *Exxon Valdez* oil spill, 1989-1994. Pages 1-22 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

•Mortenson, D.M. and M.G. Carls. 1995. Effects of crude oil ingestion on growth and microstructure of juvenile pink salmon (*Oncorhynchus gorbuscha*) otoliths. Pages 197 - 209 in D.H. Secor, J.M. Dean, and S.E. Campana, eds. Recent Developments in Fish Otolith Research, Belle W. Barusch Library in Marine Science Number 19, University of South Carolina Press.

Mulcahy, D.M. and B.E. Ballachey. 1994. Hydrocarbon residues in sea otter tissues. Pages 313-330 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

Naslund, N.L., K.J. Kuletz, M.B. Cody, and D.K. Marks. 1995. Tree and habitat characteristics and reproductive success at marbled murrelet tree nests in Alaska. Northwestern Naturalist. 76(1):12-25.

•Norcross, B.L., J.E. Hose, M. Frandsen, and E.D. Brown. 1996. Distribution, abundance, morphological condition and cytogenetic abnormalities of larval herring in Prince William Sound, Alaska, following the Exxon Valdez oil spill. Canadian Journal of Fisheries and Aquatic Sciences. 53(10):2376-2387.

_____ and M. Frandsen. 1996. Distribution and abundance of larval fishes in Prince William Sound, Alaska, during 1989 after the *Exxon Valdez* oil spill. Pages 463-486 in S.D. Rice, 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.

Oakley, K.L. and K.J. Kuletz. 1996. Population, reproduction, and foraging of pigeon guillemots at Naked Island, Alaska, before and after the *Exxon Valdez* oil spill. Pages 759-769 in S.D. Rice, 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.

O'Clair, C.E., J.W. Short, and S.D. Rice. 1996. Contamination of intertidal and subtidal sediments by oil from the *Exxon Valdez* in Prince William Sound. Pages 61-93 in S.D. Rice, 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.

Olsen, J.B., J.K. Wenburg, and P. Bentzen. 1996. Semiautomated multilocus genotyping of Pacific salmon (*Oncorhnychus* spp.) using microsatellites. Molecular Marine Biology and Biotechnology. 5(4):259-272.

Ostrand, W.D., K.O. Coyle, G.S. Drew, J.M. Maniscalco, and D.B. Irons. 1998. Selection of forage-fish schools by murrelets and tufted puffins in Prince William Sound, Alaska. Condor. 100:286-297.

_____, _____, _____, _____, and _____. 1997. Selection of forage-fish schools by murrelets and tufted puffins in Prince William Sound, Alaska. Pages 171-173 in Forage Fishes in Marine Ecosystems: Proceedings of the International Symposium on the Role of Forage Fish in Marine Ecosystems. Alaska Sea Grant College Program Report 97-01.

_____, G.S. Drew, R.M. Suryan and L.L. McDonald. 1998. Evaluation of radio-tracking and strip transect methods for determining foraging ranges of black-legged kittiwakes. Condor. 100(4):709-718.

Paul, A.J. 1997. Use of bioenergetic measurements to estimate prey consumption, nutritional status and thermal habitat requirements for marine organisms reared in the sea. Bulletin of the National Research Institute of Aquaculture. Supplement 3:59-68.

_____ and J.M. Paul. 1998. Comparisons of whole body energy content of captive fasting age zero Alaskan Pacific herring (*Clupea pallasi* Valenciennes) and cohorts over-wintering in nature. Journal of Experimental Marine Biology and Ecology. 226:75-86.

•_____, _____, and E.D. Brown. 1996. Ovarian energy content of Pacific herring from Prince William Sound, Alaska. Alaska Fishery Research Bulletin. 3(2):103-111.

_____, _____, and _____. 1998. Fall and spring somatic energy content for Alaskan Pacific herring (*Clupea pallasi* Valenciennes 1847) relative to age, size and sex. Journal of Experimental Marine Biology and Ecology. 223:133-142.

_____, _____, and R.L. Smith. 1998. Seasonal changes in whole-body energy content and estimated consumption rates of age 0 walleye pollock from Prince William Sound, Alaska. Estuarine, Coastal and Shelf Science. 47:251-259.

_____ and M. Willette. 1997. Geographical variation in somatic energy content of migrating pink salmon fry from Prince Willian Sound: a tool to measure nutritional status. Pages 707-720 in Forage Fishes in Marine Ecosystems: Proceedings of the International Symposium on the Role of Forage Fish in Marine Ecosystems. Alaska Sea Grant College Program Report 97-01.

Piatt, J.F. and P. Anderson. 1996. Response of common murres to the *Exxon Valdez* oil spill and long-term changes in the Gulf of Alaska marine ecosystem. Pages 720-737 in S.D. Rice, 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.

_____, and R.G. Ford. 1996. How many seabirds were killed by the *Exxon Valdez* oil spill? Pages 712-719 in S.D. Rice, 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.

•_____, and C.J. Lensink. 1989. *Exxon Valdez* bird toll. Nature. 342:865-866.

•_____, _____, W. Butler, M. Kendziorek, and D.R. Nysewander. 1990. Immediate impact of the *Exxon Valdez* oil spill on marine birds. Auk. 107(2):387-397.

Picou, J.S. and D.A. Gill. 1996. The *Exxon Valdez* oil spill and chronic psychological stress. Pages 879-893 in S.D. Rice, 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.

•Prichard, A.K. 1997. Evaluation of pigeon guillemots as bioindicators of nearshore ecosystem health. M.S. Thesis. University of Alaska Fairbanks.

Quinn, T.J. and R. Gates. 1997. Estimation of salmon escapement: models with entry, mortality and stochasticity. Natural Resource Modeling. 10(3):217-250.

•Rebar, A.H., T.P. Lipscomb, R.K. Harris, and B.E. Ballachey. 1995. Clinical and clinical laboratory correlates in sea otters dying unexpectedly in rehabilitation centers following the *Exxon Valdez* oil spill. Veterinary Clinical Pathology. 32:346-350.

•Robards, M.D., J.F. Piatt, and G.A. Rose. In press. Maturation, fecundity, and intertidal spawning of Pacific sand lance (*Ammodytes hexapterus*) in the Northern Gulf of Alaska. Journal of Fish Biology.

Rock, K.R., E.S. Rock, R.T. Bowyer, and J.B. Faro. 1994. Degree of association and use of a helper by coastal river otters, *Lutra canadensis*, in Prince William Sound, Alaska. Canadian Field Naturalist. 108:367-369.

•Rooper, C.N. 1996. Physical and biological factors affecting Pacific herring egg loss in Prince William Sound, Alaska. M.S. Thesis. University of Alaska Fairbanks.

Roseneau, D.G. and G.V. Byrd. 1997. Using Pacific halibut to sample the availability of forage fishes to seabirds. Pages 231-241 in Forage Fishes in Marine Ecosystems: Proceedings of the International Symposium on the Role of Forage Fish in Marine Ecosystems. Alaska Sea Grant College Program Report 97-01.

•Roy, N.K., J. Stabile, J.E. Seeb, C. Habicht, and I. Wirgin. In press. An evaluation of molecular genetic damage to pink salmon embryos experimentally exposed to Prudhoe Bay crude oil. Environmental Toxicology and Chemistry.

Russell, J.C., M.A. Downs, J.S. Petterson, and L.A. Palinkas. 1996. Psychological and social impacts of the *Exxon Valdez* oil spill and cleanup. Pages 867-878 in S.D. Rice, 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.

•Saxton, W.L., R.T. Newton, J. Rorberg, J. Sutton, and L.E. Johnson. 1993. Polycyclic aromatic hydrocarbons in seafood from the Gulf of Alaska following a major crude oil spill. Bulletin of Environmental Contamination and Toxicology. 51:515-522.

•Scheel, D. And K.R. Hough. 1997. Salmon fry predation by seabirds near an Alaskan hatchery. Marine Ecology Progress Series. 150:35-48.

Schell, D.M., B.A. Barnett, and K.A. Vinette. 1998. Carbon and nitrogen isotope ratios in zooplankton of the Bering, Chukchi and Beaufort seas. Marine Ecology Progress Series. 162:11-23.

•Schmidt, D.C., J.P. Koenigs, and G.B. Kyle. 1994. Predator-induced changes in copepod vertical migration: explanations for decreased overwinter survival of sockeye salmon. Pages 187-209 in D. Stouder, K. Fresh, and R. Feller, eds. Theory and Application in Fish Feeding Ecology. Belle W. Baruch Library in Marine Science Number 18.

_____, D.C., K.E. Tarbox, B.E. King, L.K. Brannian, G.B. Kyle, and S.R. Carlson. 1996. Kenai River sockeye salmon: an assessment of overescapements as a cause of the decline. Pages 628-638 in S.D. Rice, 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.

•Scribner, K.M., J.L. Bodkin, B.E. Ballachey, S.R. Fain, M.A. Cronin, and M. Sanchez. 1994 Population genetic studies of the sea otter (*Enhydra lutris*): a review and interpretation of available data. In press in Proceedings of the Marine Mammal Genetics Symposium. La Jolla.

Seeb, J.E., C. Habicht, J.B. Olsen, P. Bentzen, J.B. Shaklee, and L.W. Seeb. 1998. Allozyme, mtDNA, and microsatellite variants describe structure of populations of pink and sockeye salmon in Alaska. North Pacific Anadromous Fish Commission. Bulletin Number 1: 300-318

Senner, S.E. 1997. *Exxon Valdez* oil spill: fate and effects in Alaskan waters. Book review, pages 549-559 in W.E. Davis, Jr., ed. Ornithological literature. Wilson Bulletin. 109(3):549-559.

Sharp, B.E., M. Cody, and R. Turner. 1996. Effects of the *Exxon Valdez* oil spill on the black oystercatcher. Pages 748-758 in S.D. Rice, 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.

Short, J.W. and M.M. Babcock. 1996. Prespill and postspill concentrations of hydrocarbons in mussels and sediments in Prince William Sound. Pages 149-166 in S.D. Rice, 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.

_____, and P.M. Harris. 1996. Chemical sampling and analysis of petroleum hydrocarbons in near-surface seawater of Prince William Sound after the *Exxon Valdez* oil spill. Pages 17-28 in S.D. Rice, 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.

_____, and _____. 1996. Petroleum hydrocarbons in caged mussels deployed in Prince William Sound after the *Exxon Valdez* oil spill. Pages 29-39 in S.D. Rice, 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.

____, and R.A. Heintz. 1997. Identification of *Exxon Valdez* oil in sediments and tissues from Prince William Sound and the Northwestern Gulf of Alaska based on a PAH weathering model. Environmental Science and Technology. 31(8):2375-2384.

_____, T.J. Jackson, M.L. Larsen, and T.L. Wade. 1996. Analytical methods used for the analysis of hydrocarbons in crude oil, tissues, sediments, and seawater collected for the natural resources damage assessment of the *Exxon Valdez* oil spill. 1996. Pages 140-148 in S.D. Rice, 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.

•_____, K.A. Kvenvolden, P.R. Carlson, F.D. Hostettler, R.J. Rosenbauer, and B.A. Wright. 1998. Natural hydrocarbon background in benthic sediments of Prince William Sound, Alaska: oil vs. coal. Environmental Science and Technology. 32(24).

_____, D.M. Sale, J.C. Gibeaut. 1996. Nearshore transport of hydrocarbons and sediments after the *Exxon Valdez*. Pages 40-60 in S.D. Rice, 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.

Spies, R.B., S.D. Rice, D.A. Wolfe, and B.A. Wright. 1996. Effects of the Exxon Valdez oil spill on the Alaskan coastal environment. Pages 1-6 in S.D. Rice, 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.

Spraker, T.R. 1990. Hazards of releasing rehabilitated animals with emphasis on sea otters and the *T/V Exxon Valdez* oil spill. Pages 385-389 in K. Bayha and J. Kormendy, tech. coords. and eds. Sea Otter Symposium: Proceedings of a Symposium to Evaluate the Response Effort on Behalf of Sea Otters After the *T/V Exxon Valdez* Oil Spill into Prince William Sound. U Fish and Wildlife Biological Report 90(12).

•Spruell, P., B.A. Greene, C. Habicht, K.L. Knudsen, K.R. Lindner, K.L. Pilgrim, G.K. Sage, J.E. Seeb, and F.W. Allendorf. In press. Inheritance of nuclear DNA markers in gynogenetic haploid pink salmon (*Oncorhynchus gorbuscha*). Journal of Heredity.

_____, L.R. Lowry, and K.J. Frost. 1994. Gross necropsy and histopathological lesions found in harbor seals. Pages 281-311 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

St. Aubin, D.J. and J.R. Geraci. 1994. Summary and conclusions. Pages 371-376 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

Stekoll, M.S. and L. Deysher. 1996. Recolonization and restoration of upper intertidal *Fucus gardneri (Fucales, Phaeophyta)* following the *Exxon Valdez* oil spill. Hydrobiologia. 326/327:311-316.

_____, _____, and T.A. Dean. 1993. Seaweeds and the *Exxon Valdez* oil spill. Pages 135-140 in Proceedings of the 1993 International Oil Spill Conference: Prevention, Preparedness, Response. American Petroleum Institute Publication 4580, Washington, D.C.

_____, _____, R.C. Highsmith, S.M. Saupe, Z. Guo, W.P. Erickson, L. McDonald, and D. Strickland. 1996. Coastal habitat injury assessment: intertidal communities and the *Exxon Valdez* oil spill. Pages 177-192 in S.D. Rice, 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.

Strand, J., S. Senner, A. Weiner, S. Rabinowitch, M. Brodersen, K. Rice, K. Klinge, S. MacMullin, R. Yender, and R. Thompson. 1993. Process to identify and evaluate restoration options. Pages 245-249 in Proceedings of the 1993 International Oil Spill Conference: Prevention, Preparedness, Response. American Petroleum Institute Publication 4580. Washington, D.C.

Sturdevant, M.V., A.C. Wertheimer, and J.L. Lum. 1996. Diet of juvenile pink salmon and chum salmon in oiled and non-oiled nearshore habitats in Prince William Sound, 1989 and 1990. Pages 578-592 in S.D. Rice, 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.

Sugai, S.F., J.E. Lindstrom, and J.F. Braddock. 1997. Environmental influences on the microbial degradation of *Exxon Valdez* oil on the shorelines of Prince William Sound, Alaska. Environmental Science and Technology. 31(5):1564-1572

Sundberg, K., L. Deysher, and L. McDonald. 1996. Intertidal and supratidal site selection using a geographical information system. Pages 167-176 in S.D. Rice, 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.

•Templin, W.D. 1995. Reconstruction of wild pink salmon (*Oncorhynchus gorbuscha*) runs in Prince William Sound, Alaska. M.S. Thesis. University of Alaska, Fairbanks.

_____, J.S. Collie, and T.J. Quinn II. 1996. Run construction of the wild pink salmon fishery in Prince William Sound, 1990-1991. Pages 499-508 in S.D. Rice, 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.

•Testa, J. W., D.F. Holleman, R. T. Bowyer, and J.B. Faro. 1994. Estimating populations of marine river otters in Prince William Sound, Alaska using radiotracer implants. Journal of Mammalogy. 75(4):1021-1032.

•Thomas, R.E., C. Brodersen, M.M. Babcock, M.G. Carls, and S.D. Rice. In press. Lack of physiological responses to hydrocarbon accumulation by *Mytilus trossulus* after three to four years chronic exposure to spilled *Exxon Valdez* crude oil in Prince William Sound. Comparative Biochemistry and Physiology.

•_____, M.G. Carls, S.D. Rice, and L. Shagrun. 1997. Mixed function oxidase induction in pre- and post-spawn herring (*Clupea pallasi*) by petroleum hydrocarbons. Comparative Biochemistry and Physiology. 116C(2):141-147.

•_____, P.M. Harris and S.D. Rice. In press. Survival in air of *Mytilus trossulus* following long-term exposure to spilled *Exxon Valdez* crude oil in Prince William Sound. Comparative Biochemistry and Physiology Part C.

•_____, E.V. Patrick, J. Kirsch, and J.R. Allen. 1997. Development of an ecosystem model for managing the fisheries resources of Prince William Sound. Pages 606-613 in D.A. Hancock, D.C. Smith, A. Grant, and J.P. Beumer, eds. Developing and Sustaining World Fisheries Resources – The State of Science and Management. Second World Fisheries Congress. CSIRO Collingwood, VIC, Australia.

Udevitz, M.S. and B.E. Ballachey. 1998. Estimating survival rates with age-structure data. Journal of Wildlife Management. 62(2):779-792.

•_____, J.L. Bodkin, and D.P. Costa. 1995. Sea otter detectability in boat-based surveys of Prince William Sound, Alaska. Marine Mammal Science. 11(1):59-71.

Van Pelt, T.I., J.F. Piatt, B.K. Lance, and D.D. Roby. 1997. Proximate composition and energy density of some North Pacific forage fishes. Comparative Biochemistry and Physiology. 118A(4):1393-1398.

Van Tamelen, P.G. and M.S. Stekoll. 1996. Population response of the brown alga *Fucus gardneri* and other algae in Herring Bay, Prince William Sound, to the *Exxon Valdez* oil spill. Pages 193-211 in S.D. Rice, 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.

_____, and _____. 1996. The role of barnacles in recruitment and subsequent survival of the brown alga, *Fucus gardneri (Silva)*. Journal of Experimental Marine Biology and Ecology. 208:227-238.

_____, and _____. 1995. Recovery mechanisms of the brown alga, *Fucus gardneri*, following catastrophic disturbance: lessons from the *Exxon Valdez* oil spill. Pages 221-228 in D.R. Engstrom, ed. Proceedings of the Third Glacier Bay Science Symposium. National Park Service. Anchorage, Alaska.

•_____, _____, and L. Deysher. 1997. Recovery processes of the brown alga *Fucus gardneri* following the *Exxon Valdez* oil spill: settlement and recruitment. Marine Ecology Progress Series. 160:265-277.

•ver Hoef, J.M. 1996. Parametric empirical Bayes methods for ecological applications. Ecological Application. 6(4):1047-1055.

•Vincent, T.L.S., D. Scheel, and K.R. Hough. 1998. Some aspects of diet and foraging behavior of *Octopus dofleini* (Wulker 1910) in its northernmost range. Pubblicazioni della Stazione zoologica di Napoli 1: Marine Ecology. 19(1):13-29.

•Vogelaere, A.P. and M.S. Foster. 1994. Damage and recovery in intertidal *Fucus gardneri* assemblages following the *Exxon Valdez* oil spill. Marine Ecology Progress Series. 106:263-271.

von Ziegesar, O., E. Miller, and M.E. Dahlheim. 1994. Impacts on humpback whales in Prince William Sound. Pages 173-191 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

•Wang, J. and C.N.K. Mooers. 1996. Modeling Prince William Sound ocean circulation. Pages 36-43 in Conference on Coastal Oceanic and Atmospheric Prediction. American Meteorological Society, Boston.

•Wang, S.Y., J.L. Lum, M.G. Carls, and S.D. Rice. 1993. Relationship between growth and total nucleic acids in juvenile pink salmon, *Oncorhynchus gorbuscha*, fed crude oil-contaminated food. Canadian Journal of Fisheries and Aquatic Sciences. 50: 996-1001.

•Ward, A.E. 1997. A temporal study of the phytoplankton spring bloom in Prince William Sound, Alaska. M.S. Thesis. University of Alaska Fairbanks.

Weiner, A.H. 1998. Kenai River restoration and management. Fisheries Management and Restoration. 23(1):6-10.

_____, C. Berg, T. Gerlach, J. Grunblatt, K. Holbrook, and M. Kuwada. 1997. The *Exxon Valdez* oil spill: habitat protection as a restoration strategy. Restoration Ecology. 5(1):45-55.

Wertheimer, A.C., M.J. Bax, A.G. Celewycz, M.G. Carls, and J.H. Landingham. 1996. Harpacticoid copepod abundance and population structure in Prince William Sound, one year after the *Exxon Valdez* oil spill. Pages 551-563 in S.D. Rice, 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.

_____, and A.G. Celewycz. 1996. Abundance and growth of juvenile pink salmon in oiled and non-oiled locations of western Prince William Sound after the *Exxon Valdez* oil spill. Pages 518-532 in S.D. Rice, 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.

Wiedmer, M., M.J. Fink, J.J. Stegeman, R. Smolowitz, G.D. Marty, and D.E. Hinton. 1996. Cytochrome P-450 induction and histopathology in preemergent pink salmon from oiled spawning sites in Prince William Sound. Pages 509-517 in S.D. Rice, 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.

Willette, M. 1996. Impacts of the *Exxon Valdez* oil spill on the migration, growth, and survival of juvenile pink salmon in Prince William Sound. Pages 533-550 in S.D. Rice, 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.

•_____, R.T. Cooney, and K. Hyer. In press. Predator foraging-mode shifts affecting mortality of juvenile fishes during the subarctic spring bloom. Canadian Journal of Fisheries and Aquatic Sciences.

_____, M. Sturdevant, and S. Jewett. 1997. Prey resource partitioning among several species of forage fishes in Prince William Sound, Alaska. Pages 11-29 in Forage Fishes in Marine Ecosystems: Proceedings of the International Symposium on the Role of Forage Fish in Marine Ecosystems. Alaska Sea Grant College Program Report 97-01.

Williams, T.D. and R.K. Wilson. 1990. Blood collection and analysis during the *T/V Exxon Valdez* oil spill. Pages 362-365 in K. Bayha and J. Kormendy, tech. coords. and eds. Sea Otter Symposium: Proceedings of a Symposium to Evaluate the Response Effort on Behalf of Sea Otters After the *T/V Exxon Valdez* Oil Spill into Prince William Sound. U.S. Fish and Wildlife Biological Report 90(12).

Williams, T.M., G.A. Antonelis, and J. Balke. 1994. Health evaluation, rehabilitation, and release of oiled harbor seal pups. Pages 227-241 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

•Wolfe, D.A., M.J. Hameedi, J.A. Galt, G. Watabayashi, J. Short, C. O'Clair, S. Rice, J. Michel, J.R. Payne, J. Braddock, S. Hanna, and D. Salel. 1994. Fate of the oil spilled from the *Exxon Valdez*. Environmental Science and Technology. 28(13):561A-568A.

_____, M.M. Krahn, E. Casillas, S. Sol, T.A. Thompson, J. Lunz, and K.J. Scott. 1996. Toxicity of intertidal and subtidal sediments contaminated by the *Exxon Valdez* oil spill. Pages 121-139 in S.D. Rice, 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.

•_____, K.J. Scott, J.R. Clayton, Jr., J. Lunz, J.R. Payne, and T.S. Thompson. 1995. Comparative toxicities of polar and non-polar organic fractions from sediments affected by the *Exxon Valdez* oil spill in Prince William Sound, Alaska. Chemistry and Ecology. 10:137-156.

Zarnke, R.L., T.C. Harder, H.W. Vos, J.M. Ver Hoef, and A.D.M.E. Osterhaus. 1997. Serologic survey for phocid herpesvirus-1 and -2 in marine mammals from Alaska and Russia, 1978-1994. Journal of Wildlife Diseases. 33(3):459-465.

Zentano-Savin, T. and M.A. Castellini. 1998. Plasma angiotensin II, arginine vasopressin and atrial natriuretic peptide in free ranging and captive seals and sea lions. Comparative Biochemistry and Physiology. 119C(1):1-6.

_____, _____, L.D. Rea, and B.S. Fadely. 1997. Plasma haptoglobin levels in threatened Alaskan pinniped populations. Journal of Wildlife Diseases. 33(1):64-71.

Zimmerman, S.T., C.S. Gorbics, and L.F. Lowry. 1994. Response activities. Pages 23-45 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

Bibliography
of
***Exxon Valdez* Oil Spill Trustee Council Funded Research**

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•Agler, B.A., S.J. Kendall, P.E. Seiser, and D.B. Irons. In press. Abundance of marbled and Kittlitz's murrelets (*Brachyramphus marmoratus* and *brevisrostris*) in southcentral and southeast Alaska. Condor.

Anderson, P.J., J.E. Blackburn, and B.A. Johnson. 1997. Declines of forage species in the Gulf of Alaska, 1972-1995, as an indicator of regime shift. Pages 531-543 in Forage Fishes in Marine Ecosystems: Proceedings of the International Symposium on the Role of Forage Fish in Marine Ecosystems. Alaska Sea Grant College Program Report 97-01.

•Andres, B.A. In press. Effects of persistent shoreline oil on breeding success and chick growth of black oystercatchers. Auk. 116(3).

•_____. In press. Habitat requirements of breeding black oystercatchers. Journal of Field Ornithology.

_____. 1997. The *Exxon Valdez* oil spill disrupted the breeding of black oystercatchers. Journal of Wildlife Management. 61(4):1322-1328.

•_____. 1996. Consequences of the *Exxon Valdez* oil spill on black oystercatchers inhabiting Prince William Sound, Alaska. Ph.D. Thesis. Ohio State University, Columbus.

Babcock, M.M., C.V. Irvine, P.M. Harris, J.A. Cusick, and S.D. Rice. 1996. Persistence of oiling in mussels beds three and four years after the *Exxon Valdez* oil spill. Pages 286-297 in S.D. Rice, 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.

Bain, D.E. and M.E. Dahlheim. 1994. Effects of masking noise on detection thresholds of killer whales. Pages 243-256 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

Ballachey, B.E., J.L. Bodkin, and A.R. DeGange. 1994. An overview of sea otter studies. Pages 47-59 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

•Barber, W.E., L.L. McDonald, W.P. Erickson, and M. Vallarino. 1995. Effect of the *Exxon Valdez* oil spill on intertidal fish: a field study. Transactions of the American Fisheries Society. 124(4):461-476.

Bayha, K. and J. Kormendy, tech. coords. and eds. 1990. Sea Otter Symposium: Proceedings of a Symposium to Evaluate the Response Effort on Behalf of Sea Otters After the *T/V Exxon Valdez* Oil Spill into Prince William Sound. U.S. Fish and Wildlife Biological Report 90(12). 485 pp.

Bechtol, W.R. Changes in forage fish populations in Kachemak Bay, Alaska, 1976-1995. Pages 441-455 in Forage Fishes in Marine Ecosystems: Proceedings of the International Symposium on the Role of Forage Fish in Marine Ecosystems. Alaska Sea Grant College Program Report 97-01.

Ben-David, M., R.T. Bowyer, L.K. Duffy, D.D. Roby, and D.M. Schell. 1998. Social behavior and ecosystem processes: river otter latrine sites and nutrient dynamics of terrestrial vegetation. Ecology. 79(7):2567-2571.

_____, _____, and J.B. Faro. 1996. Niche separation by mink and river otters: coexistence in a marine environment. Oikos. 75:41-48.

Bernatowicz, J.A., P.F. Schempf, and T.D. Bowman. 1996. Bald eagle productivity in south-central Alaska in 1989 and 1990 after the *Exxon Valdez* oil spill. Pages 785-797 in S.D. Rice, 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.

Bittner, J.E. 1996. Cultural resources and the *Exxon Valdez* oil spill: an overview. Pages 814-818 in S.D. Rice, 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.

Blajeski, A., L.K. Duffy, and R.T. Bowyer. 1996. Differences in fecal levels of phorphrin among river otters exposed to the *Exxon Valdez* oil spill. Biomarkers. 1:262-266.

•Blundell, G.M., J.W. Kern, R.T. Bowyer, and L.K. Duffy. In press. Capturing river otters: a comparison of Hancock and leg-hold traps. Wildlife Society Bulletin.

Bodkin, J.L., J.A. Ames, R.J. Jameson, A.M. Johnson, and G.M. Matson. 1997. Estimating age of sea otters with cementum layers in the first premolar. Journal of Wildlife Management. 61(3):967-973.

_____, R.J. Jameson, and J.A. Estes. 1994. Sea otters in the North Pacific Ocean. Pages 353-356 in E.T. LaRoe III, G.S. Farris, C.E. Puckett, and P.D. Doran, eds. Our Living Resources 1994: A Report to the Nation on the Distribution, Abundance, and Health of U.S. Plants, Animals, and Ecosystems. National Biological Service. Washington, D.C.

_____, D.M. Mulcahy, and C.J. Lensink. 1993. Age-specific reproduction in the sea otter (*Enhydra lutris)*: analysis of reproductive tracts. Canadian Journal of Zoology. 71(9):1811-1815.

_____, and M.S. Udevitz. 1994. An intersection model for estimating sea otter mortality along the Kenai Peninsula. Pages 81-95 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

_____, and F. Weltz. 1990. Evaluation of sea otter capture after the *T/V Exxon Valdez* oil spill, Prince William Sound, Alaska. Pages 61-69 in K. Bayha and J. Kormendy, tech. coords. and eds. Sea Otter Symposium: Proceedings of a Symposium to Evaluate the Response Effort on Behalf of Sea Otters After the *T/V Exxon Valdez* Oil Spill into Prince William Sound. U.S. Fish and Wildlife Biological Report 90(12).

Boldt, J. 1996. Condition and distribution of forage fish in Prince William Sound, Alaska. M.S. Thesis, University of Alaska Fairbanks, Juneau Center, Alaska.

Bolger, M., S.H. Henry, and C.D. Carrington. 1996. Hazard and risk assessment of crude oil contaminants in subsistence seafood samples from Prince William Sound. Pages 837-843 in S.D. Rice, R.B. Spies, D.A. Wolfe, and B.A. Wright, eds. *Exxon Valdez* Oil Spill Symposium. American Fisheries Society Symposium Number 18.

•Bowman, T.D., P.F. Schempf, and J.A. Bernatowicz. 1995. Bald eagle survival and population dynamics in Alaska after the *Exxon Valdez* oil spill. Journal of Wildlife Management. 59(2):317-324.

_____, _____, and J.I. Hodges. 1997. Bald eagle population in Prince William Sound after the *Exxon Valdez* oil spill. Journal of Wildlife Management. 61(3):962-967.

Bowyer, R.T., J.W. Testa, and J.B. Faro. 1995. Habitat selection and home ranges of river otters in a marine environment: effects of the *Exxon Valdez* oil spill. Journal of Mammalogy. 76(1):1-11.

_____, _____, _____, C.C. Schwartz, and J.B. Browning. 1994. Changes in diets of river otters in Prince William Sound, Alaska: effects of the *Exxon Valdez* oil spill. Canadian Journal of Zoology. 72:970-976.

Braddock, J.F., J.E. Lindstrom, and E.J. Brown. 1995. Distribution of hydrocarbon-degrading microorganisms in sediments from Prince William Sound, Alaska following the *Exxon Valdez* oil spill. Marine Pollution Bulletin. 30:125-132.

_____, _____, T.R. Yeager, B.T. Rasley, and E.J. Brown. 1996. Patterns of microbial activity in oiled and unoiled sediments in Prince William Sound. Pages 94-108 in S.D. Rice, 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.

Brown, D.W., D.G. Burrows, C.A. Sloan, R.W. Pearce, S.M. Pierce, J.L. Bolton, K.L. Tilbury, K.L. Dana, S.-L. Chan, and U. Varanasi. 1996. Survey of Alaskan subsistence invertebrate seafoods collected in 1989-1991 to determine exposure to oil spilled from the *Exxon Valdez*. Pages 844-855 in S.D. Rice, R.B. Spies, D.A. Wolfe, and B.A. Wright, eds. Proceeding the *Exxon Valdez* Oil Spill Symposium. American Fisheries Society Symposium Number 18.

Brown, E.D., T.T. Baker, J.E. Hose, R.M. Kocan, G.D. Marty, M.D. McGurk, B.L. Norcross, and J. Short. 1996. Injury to the early life history stages of Pacific herring in Prince William Sound after the *Exxon Valdez* oil spill. Pages 440-447 in S.D. Rice, 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.

_____, B.L. Norcross, and J.W. Short. 1996. An introduction to studies on the effects of the *Exxon Valdez* oil spill on early life history stages of Pacific herring, *Clupea pallasi*, in Prince William Sound, Alaska. Canadian Journal of Fisheries and Aquatic Sciences. 53(10):2337-2342.

Brown, E.J. and J.F. Braddock. 1990. Sheen screen: a miniaturized most probable number technique for oil-degrading microorganisms. Applied and Environmental Microbiology. 56:3895-3896.

Bue, B.G., S.M. Fried, S. Sharr, D.G. Sharp, J.A. Wilcock, and H.J. Geiger. 1998. Estimating salmon escapement using area-under-the curve, aerial observer efficiency, and stream-life estimates: the Prince William Sound example. North Pacific Anadromous Fish Commission Bulletin. 1:240-250.

_____, S. Sharr, S.D. Moffitt, and A.K. Craig. 1996. Effects of the *Exxon Valdez* oil spill on pink salmon embryos and preemergent fry. Pages 619-627 in S.D. Rice, 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.

_____, _____, and J.E. Seeb. 1998. Evidence of damage to pink salmon populations inhabiting Prince William Sound, Alaska, two generations after the *Exxon Valdez* oil spill. Transactions of the American Fisheries Society. 127(1):35-43.

Burn, D.M. 1994. Boat-based population surveys of sea otters in Prince William Sound. Pages 61-80 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

Byrd, G.V., E.P. Bailey, and W. Stahl. 1997. Restoration of island populations of black oystercatchers and pigeon guillemots by removing introduced foxes. Colonial Waterbirds. 20(2):253-260.

Calkins, D.G., E. Becker, T.R. Spraker, and T.R. Loughlin. 1994. Impacts on Steller sea lions. Pages 119-139 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

Carls, M.G., L. Holland, M. Larsen, J.L. Lum, D.G. Mortenson, S.Y. Wang, and A.C. Wertheimer. 1996. Growth, feeding, and survival of pink salmon fry exposed to food contaminated with crude oil. Pages 608-618 in S.D. Rice, 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.

_____, G.D. Marty, T.R. Meyers, R.E. Thomas, and S.D. Rice. 1998. Expression of viral hemorrhagic septicemia virus in prespawning Pacific herring (*Clupea pallasi*) exposed to weathered crude oil. Canadian Journal of Fisheries and Aquatic Sciences. 55:1-10.

_____, A.C. Wertheimer, J.W. Short, R.M. Smolowitz, and J.J. Stegeman. 1996. Contamination of juvenile pink salmon and chum salmon by hydrocarbons in Prince William Sound after the *Exxon Valdez* oil spill. Pages 593-607 in S.D. Rice, 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.

Carlson, P.R. and K.A. Kvenvolden. 1996. Tracking *Exxon Valdez* oil from beach to deepwater sediments in Prince William Sound, Alaska. Pages 109-120 in S.D. Rice, 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.

Carter, H.R. and K.J. Kuletz. 1995. Mortality of marbled murrelets due to oil pollution in North America. Pages 261-269 in Ecology and Conservation of the Marbled Murrelet. USDA Forest Service General Technical Report PSW-GTR-152.

Castellini, J.M., N.J. Meiselman, and M.A. Castellini. 1996. Understanding and interpreting hematocrit measurements in pinnipeds. Marine Mammal Science 12(2):251-264

Celewycz, A.G., and A.C. Wertheimer. 1996. Prey availability to juvenile salmon after the *Exxon Valdez* oil spill. Pages 564-577 in S.D. Rice, 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.

Childress, J. and J. Hall. 1998. Oil-spill ecology. Science Teacher. 65(7):32-35.

Collier, T.K., M.M. Krahn, C.A. Krone, L.L. Johnson, M.S. Myers, S.-L. Chan, and U. Varanasi. 1993. Oil exposure and effects in subtidal fish following the *Exxon Valdez* oil spill. Pages 301-305 in Proceedings of the 1993 International Oil Spill Conference: Prevention, Preparedness, Response. American Petroleum Institute Publication 4580. Washington, D.C.

_____, _____, _____, _____, _____, _____, and _____. 1993. Survey of oil exposure and effects in subtidal fish following the *Exxon Valdez* oil spill: 1989-1991. Pages 235-238 in S.D. Rice, 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.

_____, C.A. Krone, M.M. Krahn, J.E. Stein, S.-L. Chan, and U. Varanasi. 1996. Petroleum exposure and associated biochemical effects in subtidal fish following the *Exxon Valdez* oil spill. Pages 671-683 in S.D. Rice, 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.

Cronin, M.A., J.L. Bodkin, B.E. Ballachey, J.A. Estes, and J.C. Patton. 1995. Mitochondrial DNA variation among subspecies and populations of sea otters (*Enhydra lutris*). Journal of Mammalogy. 77:546-557.

•Crowley, D.W. 1993. Breeding habitat of harlequin ducks in Prince William Sound, Alaska. M.S. Thesis, Oregon State University, Corvallis.

Dahlheim, M.E. and C.O. Matkin. 1994. Assessment of injuries to Prince William Sound killer whales. Pages 163-171 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

Dean, T.A., S.C. Jewett, D.R. Laur, and R.O. Smith. 1996. Injury of epibenthic invertebrates resulting from the *Exxon Valdez* oil spill. Pages 424-439 in S.D. Rice, 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.

_____, L. McDonald, M.S. Stekoll, and R.R. Rosenthal. 1993. Damage assessment of coastal habitats: lessons learned from *Exxon Valdez*. Pages 695-697 in Proceedings of the 1993 International Oil Spill Conference: Prevention, Preparedness, Respor American Petroleum Institute Publication 4580. Washington, D.C.

_____, M.S. Stekoll, S.C. Jewett, R.O. Smith, and J.E. Hose. 1998. Eelgrass (*Zostera marina* L.) in Prince William Sound, Alaska: effects of the *Exxon Valdez* oil spill. Marine Pollution Bulletin. 36(3):201-210.

_____, _____, and R.O. Smith. 1996. Kelps and oil: the effects of the *Exxon Valdez* oil spill on subtidal algae. Pages 412-423 in S.D. Rice, 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.

DeGange, A.R., B.E. Ballachey, and K. Bayha. 1995. Release strategies for rehabilitated sea otters. Pages 141-151 in T.M. Williams and R.W. Davis, eds. Emergency Care and Rehabilitation of Oiled Sea Otters: A Guide for Oil Spills Involving Fur Bearing Animals. University of Alaska Press. Fairbanks.

•_____, A.M. Doroff, and D.H. Monson. 1994. Experimental recovery of sea otter carcasses at Kodiak Island, Alaska, following the *Exxon Valdez* oil spill. Marine Mammal Science. 10(4):492-496.

_____, and C.J. Lensink. 1990. Distribution, age, and sex composition of sea otter carcasses recovered during the response to the *T/V Exxon Valdez* oil spill. Pages 124-129 in K. Bayha and J. Kormendy, tech. coords. and eds. Sea Otter Symposium: Proceedings of a Symposium to Evaluate the Response Effort on Behalf of Sea Otters After the *T/V Exxon Valdez* Oil Spill into Prince William Sound. U.S. Fish and Wildlife Biological Report 90(12).

_____, D.H. Monson, D.B. Irons, C.M. Robbins, and D.C. Douglas. 1990. Distribution and relative abundance of sea otters in south-central and south-western Alaska before or at the time of the *T/V Exxon Valdez* oil spill. Pages 18-25 in K. Bayha and J. Kormendy, tech. coords. and eds. Sea Otter Symposium: Proceedings of a Symposium to Evaluate the Response Effort on Behalf of Sea Otters After the *T/V Exxon Valdez* Oil Spill into Prince William Sound. U.S. Fish and Wildlife Biological Report 90(12).

_____, and T.D. Williams. 1990. Procedures and rationale for marking sea otters captured and treated during the *T/V Exxon Valdez* oil spill. Pages 394-399 in K. Bayha and J. Kormendy, tech. coords. and eds. Sea Otter Symposium: Proceedings of a Symposium to Evaluate the Response Effort on Behalf of Sea Otters After the *T/V Exxon Valdez* Oil Spill into Prince William Sound. U.S. Fish and Wildlife Biological Report 90(12).

)oroff, A.M. and J.L. Bodkin. 1994. Sea otter foraging behavior and hydrocarbon levels in prey. Pages 193-208 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

Driskell, W.B., A.K. Fukuyama, J.P. Houghton, D.C. Lees, A.J. Mearns, and G. Shigenaka. 1996. Recovery of Prince William Sound intertidal infauna from *Exxon Valdez* oiling and shoreline treatments, 1989 through 1992. Pages 362-378 in S.D. Rice, 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.

Duffy, L.K., R.T. Bowyer, J. W. Testa, and J.B. Faro. 1996. Acute phase proteins and cytokines in Alaskan mammals as markers of chronic exposure to environmental pollutants. Pages 809-813 in S.D. Rice, 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.

_____, _____, _____, and _____. 1994. Chronic effects of the *Exxon Valdez* oil spill on blood and enzyme chemistry of river otters. Environmental Toxicology and Chemistry. 13(4):643-647.

•_____, _____, _____, and _____. 1994. Evidence for recovery of body mass and haptoglobin values of river otters following the *Exxon Valdez* oil spill. Journal of Wildlife Diseases. 30(3):421-425.

_____, _____, _____, and _____. 1993. Differences in blood haptoglobin and length-mass relationships in river otters (*Lutra canadensis*) from oiled and nonoiled areas of Prince William Sound, Alaska. Journal of Wildlife Diseases. 29(2):353-359.

Duncan, P.B. and A.J. Hooten. 1996. Influence of residual and applied oil on intertidal algal recruitment. Pages 238-248 in S.D. Rice, 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.

Tbert, T.A. and D.C. Lees. 1996. Growth and loss of tagged individuals of the predatory snail *Nucella lamellosa* in areas within the influence of the *Exxon Valdez* oil spill in Prince William Sound. Pages 349-361 in S.D. Rice, 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.

Edmundson, J.A., G.B. Kyle, S.R. Carlson, and P.A. Shields. 1997. Trophic-level responses to nutrient treatment of meromictic and glacially influenced Coghill Lake. Alaska Fishery Research Bulletin. 4(2):136-153.

•Fadely, B.S. 1997. Investigations of harbor seal health status and body condition in the Gulf of Alaska. Ph.D. Thesis. University of Alaska Fairbanks.

•Falkenberg, C.S. and R. Kulkarni. 1995. Using spatial access methods to support the visualization of environmental data. Pages 400-403 in Proceedings of Visualization '95. IEEE Computer Society Press.

Fall, J.A. 1990. The Division of Subsistence of the Alaska Department of Fish and Game: an overview of its research program and findings: 1980-1990. Arctic Anthropology. 27(2):68-92.

_____, and L.J. Field. 1996. Subsistence uses of fish and wildlife before and after the *Exxon Valdez* oil spill. Pages 819-836 in S.D. Rice, 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.

Fleeger, J.W., T.C. Shirley, M.G. Carls, and M.A. Todaro. 1996. Meiofaunal recolonization experiment with oiled sediments. Pages 271-285 in S.D. Rice, 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.

Ford, R.G., M.L. Bonnell, D.H. Varoujean, G.W. Page, H.R. Carter, B.E. Sharp, D. Heinemann, and J.L. Casey. 1996. Total direct mortality of seabirds from the *Exxon Valdez* oil spill. Pages 684-711 in S.D. Rice, 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.

Frost, K.J., L.F. Lowry, E.H. Sinclair, J. Ver Hoef, and D.C. McAllister. 1994. Impacts on distribution, abundance, and productivity of harbor seals. Pages 97-118 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

_____, C.A. Manen, and T.L. Wade. 1994. Petroleum hydrocarbons in tissues of harbor seals from Prince William Sound and the Gulf of Alaska. Pages 331-358 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

Gage, T.K. 1998. Effects of invertebrate predators on clam populations in Prince William Sound, Alaska, with implications for the recovery of sea otters from the *Exxon Valdez* oil spill. M.S. Thesis. University of Washington.

•Garrott, R.A., L.L. Eberhardt, and D.M. Burn. 1993. Mortality of sea otters in Prince William Sound following the *Exxon Valdez* oil spill. Marine Mammal Science. 9(4):343-359.

Geiger, H.J., B.G. Bue, S. Sharr, A.C. Wertheimer, and T.M. Willette. 1996. A life history approach to estimating damage to Prince William Sound pink salmon caused by the *Exxon Valdez* oil spill. Pages 487-498 in S.D. Rice, 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.

Golot, G.H., D.B. Irons, and J.A. Estes. 1998. Survival costs of chick rearing in black-legged kittiwakes. Journal of Animal Ecology. 67:827-841.

Greene, B.A. and J.E. Seeb. 1997. SINE and transposon sequences generate high-resolution DNA fingerprints, "SINE-prints," which exhibit faithful Mendelian inheritance in pink salmon (*Oncorhyncus gorbuscha*). Molecular Marine Biology and Biotechnology. 6(4):328-338.

Gundlach, E.R., E.A. Pavia, C. Robinson, and J.C. Gibeaut. 1991. Shoreline surveys at the *Exxon Valdez* oil spill: the state of Alaska response. Pages 519-529 in Proceedings of the 1991 International Oil Spill Conference: Prevention, Behavior, Control, Cleanup. American Petroleum Institute Publication 4529. Washington, D.C.

Haebler, R.J., R.K. Harris, J.M. Pletcher, R.B. Moeller, T.P. Lipscomb, M. Bates, and C. Armitstead. 1990. Pathological examin and collection of toxicological samples from sea otters. Pages 369-374 in K. Bayha and J. Kormendy, tech. coords. and Sea Otter Symposium: Proceedings of a Symposium to Evaluate the Response Effort on Behalf of Sea Otters After the *T/ Exxon Valdez* Oil Spill into Prince William Sound. U.S. Fish and Wildlife Biological Report 90(12).

_____, R.K. Wilson, and C.R. McCormick. 1990. Determining health of rehabilitated sea otters before release. Pages 390-393 in K. Bayha and J. Kormendy, tech. coords. and eds. Sea Otter Symposium: Proceedings of a Symposium to Evaluate the Response Effort on Behalf of Sea Otters After the *T/V Exxon Valdez* Oil Spill into Prince William Sound. U.S. Fish and Wildlife Biological Report 90(12).

Harris, P.M., S.D. Rice, M.M. Babcock, and C.C. Brodersen. 1996. Within-bed distribution of *Exxon Valdez* crude oil in Prince William Sound blue mussels and underlying sediments. Pages 298-308 in S.D. Rice, 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.

Harris, R.K., R.B. Moeller, T.P. Lipscomb, R.J. Haebler, P.A. Tuomi, C.R. McCormick, A.R. DeGange, D. Mulcahy, T.D. Williams, and J.M. Pletcher. 1990. Identification of a herpes-like virus in sea otters during rehabilitation after the *T/V Exxon Valdez* oil spill. Pages 366-368 in K. Bayha and J. Kormendy, tech. coords. and eds. Sea Otter Symposium: Proceedings of a Symposium to Evaluate the Response Effort on Behalf of Sea Otters After the *T/V Exxon Valdez* Oil Spill into Prince William Sound. U.S. Fish and Wildlife Biological Report 90(12).

Harvey, J.T. and M.E. Dahlheim. 1994. Cetaceans in oil. Pages 257-264 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

Hatch, S.A., G.V. Byrd, D.B. Irons, and G.L. Hunt. 1993. Status and ecology of kittiwakes (*Rissa tridactyla* and *R. brevirostris*) in the north Pacific. Pages 140-153 in K. Vermeer, K.T. Briggs, K.H. Morgan, and D. Siegal-Causey, eds. The Status, Ecology, and Conservation of Marine Birds of the North Pacific. Canadian Wildlife Service Special Publication. Ottawa.

Hayes, D.L. and K.J. Kuletz. 1997. Decline of pigeon guillemot populations in Prince William Sound, Alaska, and apparent chan

in distribution and abundance of their prey. Pages 699-702 in Forage Fishes in Marine Ecosystems: Proceedings of the International Symposium on the Role of Forage Fish in Marine Ecosystems. Alaska Sea Grant College Program Report 97-01.

•Hecker, M.K., L.K. Duffy, G.M. Blundell, and R.T. Bowyer. 1997. River otters as a sentinel species: effect and detection of crude oil on the fur of river otters. Pages 100-102 in B. Jessup and J. Mazet, eds. Effects of Oil on Wildlife: Proceedings of the Fifth International Conference on Oil Spills.

Hepler, K.R., P.A. Hanse, and D.R. Bernard. 1996. Impact of oil spilled from the *Exxon Valdez* on survival and growth of Dolly Varden. Pages 645-658 in S.D. Rice, 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.

•Hershberger, P.K., R.M. Kocan, N.E. Elder, T.R. Meyers, J.R. Winton. In press. Epizootology of viral hemorrhagic septicemia virus in Pacific herring from the spawn-on-kelp fishery in Alaska, U.S.A. Diseases of Aquatic Organisms.

Highsmith, R.C., T.L. Rucker, M.S. Stekoll, S.M. Saupe, M.R. Lindeberg, R.N. Jenne, and W.P. Erickson. 1996. Impact of the *Exxon Valdez* oil spill on intertidal biota. Pages 212-237 in S.D. Rice, 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.

Hilborn, R. 1996. Detecting population impacts from oil spills: a comparison of methodologies. Pages 639-644 in S.D. Rice, 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.

•_____, B.G. Bue, and S. Sharr. In press. Estimating spawning escapements from periodic counts: a comparison of methods. Canadian Journal of Fisheries and Aquatic Sciences.

Hom, T., U. Varanasi, J.E. Stein, C.A. Sloan, K.L. Tilbury, and S.-L. Chan. 1996. Assessment of the exposure of subsistence fish to aromatic compounds after the *Exxon Valdez* oil spill. Pages 856-866 in S.D. Rice, 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.

Hooten, A.J. and R.C. Highsmith. 1996. Impacts on selected intertidal invertebrates in Herring Bay, Prince William Sound, after the *Exxon Valdez* oil spill. Pages 249-270 in S.D. Rice, 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.

•Hose, J.E., E.D. Biggs, B.L. Norcross, M.D. McGurk, R.M. Kocan, and J.W. Short. In press. Genetic damage in larval herring following the *Exxon Valdez* oil spill. Canadian Journal of Fisheries and Aquatic Sciences.

_____, M.D. McGurk, G.D. Marty, D.E. Hinton, E.D. Brown, and T.T. Baker. 1996. Sublethal effects of the *Exxon Valdez* oil spill on herring embryos and larvae: morphologic, cytogenetic, and histopathological assessments, 1989-1991. Canadian Journal of Fisheries and Aquatic Sciences. 53(10):2355-2365.

Houghton, J.P., D.C. Lees, W.B. Driskell, S.C. Lindstrom, and A.J. Mearns. 1996. Recovery of Prince William Sound intertidal epibiota from *Exxon Valdez* oiling and shoreline treatments, 1989 through 1992. Pages 379-411 in S.D. Rice, 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.

Irons, D.B. 1998. Foraging area fidelity of individual seabirds in relation to tidal cycles and flock foraging. Ecology. 79(2):647-655.

_____. 1996. Size and productivity of black-legged kittiwake colonies in Prince William Sound before and after the *Exxon Valdez* oil spill. Pages 738-747 in S.D. Rice, 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.

_____. 1992. Aspects of foraging behavior and reproductive biology of the black-legged kittiwake. Ph.D. Thesis. University of California, Irvine.

Iverson, S.J., K.J. Frost, and L.F. Lowry. 1997. Fatty acids signatures reveal fine scale structure of foraging distribution of harbor seals and their prey in Prince William Sound, Alaska. Marine Ecology Progress Series. 151:255-271.

Jewett, S.C., T.A. Dean, and D.R. Laur. 1996. Effects of the *Exxon Valdez* oil spill on benthic invertebrates in an oxygen-deficient embayment in Prince William Sound, Alaska. Pages 440-447 in S.D. Rice, 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.

Johnson, S.W., M.G. Carls, R.P. Stone, C.C. Brodersen, and S.D. Rice. 1997. Reproductive success of Pacific herring (*Clupea pallasi*) in Prince William Sound, Alaska, six years after the *Exxon Valdez* oil spill. Fishery Bulletin. 95:748-761.

•Kanatous, S.B. 1997. High aerobic capacities and the role of intramuscular triglycerides in the skeletal muscles of seals, sea lions and fur seals. Ph.D. Thesis. Texas A & M University, Galveston.

•Kappe, A.L., L. Van de Zande, E.J. Vedder, R. Bijlsma, and W. Van Delden. 1995. Genetic variation in *Phoca vitulina* (the harbor seal) revealed by DNA fingerprinting and RAPDs. Heredity. 74:647-653.

Kendall, S.J. and B.A. Agler. 1998. Distribution and abundance of Kittlitz's murrelets in Southcentral and Southeastern Alaska. Colonial Waterbirds. 21(1):53-60.

•Khan, R.A. 1991. Effect of oil-contaminated sediment on the longhorn sculpin (*Myoxocephalus octodecemspinosus*) following chronic exposure. Bulletin of Environmental Contamination and Toxicology. 47:63-69.

•_____. 1990. Parasitism in marine fish after chronic exposure to petroleum hydrocarbons in the laboratory and to the *Exxon Valdez* oil spill. Bulletin of Environmental Contamination and Toxicology. 44(5):759-763.

Kline, T.C., Jr. 1997. Confirming forage fish food web dependencies in Prince William Sound using natural stable isotope tracers. Pages 257-269 in Forage Fishes in Marine Ecosystems: Proceedings of the International Symposium on the Role of Forage Fish in Marine Ecosystems. Alaska Sea Grant College Program Report 97-01.

Kocan, R.M. 1996. Fish embryos as in situ monitors of aquatic pollution. Pages 73-91 in G.K. Ostrander, ed. Techniques in Aquatic Toxicology. Lewis Publishers, Boca Raton.

_____, M. Bradley, N. Elder, T. Meyers, W. Batts, and J. Winston. 1997. The North American strain of viral hemorrhagic septicemia virus is highly pathogenic for laboratory-reared Pacific herring (*Clupea pallasi*). Journal of Aquatic Animal Health. 9:27^ 290.

•_____, P. Hershberger, T. Mehl, N. Elder, M. Bradley, D. Wildermuth, K. Stick. 1998. Pathogenicity of *Ichthyophonus hoferi* for laboratory-reared Pacific herring, *Clupea pallasi*, and its early appearance in wild Puget Sound herring. Diseases of Aquatic Organisms. 35:23-29

•_____ and J.E. Hose. In press. Correspondence between laboratory and field observations of sublethal damage in marine fish larvae: lessons from the effects of the *Exxon Valdez* oil spill on Prince William Sound herring. Journal of Toxicology and Environmental Health.

•_____ and _____. 1997. Laboratory and field observations of sublethal damage in marine fish larvae: lessons from the effects of the *Exxon Valdez* oil spill. Pages ___ - ___ in R.M. Rolland, M. Gilbertson, and R.E. Peterson, eds. Chemically Induced Alterations in Functional Development and Reproduction of Fishes. Society for Environmental Toxicology and Chemistry, Pensacola.

_____,_____, E.D. Brown and T.T. Baker. 1996. Pacific herring embryo (*Clupea pallasi*) sensitivity to Prudhoe Bay petroleum hydrocarbons: laboratory evaluation and in situ exposure at oiled and unoiled sites in Prince William Sound. Canadian Journal of Fisheries and Aquatic Sciences. 53(10):2366-2375.

_____, G.D. Marty, M.S. Okihiro, E.D. Biggs, and T.T. Baker. 1996. Reproductive success and histopathology of individual Prince William Sound herring three years after the *Exxon Valdez* oil spill. Canadian Journal of Fisheries and Aquatic Sciences. 53(10):2388-2393.

•Krahn, M.M., D.G. Burrows, G.M. Ylitalo, D.W. Brown, C.A. Wigren, T.K. Collier, S.-L. Chan, and U. Varanasi. 1992. Mass spectrometric analysis for aromatic compounds in bile of fish sampled after the *Exxon Valdez* oil spill. Environmental Science and Technology. 26(1):116-126.

•_____, G. Ylitalo, J. Buzitis, S.-L. Chan, and U. Varanasi. 1993. Review: Rapid high-performance liquid chromatographic methods that screen for aromatic compounds in environmental samples. Journal of Chromatography. 642:15-32.

•_____, _____, _____, _____, _____, T.L. Wade, and T.J. Jackson. 1993. Comparison of high-performance liquid chromatography/fluorescence screening and gas chromatography/mass spectrometry analysis for aromatic compounds in sediments sampled after the *Exxon Valdez* oil spill. Environmental Science and Technology. 27(4):699-708.

_____, _____, _____, C.A. Krone, J.E. Stein, S.-L. Chan, and U. Varanasi. 1993. Screening methods for assessing damage to natural resources following the *Exxon Valdez* oil spill. Pages 699-708 in Proceedings of the 1993 International Oil Spill Conference: Prevention, Preparedness, Response. American Petroleum Institute Publication 4580. Washington, D.C.

Kuletz, K.J. 1996. Marbled murrelet abundance and breeding activity at Naked Island, Prince William Sound, and Kachemak Bay, Alaska, before and after the *Exxon Valdez* oil spill. Pages 770-784 in S.D. Rice, 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.

_____, and S.J. Kendall. 1998. A productivity index for marbled murrelets in Alaska based on surveys at sea. Journal of Wildlife Management. 62(2):446-460.

_____, and D.K. Marks. 1997. Post-fledging behavior of a radio-tagged juvenile marbled murrelet. Journal of Field Ornithology. 68(3):421-425.

_____, _____, N.L. Naslund, N.J. Goodson, and M.B. Cody. 1995. Inland habitat suitability for the marbled murrelet in southcentral Alaska. Pages 141-149 in Ecology and Conservation of the Marbled Murrelet. USDA Forest Service General Technical Report PSW-GTR-152.

_____, _____, _____, and M.B. Cody. 1995. Marbled murrelet activity relative to forest characteristics in the Naked Island area, Prince William Sound, Alaska. Northwestern Naturalist. 76(1): 4-11.

•_____ and J.F. Piatt. In press. Juvenile marbled murrelet nurseries and the productivity index. Wilson Bulletin.

Laur, D.R. and L. Haldorson. 1996. Coastal habitat studies: the effect of the *Exxon Valdez* oil spill on shallow subtidal fishes in Prince William Sound. Pages 659-670 in S.D. Rice, 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.

Lees, D.C., J.P. Houghton, and W.B. Driskell. 1996. Short-term effects of several types of shoreline treatment on rocky intertidal biota in Prince William Sound. Pages 329-348 in S.D. Rice, 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.

•Lehman, N., R.K. Wayne, and B.S. Stewart. 1993. Comparative levels of genetic variability in harbour seals and northern elephant seals as determined by genetic fingerprinting. Pages 49-60 in I.L. Boyd, ed. Marine Mammals: Advance in Behavioral and Population Biology. Symposia of the Zoological Society of London. Clarendon Press. Number 66.

Lindstrom, J.E., R.C. Prince, J.C. Clark, M.J. Grossman, T.R. Yeager, J.F. Braddock, and E.J. Brown. 1991. Microbial populations and hydrocarbon biodegradation potentials in fertilized shoreline sediments affected by the *T/V Exxon Valdez* oil spill. Applied and Environmental Microbiology. 57(9):2514-2522.

•Lipscomb, T.P., R.K. Harris, R.B. Moeller, J.M. Pletcher, R.J. Haebler, and B.E. Ballachey. 1993. Histopathologic lesions in sea otters exposed to crude oil. Veterinary Pathology. 30(1):1-11.

_____, _____, A.H. Rebar, B.E. Ballachey, and R.J. Haebler. 1994. Pathology of sea otters. Pages 265-279 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

Loughlin, T.R., ed. 1994. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego. 395 pp.

_____. 1994. Tissue hydrocarbon levels and the number of cetaceans found dead after the spill. Pages 350-370 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

_____, B.E. Ballachey, and B.A. Wright. 1996. Overview of studies to determine injury caused by the *Exxon Valdez* oil spill to

marine mammals. Pages 798-808 in S.D. Rice, 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.

_____, and E.H. Sinclair. 1994. Sample collection, storage, and documentation. Pages 377-382 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

Lowry, L.F., K.J. Frost, and K.W. Pitcher. 1994. Observation of oiling of harbor seals in Prince William Sound. Pages 209-225 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

•Maniscalco, J. 1996. Seabirds at feeding flocks in Prince William Sound, Alaska. M.S. Thesis, University of Alaska Fairbanks, Juneau Center, Alaska.

_____ and W.D. Ostrand. 1997. Seabird behaviors at forage fish schools in Prince William Sound, Alaska. Pages 175-189 in Forage Fishes in Marine Ecosystems: Proceedings of the International Symposium on the Role of Forage Fish in Marine Ecosystems. Alaska Sea Grant College Program Report 97-01.

Marks, D.K., K.J. Kuletz, and N.L. Naslund. 1995. Use of boat-based surveys to determine coastal inland habitat associations of marbled murrelets in Prince William Sound, Alaska. Northwestern Naturalist. 76(1): 63-72.

_____ and N.L. Naslund. 1994. Sharp-shinned hawk preys on a marbled murrelet nesting in old-growth forest. Wilson Bulletin. 106(3):565-567.

•Marty, G.D., M.S. Okihiro, E.D. Brown, D. Hanes, and D.E. Hinton. In press. Histopathology of adult Pacific herring in Prince William Sound, Alaska, after the *Exxon Valdez* oil spill. Canadian Journal of Fisheries and Aquatic Sciences.

_____, E.F. Freiberg, T.R. Meyers, J. Wilcock, T.B. Farver, and D.E. Hinton. 1998. Viral hemorrhagic septicemia virus, Ichthyophonus hoferi, and other causes of morbidity in Pacific herring (*Clupea pallasi*) in Prince William Sound, Alaska, USA. Diseases of Aquatic Organisms. 32:15-40.

_____, R.A. Heintz, and D.E. Hinton. 1997. Histology and teratology of pink salmon larvae near the time of emergence from gravel substrate in the laboratory. Canadian Journal of Zoology. 75:978-988.

_____, J.E. Hose, M.D. McGurk, E.D. Brown, and D.E. Hinton. 1997. Histopathology and cytogenetic evaluation of Pacific herring larvae exposed to petroleum hydrocarbons in the laboratory or in Prince William Sound, Alaska, after the *Exxon Valdez* oil spill. Canadian Journal of Fisheries and Aquatic Sciences. 54:1846-1857.

_____, J.W. Short, D.M Dambach, N.H. Willits, R.A. Heintz, S.D. Rice, J.J. Stegeman, and D.E. Hinton. 1997. Ascites, premature emergence, increased gonadal cell apoptosis, and cytochrome-P4501A induction in pink salmon larvae continuously exposed to oil-contaminated gravel during development. Canadian Journal of Zoology. 75:989-1007.

Matkin, C.O., G.M. Ellis, M.E. Dahlheim, and J. Zeh. 1994. Status of killer whales in Prince William Sound, 1985-1992. Pages 141-162 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

•_____, G. Ellis, P.O. Olesiuk, and E.L. Saulitis. In press. Association patterns and genealogies of resident killer whales (*Orcinus orea*) in Prince William Sound, Alaska. Fishery Bulletin. 98(1).

_____, D.R. Matkin, G.M. Ellis, E. Saulitis, and D. McSweeney. 1997. Movements of resident killer whales in southeastern Alaska and Prince William Sound, Alaska. Marine Mammal Science. 13(3):469-475.

McDonald, L.L., W.P. Erickson, and M.D. Strickland. 1995. Survey design, statistical analysis, and basis for statistical inferences in coastal habitat injury assessment: *Exxon Valdez* oil spill. Pages 296-311 in Wells, P.G., J.N. Butler, and J.S. Hughes, eds. *Exxon Valdez* oil spill: fate and effects in Alaskan waters. American Society for Testing and Materials ASTM STP 1219.

McGurk, M.D. and E.D. Brown. 1996. Egg-larval mortality of Pacific herring in Prince William Sound, Alaska, after the *Exxon Valdez* oil spill. Canadian Journal of Fisheries and Aquatic Sciences. 53(10):2343-2354.

Mearns, A.J. 1996. *Exxon Valdez* shoreline treatment and operations: implications for response, assessment, monitoring, and research. Pages 309-328 in S.D. Rice, R.B. Spies, D.A. Wolfe, and B.A. Wright, eds. Proceedings of the *Exxon Valdez*

Spill Symposium. American Fisheries Society Symposium Number 18.

Miller, G.D., J.E. Seeb, B.G. Bue, and S. Sharr. 1994. Saltwater exposure at fertilization induces ploidy alterations, including mosaicism, in salmonids. Canadian Journal of Fisheries and Aquatic Sciences. 51(Supplement 1):42-49.

Miller, S.D., G.C. White, R.A. Sellers, H.V. Reynolds, J.W. Schoen, K. Titus, V.G. Barnes, Jr., R.B. Smith, R.R. Nelson, W.B. Ballard, and C.C. Schwartz. 1997. Brown and black bear density estimation in Alaska using radiotelemetry and replicated mark-resight techniques. Wildlife Monographs 133:1-55.

•Moles, A. 1996. Effects of oil laden sediments on behavior and growth of juvenile flatfishes. Ph.D. Thesis. University of Alaska Fairbanks, Alaska.

•_____ and B.L. Norcross. 1998. Effects of oil laden sediments on growth and health of juvenile flatfishes. Canadian Journal of Fisheries and Aquatic Sciences. 55(3):605-610.

•_____ and _____. 1994. Non-avoidance of hydrocarbon laden sediments by juvenile flatfishes. Netherlands Journal of Sea Research. 32:361-367.

_____, S.D. Rice, and M.S. Okihiro. 1993. Herring parasite and tissue alteration following the *Exxon Valdez* oil spill. Pages 325-328 in Proceedings of the 1993 International Oil Spill Conference: Prevention, Preparedness, Response. American Petroleum Institute Publication 4580. Washington, D.C.

Monnett, C.W., L.M. Rotterman, C. Stack, and D. Monson. 1990. Postrelease monitoring of radio-instrumented sea otters in Prince William Sound. Pages 400-420 in K. Bayha and J. Kormendy, tech. coords. and eds. Sea Otter Symposium: Proceedings of a Symposium to Evaluate the Response Effort on Behalf of Sea Otters After the *T/V Exxon Valdez* Oil Spill into Prince William Sound. U.S. Fish and Wildlife Biological Report 90(12).

•Mooers, C.N.K. and J. Wang. 1997. On the development of a three-dimensional circulation model for Prince William Sound, Alaska. Continental Shelf Research. In press.

Morris, B. F. and T.R. Loughlin. 1994. Overview of the *Exxon Valdez* oil spill, 1989-1994. Pages 1-22 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

•Mortenson, D.M. and M.G. Carls. 1995. Effects of crude oil ingestion on growth and microstructure of juvenile pink salmon (*Oncorhynchus gorbuscha*) otoliths. Pages 197 - 209 in D.H. Secor, J.M. Dean, and S.E. Campana, eds. Recent Developments in Fish Otolith Research, Belle W. Barusch Library in Marine Science Number 19, University of South Carolina Press.

Mulcahy, D.M. and B.E. Ballachey. 1994. Hydrocarbon residues in sea otter tissues. Pages 313-330 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

Naslund, N.L., K.J. Kuletz, M.B. Cody, and D.K. Marks. 1995. Tree and habitat characteristics and reproductive success at marbled murrelet tree nests in Alaska. Northwestern Naturalist. 76(1):12-25.

•Norcross, B.L., J.E. Hose, M. Frandsen, and E.D. Brown. 1996. Distribution, abundance, morphological condition and cytogenetic abnormalities of larval herring in Prince William Sound, Alaska, following the Exxon Valdez oil spill. Canadian Journal of Fisheries and Aquatic Sciences. 53(10):2376-2387.

_____ and M. Frandsen. 1996. Distribution and abundance of larval fishes in Prince William Sound, Alaska, during 1989 after the *Exxon Valdez* oil spill. Pages 463-486 in S.D. Rice, 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.

Oakley, K.L. and K.J. Kuletz. 1996. Population, reproduction, and foraging of pigeon guillemots at Naked Island, Alaska, before and after the *Exxon Valdez* oil spill. Pages 759-769 in S.D. Rice, 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.

O'Clair, C.E., J.W. Short, and S.D. Rice. 1996. Contamination of intertidal and subtidal sediments by oil from the *Exxon Valdez* in Prince William Sound. Pages 61-93 in S.D. Rice, 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.

Olsen, J.B., J.K. Wenburg, and P. Bentzen. 1996. Semiautomated multilocus genotyping of Pacific salmon (*Oncorhnychus* spp.) using microsatellites. Molecular Marine Biology and Biotechnology. 5(4):259-272.

Ostrand, W.D., K.O. Coyle, G.S. Drew, J.M. Maniscalco, and D.B. Irons. 1998. Selection of forage-fish schools by murrelets and tufted puffins in Prince William Sound, Alaska. Condor. 100:286-297.

_____, _____, _____, _____, and _____. 1997. Selection of forage-fish schools by murrelets and tufted puffins in Prince William Sound, Alaska. Pages 171-173 in Forage Fishes in Marine Ecosystems: Proceedings of the International Symposium on the Role of Forage Fish in Marine Ecosystems. Alaska Sea Grant College Program Report 97-01.

_____, G.S. Drew, R.M. Suryan and L.L. McDonald. 1998. Evaluation of radio-tracking and strip transect methods for determining foraging ranges of black-legged kittiwakes. Condor. 100(4):709-718.

Paul, A.J. 1997. Use of bioenergetic measurements to estimate prey consumption, nutritional status and thermal habitat requirements for marine organisms reared in the sea. Bulletin of the National Research Institute of Aquaculture. Supplement 3:59-68.

_____ and J.M. Paul. 1998. Comparisons of whole body energy content of captive fasting age zero Alaskan Pacific herring (*Clupea pallasi* Valenciennes) and cohorts over-wintering in nature. Journal of Experimental Marine Biology and Ecology. 226:75-86.

•_____, _____, and E.D. Brown. 1996. Ovarian energy content of Pacific herring from Prince William Sound, Alaska. Alaska Fishery Research Bulletin. 3(2):103-111.

_____, _____, and _____. 1998. Fall and spring somatic energy content for Alaskan Pacific herring (*Clupea pallasi* Valenciennes 1847) relative to age, size and sex. Journal of Experimental Marine Biology and Ecology. 223:133-142.

_____, _____, and R.L. Smith. 1998. Seasonal changes in whole-body energy content and estimated consumption rates of age 0 walleye pollock from Prince William Sound, Alaska. Estuarine, Coastal and Shelf Science. 47:251-259.

_____ and M. Willette. 1997. Geographical variation in somatic energy content of migrating pink salmon fry from Prince William Sound: a tool to measure nutritional status. Pages 707-720 in Forage Fishes in Marine Ecosystems: Proceedings of the International Symposium on the Role of Forage Fish in Marine Ecosystems. Alaska Sea Grant College Program Report 97-01.

Piatt, J.F. and P. Anderson. 1996. Response of common murres to the *Exxon Valdez* oil spill and long-term changes in the Gulf of Alaska marine ecosystem. Pages 720-737 in S.D. Rice, 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.

_____, and R.G. Ford. 1996. How many seabirds were killed by the *Exxon Valdez* oil spill? Pages 712-719 in S.D. Rice, 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.

•_____, and C.J. Lensink. 1989. *Exxon Valdez* bird toll. Nature. 342:865-866.

•_____, _____, W. Butler, M. Kendziorek, and D.R. Nysewander. 1990. Immediate impact of the *Exxon Valdez* oil spill on marine birds. Auk. 107(2):387-397.

Picou, J.S. and D.A. Gill. 1996. The *Exxon Valdez* oil spill and chronic psychological stress. Pages 879-893 in S.D. Rice, 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.

•Prichard, A.K. 1997. Evaluation of pigeon guillemots as bioindicators of nearshore ecosystem health. M.S. Thesis. University of Alaska Fairbanks.

Quinn, T.J. and R. Gates. 1997. Estimation of salmon escapement: models with entry, mortality and stochasticity. Natural Resou--- Modeling. 10(3):217-250.

•Rebar, A.H., T.P. Lipscomb, R.K. Harris, and B.E. Ballachey. 1995. Clinical and clinical laboratory correlates in sea otters dying unexpectedly in rehabilitation centers following the *Exxon Valdez* oil spill. Veterinary Clinical Pathology. 32:346-350.

Robards, M.D., J.F. Piatt, and G.A. Rose. In press. Maturation, fecundity, and intertidal spawning of Pacific sand lance (*Ammodytes hexapterus*) in the Northern Gulf of Alaska. Journal of Fish Biology.

Rock, K.R., E.S. Rock, R.T. Bowyer, and J.B. Faro. 1994. Degree of association and use of a helper by coastal river otters, *Lutra canadensis*, in Prince William Sound, Alaska. Canadian Field Naturalist. 108:367-369.

•Rooper, C.N. 1996. Physical and biological factors affecting Pacific herring egg loss in Prince William Sound, Alaska. M.S. Thesis. University of Alaska Fairbanks.

Roseneau, D.G. and G.V. Byrd. 1997. Using Pacific halibut to sample the availability of forage fishes to seabirds. Pages 231-241 in Forage Fishes in Marine Ecosystems: Proceedings of the International Symposium on the Role of Forage Fish in Marine Ecosystems. Alaska Sea Grant College Program Report 97-01.

•Roy, N.K., J. Stabile, J.E. Seeb, C. Habicht, and I. Wirgin. In press. An evaluation of molecular genetic damage to pink salmon embryos experimentally exposed to Prudhoe Bay crude oil. Environmental Toxicology and Chemistry.

Russell, J.C., M.A. Downs, J.S. Petterson, and L.A. Palinkas. 1996. Psychological and social impacts of the *Exxon Valdez* oil spill and cleanup. Pages 867-878 in S.D. Rice, 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.

•Saxton, W.L., R.T. Newton, J. Rorberg, J. Sutton, and L.E. Johnson. 1993. Polycyclic aromatic hydrocarbons in seafood from the Gulf of Alaska following a major crude oil spill. Bulletin of Environmental Contamination and Toxicology. 51:515-522.

•Scheel, D. And K.R. Hough. 1997. Salmon fry predation by seabirds near an Alaskan hatchery. Marine Ecology Progress Series. 150:35-48.

chell, D.M., B.A. Barnett, and K.A. Vinette. 1998. Carbon and nitrogen isotope ratios in zooplankton of the Bering, Chukchi and Beaufort seas. Marine Ecology Progress Series. 162:11-23.

•Schmidt, D.C., J.P. Koenigs, and G.B. Kyle. 1994. Predator-induced changes in copepod vertical migration: explanations for decreased overwinter survival of sockeye salmon. Pages 187-209 in D. Stouder, K. Fresh, and R. Feller, eds. Theory and Application in Fish Feeding Ecology. Belle W. Baruch Library in Marine Science Number 18.

_____, D.C., K.E. Tarbox, B.E. King, L.K. Brannian, G.B. Kyle, and S.R. Carlson. 1996. Kenai River sockeye salmon: an assessment of overescapements as a cause of the decline. Pages 628-638 in S.D. Rice, 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.

•Scribner, K.M., J.L. Bodkin, B.E. Ballachey, S.R. Fain, M.A. Cronin, and M. Sanchez. 1994 Population genetic studies of the sea otter (*Enhydra lutris*): a review and interpretation of available data. In press in Proceedings of the Marine Mammal Genetics Symposium. La Jolla.

Seeb, J.E., C. Habicht, J.B. Olsen, P. Bentzen, J.B. Shaklee, and L.W. Seeb. 1998. Allozyme, mtDNA, and microsatellite variants describe structure of populations of pink and sockeye salmon in Alaska. North Pacific Anadromous Fish Commission. Bulletin Number 1: 300-318

Senner, S.E. 1997. *Exxon Valdez* oil spill: fate and effects in Alaskan waters. Book review, pages 549-559 in W.E. Davis, Jr., ed. Ornithological literature. Wilson Bulletin. 109(3):549-559.

Sharp, B.E., M. Cody, and R. Turner. 1996. Effects of the *Exxon Valdez* oil spill on the black oystercatcher. Pages 748-758 in S.D. Rice, 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.

hort, J.W. and M.M. Babcock. 1996. Prespill and postspill concentrations of hydrocarbons in mussels and sediments in Prince William Sound. Pages 149-166 in S.D. Rice, 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.

_____, and P.M. Harris. 1996. Chemical sampling and analysis of petroleum hydrocarbons in near-surface seawater of Prince William Sound after the *Exxon Valdez* oil spill. Pages 17-28 in S.D. Rice, 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.

_____, and _____. 1996. Petroleum hydrocarbons in caged mussels deployed in Prince William Sound after the *Exxon Valdez* oil spill. Pages 29-39 in S.D. Rice, 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.

____, and R.A. Heintz. 1997. Identification of *Exxon Valdez* oil in sediments and tissues from Prince William Sound and the Northwestern Gulf of Alaska based on a PAH weathering model. Environmental Science and Technology. 31(8):2375-2384.

_____, T.J. Jackson, M.L. Larsen, and T.L. Wade. 1996. Analytical methods used for the analysis of hydrocarbons in crude oil, tissues, sediments, and seawater collected for the natural resources damage assessment of the *Exxon Valdez* oil spill. 1996. Pages 140-148 in S.D. Rice, 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.

•_____, K.A. Kvenvolden, P.R. Carlson, F.D. Hostettler, R.J. Rosenbauer, and B.A. Wright. 1998. Natural hydrocarbon background in benthic sediments of Prince William Sound, Alaska: oil vs. coal. Environmental Science and Technology. 32(24).

_____, D.M. Sale, J.C. Gibeaut. 1996. Nearshore transport of hydrocarbons and sediments after the *Exxon Valdez*. Pages 40-60 in S.D. Rice, 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.

Spies, R.B., S.D. Rice, D.A. Wolfe, and B.A. Wright. 1996. Effects of the Exxon Valdez oil spill on the Alaskan coastal environment. Pages 1-6 in S.D. Rice, 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.

Spraker, T.R. 1990. Hazards of releasing rehabilitated animals with emphasis on sea otters and the *T/V Exxon Valdez* oil spill. Pages 385-389 in K. Bayha and J. Kormendy, tech. coords. and eds. Sea Otter Symposium: Proceedings of a Symposium to Evaluate the Response Effort on Behalf of Sea Otters After the *T/V Exxon Valdez* Oil Spill into Prince William Sound. U Fish and Wildlife Biological Report 90(12).

•Spruell, P., B.A. Greene, C. Habicht, K.L. Knudsen, K.R. Lindner, K.L. Pilgrim, G.K. Sage, J.E. Seeb, and F.W. Allendorf. In press. Inheritance of nuclear DNA markers in gynogenetic haploid pink salmon (*Oncorhynchus gorbuscha*). Journal of Heredity.

_____, L.R. Lowry, and K.J. Frost. 1994. Gross necropsy and histopathological lesions found in harbor seals. Pages 281-311 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

St. Aubin, D.J. and J.R. Geraci. 1994. Summary and conclusions. Pages 371-376 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

Stekoll, M.S. and L. Deysher. 1996. Recolonization and restoration of upper intertidal *Fucus gardneri (Fucales, Phaeophyta)* following the *Exxon Valdez* oil spill. Hydrobiologia. 326/327:311-316.

_____, _____, and T.A. Dean. 1993. Seaweeds and the *Exxon Valdez* oil spill. Pages 135-140 in Proceedings of the 1993 International Oil Spill Conference: Prevention, Preparedness, Response. American Petroleum Institute Publication 4580, Washington, D.C.

_____, _____, R.C. Highsmith, S.M. Saupe, Z. Guo, W.P. Erickson, L. McDonald, and D. Strickland. 1996. Coastal habitat injury assessment: intertidal communities and the *Exxon Valdez* oil spill. Pages 177-192 in S.D. Rice, 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.

Strand, J., S. Senner, A. Weiner, S. Rabinowitch, M. Brodersen, K. Rice, K. Klinge, S. MacMullin, R. Yender, and R. Thompson. 1993. Process to identify and evaluate restoration options. Pages 245-249 in Proceedings of the 1993 International Oil Spill Conference: Prevention, Preparedness, Response. American Petroleum Institute Publication 4580. Washington, D.C.

Sturdevant, M.V., A.C. Wertheimer, and J.L. Lum. 1996. Diet of juvenile pink salmon and chum salmon in oiled and non-oiled nearshore habitats in Prince William Sound, 1989 and 1990. Pages 578-592 in S.D. Rice, 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.

Sugai, S.F., J.E. Lindstrom, and J.F. Braddock. 1997. Environmental influences on the microbial degradation of *Exxon Valdez* oil on the shorelines of Prince William Sound, Alaska. Environmental Science and Technology. 31(5):1564-1572

Sundberg, K., L. Deysher, and L. McDonald. 1996. Intertidal and supratidal site selection using a geographical information system. Pages 167-176 in S.D. Rice, 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.

•Templin, W.D. 1995. Reconstruction of wild pink salmon (*Oncorhynchus gorbuscha*) runs in Prince William Sound, Alaska. M.S. Thesis. University of Alaska, Fairbanks.

_____, J.S. Collie, and T.J. Quinn II. 1996. Run construction of the wild pink salmon fishery in Prince William Sound, 1990-1991. Pages 499-508 in S.D. Rice, 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.

•Testa, J. W., D.F. Holleman, R. T. Bowyer, and J.B. Faro. 1994. Estimating populations of marine river otters in Prince William Sound, Alaska using radiotracer implants. Journal of Mammalogy. 75(4):1021-1032.

•Thomas, R.E., C. Brodersen, M.M. Babcock, M.G. Carls, and S.D. Rice. In press. Lack of physiological responses to hydrocarbon accumulation by *Mytilus trossulus* after three to four years chronic exposure to spilled *Exxon Valdez* crude oil in Prince William Sound. Comparative Biochemistry and Physiology.

•_____, M.G. Carls, S.D. Rice, and L. Shagrun. 1997. Mixed function oxidase induction in pre- and post-spawn herring (*Clupea pallasi*) by petroleum hydrocarbons. Comparative Biochemistry and Physiology. 116C(2):141-147.

•_____, P.M. Harris and S.D. Rice. In press. Survival in air of *Mytilus trossulus* following long-term exposure to spilled *Exxon Valdez* crude oil in Prince William Sound. Comparative Biochemistry and Physiology Part C.

_____, E.V. Patrick, J. Kirsch, and J.R. Allen. 1997. Development of an ecosystem model for managing the fisheries resources of Prince William Sound. Pages 606-613 in D.A. Hancock, D.C. Smith, A. Grant, and J.P. Beumer, eds. Developing and Sustaining World Fisheries Resources – The State of Science and Management. Second World Fisheries Congress. CSIRO Collingwood, VIC, Australia.

Udevitz, M.S. and B.E. Ballachey. 1998. Estimating survival rates with age-structure data. Journal of Wildlife Management. 62(2):779-792.

•_____, J.L. Bodkin, and D.P. Costa. 1995. Sea otter detectability in boat-based surveys of Prince William Sound, Alaska. Marine Mammal Science. 11(1):59-71.

Van Pelt, T.I., J.F. Piatt, B.K. Lance, and D.D. Roby. 1997. Proximate composition and energy density of some North Pacific forage fishes. Comparative Biochemistry and Physiology. 118A(4):1393-1398.

Van Tamelen, P.G. and M.S. Stekoll. 1996. Population response of the brown alga *Fucus gardneri* and other algae in Herring Bay, Prince William Sound, to the *Exxon Valdez* oil spill. Pages 193-211 in S.D. Rice, 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.

_____, and _____. 1996. The role of barnacles in recruitment and subsequent survival of the brown alga, *Fucus gardneri (Silva)*. Journal of Experimental Marine Biology and Ecology. 208:227-238.

_____, and _____. 1995. Recovery mechanisms of the brown alga, *Fucus gardneri*, following catastrophic disturbance: lessons from the *Exxon Valdez* oil spill. Pages 221-228 in D.R. Engstrom, ed. Proceedings of the Third Glacier Bay Science Symposium. National Park Service. Anchorage, Alaska.

•_____, _____, and L. Deysher. 1997. Recovery processes of the brown alga *Fucus gardneri* following the *Exxon Valdez* oil spill: settlement and recruitment. Marine Ecology Progress Series. 160:265-277.

•ver Hoef, J.M. 1996. Parametric empirical Bayes methods for ecological applications. Ecological Application. 6(4):1047-1055.

•Vincent, T.L.S., D. Scheel, and K.R. Hough. 1998. Some aspects of diet and foraging behavior of *Octopus dofleini* (Wulker 191 in its northernmost range. Pubblicazioni della Stazione zoologica di Napoli 1: Marine Ecology. 19(1):13-29.

•Vogelaere, A.P. and M.S. Foster. 1994. Damage and recovery in intertidal *Fucus gardneri* assemblages following the *Exxon Valdez* oil spill. Marine Ecology Progress Series. 106:263-271.

von Ziegesar, O., E. Miller, and M.E. Dahlheim. 1994. Impacts on humpback whales in Prince William Sound. Pages 173-191 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

•Wang, J. and C.N.K. Mooers. 1996. Modeling Prince William Sound ocean circulation. Pages 36-43 in Conference on Coastal Oceanic and Atmospheric Prediction. American Meteorological Society, Boston.

•Wang, S.Y., J.L. Lum, M.G. Carls, and S.D. Rice. 1993. Relationship between growth and total nucleic acids in juvenile pink salmon, *Oncorhynchus gorbuscha*, fed crude oil-contaminated food. Canadian Journal of Fisheries and Aquatic Sciences. 50: 996-1001.

•Ward, A.E. 1997. A temporal study of the phytoplankton spring bloom in Prince William Sound, Alaska. M.S. Thesis. University of Alaska Fairbanks.

Weiner, A.H. 1998. Kenai River restoration and management. Fisheries Management and Restoration. 23(1):6-10.

_____, C. Berg, T. Gerlach, J. Grunblatt, K. Holbrook, and M. Kuwada. 1997. The *Exxon Valdez* oil spill: habitat protection as a restoration strategy. Restoration Ecology. 5(1):45-55.

Wertheimer, A.C., M.J. Bax, A.G. Celewycz, M.G. Carls, and J.H. Landingham. 1996. Harpacticoid copepod abundance and population structure in Prince William Sound, one year after the *Exxon Valdez* oil spill. Pages 551-563 in S.D. Rice, 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.

_____, and A.G. Celewycz. 1996. Abundance and growth of juvenile pink salmon in oiled and non-oiled locations of western Prince William Sound after the *Exxon Valdez* oil spill. Pages 518-532 in S.D. Rice, 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.

Wiedmer, M., M.J. Fink, J.J. Stegeman, R. Smolowitz, G.D. Marty, and D.E. Hinton. 1996. Cytochrome P-450 induction and histopathology in preemergent pink salmon from oiled spawning sites in Prince William Sound. Pages 509-517 in S.D. Rice, 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.

Willette, M. 1996. Impacts of the *Exxon Valdez* oil spill on the migration, growth, and survival of juvenile pink salmon in Prince William Sound. Pages 533-550 in S.D. Rice, 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.

•_____, R.T. Cooney, and K. Hyer. In press. Predator foraging-mode shifts affecting mortality of juvenile fishes during the subarctic spring bloom. Canadian Journal of Fisheries and Aquatic Sciences.

_____, M. Sturdevant, and S. Jewett. 1997. Prey resource partitioning among several species of forage fishes in Prince William Sound, Alaska. Pages 11-29 in Forage Fishes in Marine Ecosystems: Proceedings of the International Symposium on the Role of Forage Fish in Marine Ecosystems. Alaska Sea Grant College Program Report 97-01.

Williams, T.D. and R.K. Wilson. 1990. Blood collection and analysis during the *T/V Exxon Valdez* oil spill. Pages 362-365 in K. Bayha and J. Kormendy, tech. coords. and eds. Sea Otter Symposium: Proceedings of a Symposium to Evaluate the Response Effort on Behalf of Sea Otters After the *T/V Exxon Valdez* Oil Spill into Prince William Sound. U.S. Fish and Wildlife Biological Report 90(12).

Williams, T.M., G.A. Antonelis, and J. Balke. 1994. Health evaluation, rehabilitation, and release of oiled harbor seal pups. Pages 227-241 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

•Wolfe, D.A., M.J. Hameedi, J.A. Galt, G. Watabayashi, J. Short, C. O'Clair, S. Rice, J. Michel, J.R. Payne, J. Braddock, S. Hanna, and D. Salel. 1994. Fate of the oil spilled from the *Exxon Valdez*. Environmental Science and Technology. 28(13):561A-568A.

_____, M.M. Krahn, E. Casillas, S. Sol, T.A. Thompson, J. Lunz, and K.J. Scott. 1996. Toxicity of intertidal and subtidal sediments contaminated by the *Exxon Valdez* oil spill. Pages 121-139 in S.D. Rice, 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.

•_____, K.J. Scott, J.R. Clayton, Jr., J. Lunz, J.R. Payne, and T.S. Thompson. 1995. Comparative toxicities of polar and non-polar organic fractions from sediments affected by the *Exxon Valdez* oil spill in Prince William Sound, Alaska. Chemistry and Ecology. 10:137-156.

Zarnke, R.L., T.C. Harder, H.W. Vos, J.M. Ver Hoef, and A.D.M.E. Osterhaus. 1997. Serologic survey for phocid herpesvirus-1 and -2 in marine mammals from Alaska and Russia, 1978-1994. Journal of Wildlife Diseases. 33(3):459-465.

Zentano-Savin, T. and M.A. Castellini. 1998. Plasma angiotensin II, arginine vasopressin and atrial natriuretic peptide in free ranging and captive seals and sea lions. Comparative Biochemistry and Physiology. 119C(1):1-6.

_____, _____, L.D. Rea, and B.S. Fadely. 1997. Plasma haptoglobin levels in threatened Alaskan pinniped populations. Journal of Wildlife Diseases. 33(1):64-71.

Zimmerman, S.T., C.S. Gorbics, and L.F. Lowry. 1994. Response activities. Pages 23-45 in T.R. Loughlin, ed. Marine Mammals and the *Exxon Valdez*. Academic Press, San Diego.

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Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax: 907/276-7178

MEMORANDUM

TO: Trustee Council

THROUGH: Molly McCammon
Executive Director

FROM: Traci Cramer
Traci Cramer
Administrative Officer

DATE: January 27, 1999

RE: Financial Report as of December 31, 1998

Attached is the Statement of Revenue, Disbursements and Fees, and accompanying notes for the *Exxon Valdez* Joint Trust Fund for the period ending December 31, 1998.

The following is a summary of the information incorporated in the notes and contained on the statement.

Liquidity Account Balance	$48,117,048	
Less: Current Year Adjustments (Note 5)	-23,424,792	
Plus: Other Adjustments (Note 6)	4,540,804	
Uncommitted Fund Balance		$29,233,060
Plus: Future Exxon Payments (Note 1)	$140,000,000	
Less: Remaining Reimbursements (Note 3)	-7,500,000	
Less: Remaining Commitments (Note 7)	-77,331,567	
Total Estimated Funds Available		$84,401,493
Restoration Reserve (Note 8)		$80,153,796

If you have any questions regarding the information provided please do not hesitate to give me a call at 586-7238.

Attachments

cc: Agency Liaisons
Bob Baldauf

NOTES TO THE STATEMENT OF REVENUE, DISBURSEMENTS AND FEES
FOR THE *EXXON VALDEZ* JOINT TRUST FUND
As of December 31, 1998

1. Contributions - Pursuant to the agreement Exxon is to pay a total of $900,000,000.

Received to Date	$690,000,000
Current Year	$70,000,000
Future Payments	$140,000,000

2. Interest Income - In accordance with the MOA, the funds are deposited in the United States District Court, Court Registry Investment System (CRIS). All deposits with CRIS are maintained in United States government treasury securities with maturities of 100 days or less. Total earned since the last report is $130,269.

3. Reimbursement of Past Costs - Under the terms of the agreement, the United States and the State are reimbursed for expenses associated with the spill. The remaining reimbursements represent that amount due the State of Alaska.

4. Fees - CRIS charges a fee of 10% for cash management services. Total paid since the last report is $13,027.

5. Current Year Adjustments – Includes the current year payment (less reimbursements), outstanding deposits to the Restoration Reserve (see note 8) and proceeds of the 1998 securities (see note 8), $2,064,300 associated with the 1999 Work Plan, plus the following land payments.

Seller	Amount	Due
Afognak Joint Venture	$22,357,990	October 1999
Shuyak	$4,000,000	October 1999
Eyak	$13,000,000	February 1999
Eyak	$14,000,000	September 1999

6. Other Adjustments - Under terms of the Agreement, both interest earned on previous disbursements and prior years unobligated funding or lapse are deducted from future court requests. Unreported interest and lapse is summarized below.

	Interest	Lapse
United States	$343,211	$1,965,541
State of Alaska	$1,432,223	$799,829

7. Remaining Commitments - Includes the following land payments.

Seller	Amount	Due
Afognak Joint Venture	$23,025,833	October 2000
Eyak	$18,000,000	September 2000 through 2002
Shuyak	$8,000,000	October 2000 through 2001
Shuyak	$11,805,734	October 2002
Koniag, Incorporated	$16,500,000	September 2002

8. Restoration Reserve - The amount reported includes funds previously transferred, plus

accrued interest less fees - $54,996,296. Although the 1998 and 1999 payments have not been formally transferred from the Liquidity Account to the Restoration Reserve, pursuant to Trustee Council action the payments have been included in the balance along with accrued interest at a rate of 5%. This includes the $12,000,000 transfer approved for Fiscal Year 1998, plus $775,000 in interest accrued since September 15, 1997, and the $12,000,000 transfer approved for Fiscal Year 1999, plus $175,000 in interest accrued since September 15, 1998. The proceeds from the securities that matured on November 15, 1998 have also been included. This includes $9,095,002, plus $46,081 in interest, less $5,069 in fees. Also included in an adjust of $166,488 for fees.

STATEMENT OF REVENUE, DISBURSEMENT, AND FEES
***EXXON VALDEZ* OIL SPILL JOINT TRUST FUND**
As of December 31, 1998

	1996	1997	1998	To Date 1999	Cumulative Total
REVENUE:					
Contributions: (Note 1)					
Contributions from Exxon Corporation	70,000,000	70,000,000	70,000,000	0	690,000,000
Less: Credit to Exxon Corporation for Deposit of Maturing Securities				9,261,490	(39,913,688)
Total Contributions	70,000,000	70,000,000	70,000,000	9,261,490	659,347,802
Interest Income: (Note 2)					
Exxon Corporation escrow account					831,233
Joint Trust Fund Account	3,963,073	2,971,070	2,673,585	578,047	21,602,441
Total Interest	3,963,073	2,971,070	2,673,585	578,047	22,433,674
Total Revenue	**73,963,073**	**72,971,070**	**72,673,585**	**9,839,537**	**681,781,476**
DISBURSEMENTS:					
Reimbursement of Past Costs: (Note 3)					
State of Alaska	3,291,446	5,000,000	3,750,000	0	95,309,288
United States	0	0	0	0	69,812,045
Total Reimbursements	3,291,446	5,000,000	3,750,000	0	165,121,333
Disbursements from Liquidity Account:					
State of Alaska	43,340,950	17,846,130	15,686,600	29,520,000	217,997,928
United States	31,047,824	60,101,802	39,468,461	(300)	200,072,483
Transfer to the Restoration Reserve	35,996,231	12,449,552			48,445,783
Total Disbursements	110,385,004	90,397,484	55,155,061	29,519,700	466,516,194
FEES:					
U.S. Court Fees (Note 4)	396,307	254,221	199,946	48,571	2,026,902
Total Disbursements and Fees	**114,072,758**	**95,651,705**	**59,105,007**	**29,568,271**	**633,664,429**
Increase (decrease) in Liquidity Account	**(40,109,685)**	**(22,680,635)**	**13,568,578**	**(19,728,734)**	**48,117,047**
Liquidity Account Balance, beginning balance	117,067,523	76,957,839	54,277,204	67,845,782	
Liquidity Account Balance, end of period	76,957,839	54,277,204	67,845,782	48,117,047	
Current Year Adjustments: (Note 5)					(23,424,792)
Other Adjustments: (Note 6)					4,540,805
Uncommitted Liquidity Account Balance					**29,233,060**
Future Exxon Payments (Note 1)					140,000,000
Remaining Reimbursements (Note 3)					(7,500,000)
Remaining Commitments: (Note 7)					(77,331,567)
Total Estimated Funds Available					**84,401,493**
Restoration Reserve					**80,153,796**

Statement 1

Statement of *Exxon Valdez* Settlement Funds
As of December 31, 1998

Beginning Balance of Settlement	900,000,000
Receipts:	
Interest Earned on Exxon Escrow Account	337,111
Net Interest Earned on Joint Trust Fund (Note 1)	19,575,540
Interest Earned on United States and State of Alaska Accounts	6,960,690
Total Interest	26,873,341
Disbursements:	
Reimbursements to United States and State of Alaska	165,121,333
Exxon clean up cost deduction	39,913,688
Joint Trust Fund deposits	495,057,702
Total Disbursements	700,092,723
Funds Available:	
Exxon Future Payments	140,000,000
Current Year Payment	70,000,000
Balance in Liquidity Account	48,117,048
Future acquisition payments (Note 2)	(130,689,557)
Alaska Sealife Center	0
Remaining Reimbursements	(11,250,000)
Other (Note 3)	4,453,172
Total Estimated Funds Available	120,630,663
Restoration Reserve	80,153,796

Note 1: Gross interest earned less District Court registry fees.
Note 2: Includes both current year and future year payments
Note 3: Adjustment for unreported interest earned and lapse

Footnote:
Included in the Total Estimated Funds Available is $24,000,000 for the outstanding payments to the Restoration Reserve for Fiscal Years 1998 and 1999 (plus $900,000 of accrued interest), $9,095,002 from the proceeds of the 1998 securities (plus $46,081 in interest, less $5,069 in fees) and the $166,488 remitted to the reserve for the collection of premature fees.

Statement 2

Cash Flow Statement
***Exxon Valdez* Liquidity Account**
As of December 31, 1998

Receipts:		
Exxon payments		
December 1991	36,837,111	
December 1992	56,586,312	
September 1993	68,382,835	
September 1994	58,728,400	
September 1995	67,303,000	
September 1996	66,708,554	
September 1997	65,000,000	
September 1998	66,250,000	
Depsit of Maturing Securities	9,261,490	
Total Deposits	495,057,702	495,057,702
Interest Earned	21,602,442	
Total Interest	21,602,442	21,602,442
Total Receipts		516,660,144
Disbursements:		
Court Requests		
Fiscal Year 1992	12,879,700	
Fiscal Year 1993	27,634,994	
Fiscal Year 1994	50,554,653	
Fiscal Year 1995	89,989,597	
Fiscal Year 1996	74,388,774	
Fiscal Year 1997	77,947,932	
Fiscal Year 1998	55,155,061	
Fiscal Year 1999	29,519,700	
Total Requests	418,070,411	418,070,411
District Court Fees	2,026,902	2,026,902
Transfer to the Restoration Reserve		48,445,783
Total Disbursements		468,543,096
Balance in Joint Trust Fund		48,117,048

Footnote:
A total of $48,445,783 has been disbursed from the Liquidity Account to the Restoration Reserve. Of the total, $48,445,663 was used to purchase laddered securities. The remaining $130 represents costs paid to the Federal Reserve Bank.

Exxon Valdez Restoration Reserve								
Unallocated Deposits/Unallocated Proceeds								
As of December 31, 1998								
	Principal	Adjustment	Interest	Total				
Fiscal Year 1998 Deposit	12,000,000		775,000	12,775,000				
November 15, 1998 Par Value	9,095,002	166,488	41,012	9,302,502				
Fiscal Year 1999 Deposit	12,000,000		175,000	12,175,000				
Total	33,095,002		991,012	34,252,502				
Interest Calculation for Par Value								
				Reserve	Liquidity		Reserve	Liquidity
Period	Reserve	Liquidity	Interest	Interest	Interest	Fees	Fees	Fees
11/19/98 - 11/26/98	9,095,002	38,700,856	40,418	9,499	30,919	4,273	1,004	3,269
11/27/98 - 12/02/98	9,103,496	38,779,821	37,460	8,794	28,666	4,161	977	3,184
12/03/98 - 12/09/98	9,111,313	38,755,403	33,399	7,852	25,547	3,711	872	2,839
12/10/98 - 12/16/98	9,118,292	38,941,348	26,436	6,190	20,246	2,937	688	2,250
adjustment	166,488							
12/17/98 - 12/23/98	9,290,283	38,798,944	29,586	7,084	22,502	3,287	787	2,500
12/24/98 - 12/30/98	9,296,580	38,820,468	27,821	6,663	21,159	3,091	740	2,351
Total				46,081	149,039		5,069	16,393

Schedule of Payments from Exxon
As of December 31, 1998

Disbursements:	September 93	September 94	September 95	September 96	September 97	September 98	September 99	Total
Reimbursements:								
United States								
FFY92	0							24,726,280
FFY93	11,617,165							36,117,165
FFY94	0	6,271,600						6,271,600
FFY95	0		2,697,000					2,697,000
Total United States	11,617,165	6,271,600	2,697,000	0	0	0	0	69,812,045
State of Alaska								
General Fund:								
FFY92	0							25,313,756
FFY93	0							16,685,133
FFY94	14,762,703							14,762,703
FFY95	0	0						0
Mitigation Account:								
FFY92	0							3,954,086
FFY93	0							12,314,867
FFY94	5,237,297	5,000,000						10,237,297
FFY95 (Prevention Account)	0		0					0
FFY96 (Prevention Account)				3,291,446				3,291,446
FFY97 (Prevention Account)					5,000,000			5,000,000
FFY98 (Prevention Account)						3,750,000		3,750,000
Total State of Alaska	20,000,000	5,000,000	0	3,291,446	5,000,000	3,750,000	0	95,309,288
Total Reimbursements	31,617,165	11,271,600	2,697,000	3,291,446	5,000,000	3,750,000	0	165,121,333

Deposits to Joint Trust Fund

FFY92	0							36,837,111
FFY93	68,382,835							124,969,147
FFY94	0							0
FFY95	0	58,728,400	67,303,000					126,031,400
FFY96				66,708,554				66,708,554
FFY97					65,000,000			65,000,000
FFY98						66,250,000		66,250,000
Total Deposits to Joint Trust Fund	68,382,835	58,728,400	67,303,000	66,708,554	65,000,000	66,250,000	0	485,796,212
Exxon clean up cost deduction	0	0	0	0	0	0	0	39,913,688
Total Payments	100,000,000	70,000,000	70,000,000	70,000,000	70,000,000	70,000,000	0	690,831,233

Remaining Exxon payments to be made:

September 1994	
September 1995	
September 1996	
September 1997	
September 1998	
September 1999	70,000,000
September 2000	70,000,000
September 2001	70,000,000
	210,000,000

The December 1991 payment includes interest accrued on the escrow account. The actual disbursements without interest was $24.5 million to the United States, $29 million to the State of Alaska and $36.5 million to the Joint Trust Fund. The total interest earned on the escrow account was $831,233 which was disbursed proportionately. This included $226,280 to the United States, $267,842 to the State of Alaska and $337,111 to the Joint Trust Fund.

The September 1994 reimbursement to the United States included an over-payment of $80,700 to NOAA. This over-payment is a direct result of final costs for damage assessment activities being lower than what was previously estimated. The funds were returned to the Joint Account by reducing the amount transferred to the United States in Court Request number 15.

Schedule of Disbursements
***Exxon Valdez* Liquidity Account**
As of December 31, 1998

	United States	State of Alaska	Court Request Total	Court Fees	Disbursements Total
Total Fiscal Year 1992	6,320,500	6,559,200	12,879,700	23,000	12,902,700
Total Fiscal Year 1993	9,105,881	18,529,113	27,634,994	154,000	27,788,994
Total Fiscal Year 1994	6,008,387	44,546,266	50,554,653	364,000	50,918,653
Court Request 8	3,576,179	7,088,077	10,664,256		
Court Request 9		3,111,204	3,111,204		
Court Request 10	3226182	9,234,909	12,461,091		
Court Request 11	1,450,000		1,450,000		
Court Request 12	17,200,000		17,200,000		
Court Request 13	1,480,251	171,763	1,652,014		
Court Request 14	15,250,000		15,250,000		
Court Request 15	5,837,316	9,863,716	15,701,032		
Court Request 16		12,500,000	12,500,000		
Total Fiscal Year 1995	48,019,928	41,969,669	89,989,597	586,857	90,576,454
Court Request 17		3,294,667	3,294,667		
Court Request 18	8,000,000		8,000,000		
Court Request 19	3,222,224	1,968,898	5,191,122		
Restoration Reserve Transfer			35,996,231		
Court Request 20		8,000,000	8,000,000		
Court Request 21	1,007,000	5,520,500	6,527,500		
Court Request 22	18,818,600	24,556,885	43,375,485		
Total Fiscal Year 1996	31,047,824	43,340,950	110,385,004	396,307	110,781,312
Court Request 23	2,613,500	0	2,613,500		
Court Request 24	176,500	3,075,625	3,252,125		
Court Request 25	785,859	442,833	1,228,692		
Court Request 26	24,154,000	530,000	24,684,000		
Court Request 27	324,700	1,470,900	1,795,600		
Restoration Reserve Transfer			12,449,552		
Court Request 28	0	2,627,000	2,627,000		
Court Request 29	5,919,169	5,699,772	11,618,941		
Court Request 30	26,128,074	4,000,000	30,128,074		
Total Fiscal Year 1997	60,101,802	17,846,130	90,397,484	254,221	90,651,705
Court Request 31	445,200	643,800	1,089,000		
Court Request 32	464,300	996,100	1,460,400		
Court Request 33	14,150,000		14,150,000		
Court Request 34	4,000,000		4,000,000		
Court Request 35	20,408,961	14,046,700	34,455,661		
Court Request 35 Correction					
Total Fiscal Year 1998	39,468,461	15,686,600	55,155,061	199,946	55,355,007
Court Request 35 Correctio	-300		-300		
Court Request 36		29,520,000	29,520,000		
Court Request 37			0		
Court Request 38			0		
Court Request 39			0		
Total Fiscal Year 1999	-300	29,520,000	29,519,700	48,571	29,568,271
Total	**200,072,483**	**217,997,928**	**466,516,194**	**2,026,902**	**468,543,096**

Exxon Valdez Liquidity Account
Interest Earned/District Court Registry Fees
As of December 31, 1998

	FFY 1993	FFY 1994	FFY 1995	FFY 1996	FFY 1997	FFY 1998	FFY 1999	Total
Earnings Deposits	31,124	33,476	55,809					138,092
Earnings Allocated:								
1991								28,704
1992	553,697							1,080,309
1993	639,180	1,461,736						2,100,915
1994		1,876,788	1,402,938					3,279,726
1995			3,661,063	1,202,209				4,863,272
1996				2,364,556	810,894			3,175,451
1997					1,905,955	653,461		2,559,416
1998						1,820,177	529,476	2,349,653
1999								0
Total	1,192,876	3,338,524	5,064,001	3,566,766	2,716,849	2,473,639	529,476	19,437,447
Total Earnings	1,224,000	3,372,000	5,119,809	3,566,766	2,716,849	2,473,639	529,476	19,575,539
egistry Fees:								
1991								3,189
1992	100,223							120,034
1993	53,777	179,658						233,435
1994		184,342	180,072					364,414
1995			406,785	133,579				540,364
1996				262,729	90,099			352,828
1997					164,121	52,983		217,105
1998						146,962	48,571	195,534
1999								0
Total	154,000	364,000	586,857	396,307	254,221	199,946	48,571	2,026,902
Gross Earnings	1,378,000	3,736,000	5,706,667	3,963,073	2,971,070	2,673,585	578,047	21,602,441

Schedule of Interest Earned on United States and State of Alaska Accounts As of December 31, 1998			
	State of Alaska EVOSS Account	United States NRDA& R	Total
January 1995	89,341		89,341
February 1995	100,714		100,714
March 1995	104,570	17,033	121,603
April 1995	95,432		95,432
May 1995	92,595		92,595
June 1995	80,613	50,042	130,655
July 1995	76,424		76,424
August 1995	68,771		68,771
September 1995	59,945	44,826	104,771
October 1995	133,486		133,486
November 1995	154,119		154,119
December 1995	143,917	39,567	183,484
January 1996	134,300		134,300
February 1996	122,348		122,348
March 1996	132,469	64,381	196,850
April 1996	126,550		126,550
May 1996	136,732		136,732
June 1996	145,501	73,267	218,768
July 1996	128,195		128,195
August 1996	106,079		106,079
September 1996	110,890	29,042	139,933
October 1996	181,598		181,598
November 1996	162,806		162,806
December 1996	153,991	71,093	225,084
January 1997	147,934		147,934
February 1997	125,137		125,137
March 1997	131,457	24,374	155,831
April 1997	122,111		122,111
May 1997	114,954		114,954
June 1997	99,811	368,523	468,334
July 1997	221,906		221,906
August 1997	36,898		36,898
September 1997	159,695	38,289	197,984
October 1997	119,195		119,195
November 1997	49,120		49,120
December 1997	92,204	130,183	222,387
January 1998	120,038		120,038
February 1998	29,888		29,888
March 1998	59,202	76,715	135,917
April 1998	55,222		55,222
May 1998	59,406		59,406
June 1998	50,136	74,613	124,749
July 1998	37,216		37,216
August 1998	78,178		78,178
September 1998	157,592	(44,921)	112,670
October 1998	61,091		61,091
November 1998	(25,691)		(25,691)
December 1998	75,024	87,633	162,656
Total	5,789,270	1,334,076	7,123,346

NOTE: The $117,178 NRDA&R interest figure is cummulative.

Interest was earned for the period July 1992 through December 1994, but the specific amounts have been hidden to allow the spreadsheet to print on one page.

Schedule of Interest Adjustments to the Court Requests
As of December 31, 1998

	October	November	December	January	February	March	April	May	June	July	August	Total	Unallocated
United States													
FFY92												2	Baldauf 12/6/96
FFY93			39,871						3,648			43,519	
FFY94			51,231						22,427			73,658	
FFY95	34,621		37,618			3,849					63,226	139,314	
FFY96				48,676				37,100		26,600	109,666	222,042	
FFY97			29,041								463,989	493,030	
FFY98										19,000	300	19,300	
FFY99												0	
Total United States												**990,865**	**343,211**
State of Alaska													
FFY92												0	
FFY93			80,775						35,012			115,787	
FFY94			64,944						239,090			304,034	
FFY95	52,823	117,838	44,291			320,837					449,634	985,423	
FFY96				262,202				300		289,400	934,433	1,486,335	
FFY97				398,567		275,700					782,501	1,456,768	
FFY98										8,700		8,700	
FFY99												0	
Total State of Alaska												**4,357,047**	**1,432,223**
Total Adjustment												**5,347,912**	**1,775,435**

Footnote: The unallocated interest is tied to the INT Acct. sheet.

Schedule of Lapse Adjustments to the Court Requests
As of December 31, 1998

	December 1993	June 1994	August 1995	August 1996	August 1997	Total
Disbursements:						
Court Requests						
United States						
FFY92						0
FFY93						0
FFY94		3,106,555				3,106,555
FFY95			220,858			220,858
FFY96				1,165,334		1,165,334
FFY97					1,102,442	1,102,442
FFY98						0
FFY99						0
Total United States	0	3,106,555	220,858	1,165,334	1,102,442	5,595,189
State of Alaska						
FFY92						0
FFY93						0
FFY94	3,661,600					3,661,600
FFY95			2,376,950			2,376,950
FFY96				2,500,448		2,500,448
FFY97					3,549,927	3,549,927
FFY98						0
FFY99						0
Total State of Alaska	3,661,600	0	2,376,950	2,500,448	3,549,927	12,088,925
Total Adjustment	3,661,600	3,106,555	2,597,808	3,665,782	4,652,369	17,684,114

Schedule of Work Plan Au ations and Other Authorizations

	FFY 92	FFY 93	FFY 94	FFY 95	FFY 96	FFY 97	FFY 98	FFY 99	Total
Work Plan Authorizations									
United States:									
June 15, 1992	6,320,500	0	0						
January 25, 1993	0	3,113,900	0						
January 25, 1993	0	6,035,500	0						
November 10, 1993	0	0	0						
November 30, 1993	0	0	2,567,300						
June 1994			4,536,800						
June 1994			84,500						
July 1994			1,500,000						
Carry Forward Authorization				463,500					
August 1994				2,110,800					
November 1994				2,514,200					
December 1994				749,600					
March 1995				1,484,100					
August 1995				(36,700)	6,238,800				
December 1995					3,270,900				
January 1996					150,000				
April 1996					478,000				
May 1996				21,900	15,200				
June 1996					23,000				
August 1996						7,923,700			
December 1996						310,900			
February 1997						0			
May 1997						0			
August 1997						85,000	7,263,600		
December 1997							445,200		
June 1998							(39,200)		
August 1998								5,397,700	
December 1998								451,100	
Total	6,320,500	9,149,400	8,688,600	7,307,400	10,175,900	8,319,600	7,669,600	5,848,800	63,479,800

Schedule of Work Plan Aut ations and Other Authorizations

Work Plan Authorizations State of Alaska	FFY 92	FFY 93	FFY 94	FFY 95	FFY 96	FFY 97	FFY 98	FFY 99	Total
June 15, 1992	6,559,200	0	0						
January 25, 1993	0	3,574,000	0						
January 25, 1993	0	7,570,900	0						
November 30, 1993	0	0	4,454,400						
June 1994			12,391,700						
June 1994			215,800						
July 1994			0						
Carry Forward Authorization				576,300					
August 1994				7,140,900					
November 1994				9,098,700					
December 1994				180,500					
March 1995				492,600					
August 1995				36,700	12,653,600				
December 1995					2,231,100				
April 1996					500,000				
May 1996					300				
June 1996					0				
August 1996						11,606,300			
December 1996						310,400			
February 1997						275,700			
May 1997						0			
August 1997						(85,000)	9,393,200		
December 1997							643,800		
June 1998							66,900		
August 1998								8,131,400	
December 1998								1,613,200	
January 1999								12,700	
Total	6,559,200	11,144,900	17,061,900	17,525,700	15,385,000	12,107,400	10,103,900	9,757,300	99,645,300

Schedule of Work Plan Aut ations and Other Authorizations

	FFY 92	FFY 93	FFY 94	FFY 95	FFY 96	FFY 97	FFY 98	FFY 99	Total
Other Authorizations									
United States:									
Orca Narrows (6/94)			2,000,000	1,450,000					3,450,000
Eyak Limited Conservation Easement				200,000					200,000
Eyak								13,000,000	13,000,000
Kodiak National Wildlife Refuge (3/95, 9/95 AKI)				21,000,000	7,500,000	7,500,000			36,000,000
Kodiak National Wildlife Refuge (3/95, 9/95 Old Harbor)				11,250,000					11,250,000
Koniag					12,500,000	4,500,000			17,000,000
Small Parcels					379,000	3,740,200	4,464,300		8,583,500
Chenega Land Acquisition						24,000,000			24,000,000
Chenega-Area Oiling Reduction					3,600	157,400	182,000		343,000
Tatitlek							14,150,000		14,150,000
English Bay						14,128,074			14,128,074
Total			2,000,000	33,900,000	20,382,600	54,025,674	18,796,300	13,000,000	142,104,574
State of Alaska:									
Kachemak Bay State Park (1/95)		7,500,000							7,500,000
Alutiiq Repository (11/93)		1,500,000							1,500,000
Seal Bay (11/93,11/94,11/95,11/96)			29,950,000	3,229,042	3,294,667	3,075,625			39,549,334
Shuyak (3/96, 10/96 - 10/02					8,000,000	2,194,266	4,000,000		14,194,266
Afognak Joint Ventures (10/98)								28,000,000	28,000,000
Small Parcels					5,020,500	3,738,000	996,100	770,000	10,524,600
Alaska SeaLife Center				12,500,000	12,456,000				24,956,000
Chenega-Area Oiling Reduction					0	1,732,000			1,732,000
Alaska SeaLife Center Fish Pass						545,600			545,600
Alaska SeaLife Center Equipment						724,000			724,000
Sound Waste Management Plan						1,167,900		1,857,100	3,025,000
Total		9,000,000	29,950,000	15,729,042	28,771,167	13,177,391	4,996,100	30,627,100	132,250,800
Total Other Authorizations	0	9,000,000	31,950,000	49,629,042	49,153,767	67,203,065	23,792,400	43,627,100	274,355,374
Total Work Plan Authorizations	12,879,700	20,294,300	25,750,500	24,833,100	25,560,900	20,427,000	17,773,500	15,606,100	163,125,100
Restoration Reserve					35,996,231	12,449,552	0	0	48,445,783
Total Authorized	12,879,700	29,294,300	57,700,500	74,462,142	110,710,897	100,079,617	41,565,900	59,233,200	485,926,257

Exxon Valdez storation Reserve
For the period ending December 31, 1998

	Purchase Date	Maturity Date	Unit Cost	Bond Yield	Holding Period	Par Value	Purchase Price	Projected Interest	Daily Accrual	Interest Accrued	Fees Accrued
A1	02/15/96	11/15/97	92.014982	4.820%	639	6,520,000	5,999,376.83	520,623.17	814.75	520,623.17	52,062.32
A2	02/15/96	11/15/98	87.582363	4.885%	1004	6,850,000	5,999,391.87	850,608.13	847.22	850,608.13	85,060.81
A3	02/15/96	11/15/99	82.953778	5.050%	1369	7,232,000	5,999,217.22	1,232,782.78	900.50	945,523.68	94,552.37
A4	02/15/96	11/15/00	78.462785	5.175%	1735	7,646,000	5,999,264.54	1,646,735.46	949.13	996,583.42	99,658.34
A5	02/15/96	11/15/01	73.993112	5.310%	2100	8,108,000	5,999,361.52	2,108,638.48	1,004.11	1,054,319.24	105,431.92
A6	02/15/96	11/15/02	69.640845	5.435%	2465	8,615,000	5,999,558.80	2,615,441.20	1,061.03	1,114,082.46	111,408.25
B1	06/19/97	11/15/98	92.238000	5.835%	514	2,245,000	2,070,743.10	174,256.90	339.02	174,256.90	17,425.69
B2	06/19/97	11/15/99	86.555000	6.095%	879	2,397,000	2,074,723.35	322,276.65	366.64	205,318.46	20,531.85
B3	06/19/97	11/15/00	81.242000	6.195%	1245	2,554,000	2,074,920.68	479,079.32	384.80	215,489.49	21,548.95
B4	06/19/97	11/15/01	76.141000	6.285%	1610	2,725,000	2,074,842.25	650,157.75	403.82	226,141.83	22,614.18
B5	06/19/97	11/15/02	71.628000	6.270%	1975	2,896,000	2,074,346.88	821,653.12	416.03	232,975.06	23,297.51
B6	06/19/97	11/15/03	66.930000	6.360%	2340	3,106,000	2,079,915.79	1,026,084.21	438.50	245,558.61	24,555.86
C1	11/17/97	11/15/04	66.629000	5.890%	2555	9,281,000	6,183,837.49	3,097,162.51	1,212.20	497,000.64	49,700.06
										7,278,481.09	727,848.11

Calculations:
Projected Interest = Par Value - Purchase Price
Daily Accrual = Projected Interest/Holding Period

Interest Accrued is linked to the interest workbook

Fees Accrued is linked to the fees workbook

Deposits:		FBR
FY 96	35,996,170.78	60.00
FY 97	12,449,492.05	60.00
FY 98		10.00
Principal	48,445,662.83	
Gross Earnings	7,278,481.09	
Less: Fees @10%	727,848.11	
Total	54,996,295.81	
Pending	25,157,500.27	
Balance	80,153,796.08	130.00
Prior Period	79,663,491.24	
Net Change	490,304.84	

Fees to Date	Unpaid Fees
52,062.32	675,785.79

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax:907/276-7178

January 26, 1999

Ms. Anne M. Walker, Executive Director
Chugachmiut, Inc.
4201 Tudor Centre Dr., Suite 210
Anchorage, Alaska 99508

Re: Request for Proposals (RFP) # 10-98-071

Dear Ms. Walker:

At its meeting on January 22, 1999, the *Exxon Valdez* Oil Spill Trustee Council agreed to provide $2.8 million to the Alaska Department of Natural Resources to administer as a grant award to Chugachmiut for an archaeological repository in Seward, seven local display facilities and traveling exhibits. I have enclosed a copy of the Council's unsigned resolution. (It is being circulated to the Trustee Council members for their signatures.)

Please notice that the Council resolution attaches five conditions to use of joint trust funds for this project. The first condition states, "Prior to authorization of the first phase of the project, the Executive Director must determine that the project manager designated by the Grantee has the necessary expertise, professional qualifications and time to ensure successful completion of this project."

I will contact you soon to begin grant negotiations. The first step in grant negotiations will be a meeting with you to discuss designation of a project manager who meets the conditions set by the Trustee Council.

I appreciate the cooperation you have shown in responding to the initial Request for Proposals and subsequent requests for information.

Sincerely,

Veronica Christman

Veronica Christman
Grant Manager

Enclosure

cc: Molly McCammon, Executive Director, *Exxon Valdez* Oil Spill Trustee Council

RESOLUTION OF THE
***EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL**
REGARDING AN ARCHAEOLOGICAL REPOSITORY IN
PRINCE WILLIAM SOUND AND LOWER COOK INLET

WHEREAS on December 18, 1997, the *Exxon Valdez* Oil Spill Trustee Council ("Council") adopted a resolution regarding funding for archaeological repositories in Prince William Sound and the lower Kenai Peninsula and directed the Executive Director of the Trustee Council ("Executive Director") to invite comprehensive proposals for a regional repository in one of the eight communities at a cost not to exceed $1 million, local display facilities in the remaining seven communities at a total cost not to exceed $1.6 million, and traveling exhibits at a cost not to exceed $200,000; and

WHEREAS on May 1, 1998, the Alaska Department of Natural Resources, on behalf of the Council solicited competitive grant proposals for a regional repository, local display facilities and traveling exhibits in Prince William Sound and lower Cook Inlet; and

WHEREAS proposals were received from Chugachmiut, in partnership with Chugach Alaska Corporation and Qutekcak Native Tribe, ("Chugachmiut") and the Valdez Native Tribe, in partnership with the City of Valdez ("Valdez Native Tribe"); and

WHEREAS both proposals meet minimum requirements, including financial guarantees; and

WHEREAS the proposal from Chugachmiut demonstrated far greater community support in the form of resolutions from village councils in the affected area than did the proposal from the Valdez Native Tribe;

THEREFORE we resolve to provide $2.8 million (plus a reasonable amount of funding for project management and general administration to be approved by the Council) to the Alaska Department of Natural Resources to administer as a grant award to Chugachmiut ("Grantee") to restore archaeological resources in Prince William Sound and lower Cook Inlet. The funds are to be allocated as follows:

1. $1 million for a regional repository in Seward to house and display spill-related artifacts;

2. $1.6 million for the construction of new or renovated community facilities in Valdez, Cordova, Tatitlek, Chenega, Port Graham, Nanwalek and Seldovia; and

3. $200,000 for the development of traveling exhibits of spill-related archaeological materials for display in community facilities in the spill area.

Furthermore, the Council attaches the following conditions to use of joint trust funds for this project:

1. Prior to authorization of the first phase of the project, the Executive Director must determine that the project manager designated by the Grantee has the necessary expertise, professional qualifications and time to ensure successful completion of this project..

2. Before the Executive Director may authorize the Grantee to proceed to the construction phase of the repository component, an independent review of operating costs and revenues, the financial guarantees to build and operate the facility and other aspects of the Grantee's business plan must be completed. The review should be conducted by AIDEA or a similar organization with appropriate expertise.

3. Either the Grantee or the Alaska Department of Natural Resources may terminate the project after consideration of the results of the independent review of operating costs and revenues.

4. Before the Executive Director may authorize the Grantee to proceed to the construction phase of the repository component, the Grantee must provide adequate guarantees to build and support the facility for 20 years.

5. Before the Executive Director may authorize the Grantee to proceed to the construction phase of the local display facility component, the Grantee, in collaboration with the University of Alaska, must develop appropriate training programs for staff in the local display facilities. The Grantee must finance the training programs with funds other than joint trust funds.

Approved by the Council at its meeting of January 22, 1999, held in Anchorage, Alaska, as affirmed by our signatures affixed below:

DAVE GIBBONS
Trustee Representative
Alaska Region
USDA Forest Service

BRUCE M. BOTELHO
Attorney General
State of Alaska

ROBERT T. ANDERSON
Acting Special Assistant to the
Secretary for Alaska
U.S. Department of the Interior

STEVEN PENNOYER
Director, Alaska Region
National Marine Fisheries Service

FRANK RUE
Commissioner
Alaska Department of
Fish and Game

MICHELE BROWN
Commissioner
Alaska Department of
Environmental Conservation

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax:907/276-7178

January 26, 1999

Ms. Benna M. Hughey, President
Valdez Native Tribe
P.O. Box 1108
Valdez, Alaska 99686

Re: Request for Proposals (RFP) # 10-98-071

Dear Ms. Hughey:

At its meeting on January 22, 1999, the *Exxon Valdez* Oil Spill Trustee Council agreed to provide $2.8 million to the Alaska Department of Natural Resources to administer as a grant award to Chugachmiut for an archaeological repository in Seward, seven local display facilities and traveling exhibits. I have enclosed a copy of the Council's unsigned resolution. (It is being circulated to the Trustee Council members for their signatures.)

The Trustee Council found that both proposals meet minimum requirements, including financial guarantees, but that the proposal from Chugachmiut demonstrated far greater community support in the form of resolutions from village councils in the affected area than did the proposal from the Valdez Native Tribe. At its meeting, Council members expressed their gratitude for your participation in this process.

The Trustee Council's action authorizes funds for a local display facility in Valdez. About $200,000 will be available for each local display facility. I hope the Valdez community will be able to use these funds constructively to develop a facility to display cultural materials related to the spill. Please contact Ms. Anne M. Walker, Executive Director, Chugachmiut, Inc., at 562-4155, for further information about the local display facility program.

I appreciate the cooperation you have shown in responding to the initial Request for Proposals and subsequent requests for information.

Sincerely,

Veronica Christman

Veronica Christman
Grant Manager

Enclosure

cc: Molly McCammon, Executive Director, *Exxon Valdez* Oil Spill Trustee Council

RESOLUTION OF THE
***EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL**
REGARDING AN ARCHAEOLOGICAL REPOSITORY IN
PRINCE WILLIAM SOUND AND LOWER COOK INLET

WHEREAS on December 18, 1997, the *Exxon Valdez* Oil Spill Trustee Council ("Council") adopted a resolution regarding funding for archaeological repositories in Prince William Sound and the lower Kenai Peninsula and directed the Executive Director of the Trustee Council ("Executive Director") to invite comprehensive proposals for a regional repository in one of the eight communities at a cost not to exceed $1 million, local display facilities in the remaining seven communities at a total cost not to exceed $1.6 million, and traveling exhibits at a cost not to exceed $200,000; and

WHEREAS on May 1, 1998, the Alaska Department of Natural Resources, on behalf of the Council solicited competitive grant proposals for a regional repository, local display facilities and traveling exhibits in Prince William Sound and lower Cook Inlet; and

WHEREAS proposals were received from Chugachmiut, in partnership with Chugach Alaska Corporation and Qutekcak Native Tribe, ("Chugachmiut") and the Valdez Native Tribe, in partnership with the City of Valdez ("Valdez Native Tribe"); and

WHEREAS both proposals meet minimum requirements, including financial guarantees; and

WHEREAS the proposal from Chugachmiut demonstrated far greater community support in the form of resolutions from village councils in the affected area than did the proposal from the Valdez Native Tribe;

THEREFORE we resolve to provide $2.8 million (plus a reasonable amount of funding for project management and general administration to be approved by the Council) to the Alaska Department of Natural Resources to administer as a grant award to Chugachmiut ("Grantee") to restore archaeological resources in Prince William Sound and lower Cook Inlet. The funds are to be allocated as follows:

1. $1 million for a regional repository in Seward to house and display spill-related artifacts;

2. $1.6 million for the construction of new or renovated community facilities in Valdez, Cordova, Tatitlek, Chenega, Port Graham, Nanwalek and Seldovia; and

3. $200,000 for the development of traveling exhibits of spill-related archaeological materials for display in community facilities in the spill area.

Furthermore, the Council attaches the following conditions to use of joint trust funds for this project:

1. Prior to authorization of the first phase of the project, the Executive Director must determine that the project manager designated by the Grantee has the necessary expertise, professional qualifications and time to ensure successful completion of this project..

2. Before the Executive Director may authorize the Grantee to proceed to the construction phase of the repository component, an independent review of operating costs and revenues, the financial guarantees to build and operate the facility and other aspects of the Grantee's business plan must be completed. The review should be conducted by AIDEA or a similar organization with appropriate expertise.

3. Either the Grantee or the Alaska Department of Natural Resources may terminate the project after consideration of the results of the independent review of operating costs and revenues.

4. Before the Executive Director may authorize the Grantee to proceed to the construction phase of the repository component, the Grantee must provide adequate guarantees to build and support the facility for 20 years.

5. Before the Executive Director may authorize the Grantee to proceed to the construction phase of the local display facility component, the Grantee, in collaboration with the University of Alaska, must develop appropriate training programs for staff in the local display facilities. The Grantee must finance the training programs with funds other than joint trust funds.

Approved by the Council at its meeting of January 22, 1999, held in Anchorage, Alaska, as affirmed by our signatures affixed below:

DAVE GIBBONS
Trustee Representative
Alaska Region
USDA Forest Service

BRUCE M. BOTELHO
Attorney General
State of Alaska

ROBERT T. ANDERSON
Acting Special Assistant to the
Secretary for Alaska
U.S. Department of the Interior

STEVEN PENNOYER
Director, Alaska Region
National Marine Fisheries Service

FRANK RUE
Commissioner
Alaska Department of
Fish and Game

MICHELE BROWN
Commissioner
Alaska Department of
Environmental Conservation

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax:907/276-7178

MEMORANDUM

TO: Trustee Council Members

FROM: Molly McCammon
Executive Director

DATE: January 22, 1999

RE: Amendment to project 99250 Project Management

The Alaska Department of Environmental Conservation (DEC) has requested funding to cover unbudgeted project management costs primarily associated with implementation of the Kodiak Island Borough Master Waste Management Plan (99304). The project was approved by the Trustee Council to address marine pollution derived from land-based sources and waste management practices of the remote communities on Kodiak Island. The project was funded for a total amount of $1,857,000, and is considered to be a capital project.

The DEC Project Manager will be responsible for developing a Memorandum of Understanding with the Kodiak Island Borough, reviewing progress reports and participating in project status meetings.

It is my recommendation that for FY99, the Council provide funding to support two months of project management. DEC estimates this cost to be $5,500 a month for a total increase of $12,700 (including GA). In addition, I recommend that any future project management costs associated with FY 00 and FY 01 be considered as part of the 00250 and 01250 project management budgets.

****
*** ACTIVITY REPORT ***
****

TRANSMISSION OK

TX/RX NO.	5090
CONNECTION TEL	19075867589
CONNECTION ID	JUNEAU OFFICE
START TIME	01/28 11:28
USAGE TIME	00'55
PAGES	2
RESULT	OK

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax: 907/276-7178

FAX COVER SHEET

To: Traci Number:

From: Molly Date: 1-28-99

Comments: Total Pages: 2

FAX COMPLETE

fax a signed copy to Traci when complete. also gave copy to Sandra ty

HARD COPY TO FOLLOW no

Document Sent By:

3/27/96

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax: 907/276-7178

MEMORANDUM

To: Karim Schultz
Alaska Department of Fish & Game

From: Tami Yockey
Administrative Assistant II

Date: January 21, 1999

Subject: Completed STR Books

Enclosed you will find the completed State Travel Reimbursement books numbered 1109581 - 1109590 and 1109591 - 110600.

If you have any questions or need additional information, please give me a call.

Thank you.

ty

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax:907/276-7178

MEMORANDUM

TO: Public Advisory Group members

FROM: Eric F. Myers
Director of Operations

DATE: January 15, 1999

SUBJ: January 21-22, 1999 Meeting Materials

In addition to the agenda, please find enclosed several items to help facilitate discussion on the Restoration Reserve.

- Draft PAG "Summary of Areas of Agreement" regarding the Restoration Reserve. This working draft document was developed by the PAG at its June 1-2, 1998 meeting to generally describe common areas of agreement among the PAG members participating in that meeting.

- Discussion Draft: Elements of A Long-range Restoration Program. A background and discussion paper is enclosed that describes the history of the Restoration Reserve and the public involvement process undertaken to obtain comment on how the reserve should be used and managed in the future. The discussion paper is provided to highlight key issues or questions that have been identified through the public process to this point. Drawing on a wide range of comment received by the Restoration Office, staff prepared the draft to outline several possible elements that might be included in a long-term restoration program. These include habitat protection, restoration research/monitoring and general/community-based projects. This document is a discussion draft only. It is not an Executive Director's recommendation, but rather has been developed for use by the Trustees and the PAG to facilitate the decision-making process.

- Gulf Ecosystem Monitoring (GEM) program. This outline of a long-term scientific research/monitoring program concept summarizes many of the ideas that have been discussed during presentations to the Trustee Council.

- Management applications from restoration projects. This is a listing of various management applications that have been derived from Trustee Council sponsored projects to illustrate how the results of restoration projects have been used by resource managers.

- Subsistence and Community Restoration projects. Two memos are included that identify projects that have been funded as well as other ideas that have been proposed.

A summary analysis of public comment received to date on the Restoration Reserve will be provided at the meeting on January 22.

enclosures

REVISED DRAFT 1/13/99

The *Exxon Valdez* Oil Spill Civil Settlement
RESTORATION RESERVE

DISCUSSION DRAFT:
ELEMENTS OF A LONG-TERM RESTORATION PROGRAM

Background

In November 1994, following an extensive public involvement process that included preparation of a full Environmental Impact Statement, the *Exxon Valdez* Oil Spill Trustee Council ("Trustee Council") officially adopted the *Restoration Plan* to guide a comprehensive and balanced program to restore injured resources and services.

The *Restoration Plan* defined the restoration Mission and provided specific Policies to guide decisions by the Trustee Council. The *Restoration Plan* identified five categories of restoration activities:

- General Restoration;
- Habitat Protection and Acquisition;
- Research and Monitoring;
- Public Information, Science Management and Administration; and
- Restoration Reserve.

The *Restoration Plan* recognized that complete recovery from the oil spill would not occur for decades and that only through long-term observation and, as needed, restoration actions, could injured resources and services be restored: "To understand the effect of these [oil spill] injuries on the ecosystem and to take appropriate restoration actions on an ecosystem basis will require actions well into the future."[1]

In response to this identified long-term need, the Trustee Council established the Restoration Reserve to hold funds to be used for restoration after the last annual payment is received from the Exxon Corporation:

> Annual payments by Exxon Corporation to the Restoration Fund end September 2001. To prepare for that time, and to ensure restoration activities which need to be accomplished after that time have a source of funding, the Trustee Council will place a portion of the annual payments into the Restoration Reserve.[2]

The *Restoration Plan* stated an intent to place $12 million per year into the Restoration Reserve but also indicated that the exact amount would be determined annually by the Trustee Council after considering restoration funding needs in a given year.

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[1] *Restoration Plan*, Chapter 3, p. 27.
[2] *Restoration Plan*, Chapter 3, p. 27.

> The Trustee Council intends these funds to be available for restoration in the years following the last payment into the trust fund by Exxon in the year 2001. However, because restoration needs through the year 2001 are not yet known, the Trustees must have flexibility to use the reserve to fund restoration projects that are clearly needed and cannot be funded by other means. Therefore, while the Council expects the principal and interest from the reserve to be available following Exxon's last payment, the Trustee Council may, following a finding of need, use the principal or interest retained within the fund before that time.[3]

Additionally, the *Restoration Plan* states that funds from the Restoration Reserve could potentially benefit any resource or service injured by the oil spill and that all expenditures must be consistent with the requirements of the Court settlement.

As part of the FY 99 Work Plan the Trustee Council authorized the sixth in a series of $12 million deposits into the reserve, bringing the total in the account to $72 million plus interest. It is anticipated that annual deposits of $12 million in each of the next 3 years will provide a total reserve of $108 million plus interest. Funds in the Restoration Reserve are presently invested in government securities consistent with the requirements of the settlement. These investment instruments are currently earning approximately 5% per year. It is estimated that the total value of the reserve funds, including accrued earnings, will be approximately $140 million in the year 2001.

The *Restoration Plan*: A Comprehensive and Balanced Approach

Over the time since the *Restoration Plan* was adopted in 1994, the Trustee Council has focused restoration efforts in three primary areas:

- implementation of *habitat protection and acquisition* efforts;
- *research and monitoring* specific to individual species as well as broader ecosystem based investigations to provide new knowledge and tools for improved resource management; and
- a variety of other *general restoration* projects including numerous community-based restoration efforts.

A review of efforts to date indicate that there have been many accomplishments even while much remains to be done to fully realize the goal of restoration.

Habitat Protection - In 1994, the Trustee Council adopted formal resolutions that specifically identified an ambitious series of large parcel habitat protection acquisitions throughout the spill area. Since that time, agreements have been successfully negotiated with nearly all of the major spill area landowners as initially contemplated in 1994. Habitat purchase agreements have been completed or signed with ten major landowners to protect lands throughout the spill region (Kachemak Bay, Akhiok-Kaguyak, Chenega, English Bay, Koniag, Old Harbor, Orca Narrows, Seal Bay/Tonki Cape, Shuyak Island, Tatitlek, AJV, Eyak). Efforts are on going to secure permanent protection for the Karluk and Sturgeon rivers (Koniag – Phase II). Only one Large Parcel habitat protection effort was halted after the landowner (Port Graham) halted negotiations.

[3] *Restoration Plan*, Chapter 3, p. 27.

Assuming successful conclusion of present efforts under the Large Parcel program, approximately 636,000 acres of land in the spill area will have been protected. This will provide enhanced protection to approximately 1,320 miles of coastline and 287 anadromous fish streams. In addition, under the Small Parcel program it is expected that more than $20 million will be invested to protect approximately fifty individual small parcels totaling more than 8,000 acres. Together, efforts under the two programs along with the associated support costs represent a commitment approaching $400 million or substantially more than half of the settlement funds under the control of the Trustee Council.[4]

Scientific Research and Monitoring - Significant progress has also been made in the area of scientific research to understand the status of oil spill injuries and help guide resource management decisions. Including projects approved as part of the FY 99 work plan, more than $100 million has been authorized by the Trustee Council to support a wide variety of restoration research and monitoring efforts.

The most recent FY 99 work plan continues themes initiated in earlier years: monitoring the recovery status of species injured by the oil spill, research into factors that may be limiting recovery of injured resources, and research that provides new tools to resource managers to better manage and protect resources. The unique cold water laboratory research capacity provided by the Alaska SeaLife Center is now fully operational, providing the ability to undertake research projects that could not previously be considered. Additionally, the three major ecosystem investigations – the Sound Ecosystem Assessment (SEA), Nearshore Vertebrate Predator (NVP) project and the Apex Predator Experiment (APEX) – are now nearing conclusion, with each one providing significant new insight into the fundamental oceanographic and biological processes that influence recovery and productivity in the northern Gulf of Alaska.

The Trustee Council's commitment to a scientific program recognizes that while protection of upland habitat is critical, it is not alone sufficient to ensure the long-term recovery of injured marine resources. For example, the Trustee Council has protected the forested nesting habitat of marbled murrelets, but recovery of this species is not assured unless its forage fish prey base is also understood and protected. It is also essential to prevent the depletion and degradation of marine environments due to human activities and to understand the interaction of these activities with natural changes.

Even while the Trustee Council's restoration research and monitoring program has greatly advanced overall understanding of recovery in the oil spill region, many critical questions remain. The *Update on Injured Resources and Services* in September 1996 resulted in only one resource (bald eagles) being identified as fully recovered while three additional resources were newly recognized as injured and added to the list (red faced cormorants, pelagic cormorants, and double crested cormorants).[5] While there are signs that a number of injured resources are now recovering, the status of others remains

[4] Funds under the control of the Trustee Council include Exxon payments net of the $213.1 million for reimbursement of costs to the federal and State governments and deductions due Exxon for additional cleanup as provided for by the Consent Decree.

[5] Two other resources (Kittlitz murrelet, common loon) were previously added to the injured resources list in August 1995.

uncertain. A draft update on the status on the recovery of injured resources was published in January 1999 and is undergoing public review and comment.

General Restoration - The Trustee Council has authorized numerous general restoration projects, many of which have been the result of community-based initiatives. Examples of such projects include a wide variety of subsistence restoration efforts such as salmon releases and instream habitat enhancements to improve local subsistence fisheries, subsistence food safety testing, clam mariculture, community-based harbor seal biosampling, experimental shoreline oil removal, documentaries of subsistence harbor seal and herring harvest practices, and elders-youth conferences. Other general restoration projects include enhancement of wild stocks important to commercial fisheries, reduction of marine pollution through improved waste disposal practices, and human use modeling to improve management of marine recreation impacts.

In responding to community-based restoration projects presented to the Trustee Council, the state Trustees have coordinated closely with the Alaska Department of Community and Regional Affairs (DCRA) in the administration of $5 million in grant funding from the state criminal settlement for subsistence restoration projects for unincorporated communities in the spill area authorized by the Alaska Legislature (SB 183).

Planning for the Future: Public Involvement and Comment

The Trustee Council has undertaken a broad based public involvement effort to solicit comment on how the Restoration Reserve should be used and managed in the future. This has included efforts to generate public comment through the *Restoration Update* newsletter, development of a Restoration Reserve "options paper" describing key issues involved in making choices about the Restoration Reserve, holding community meetings throughout the spill impact area and in Anchorage, Fairbanks and Juneau, and extensive review of this issue by the Public Advisory Group (PAG).

Public Information - A formal effort to solicit public comment on the Restoration Reserve was initiated through publication of an article in the *Restoration Update* (August-September 1997) newsletter. The article highlighted key questions concerning the Restoration Reserve such as future use of the reserve funds, whether the current Trustee Council governance structure should be continued or changed, and what kind of public involvement processes should be used in the future. During 1997, the Restoration Office prepared a working draft "options paper" that further examined these key issues. This "options paper" was provided to both the Trustee Council and the PAG as a means of facilitating further discussion on the Restoration Reserve.

In early 1998, a special edition of the *Restoration Update* (March-April 1998) newsletter was devoted to generating public comment on the Restoration Reserve. This newsletter included a short history of the restoration program, provided an update on the status of injury and recovery and information concerning four basic questions along with brief descriptions of various types of restoration program possibilities. The newsletter, which described these questions as "building blocks" for future restoration, included a pre-addressed form for people to comment. (Table 1.) The *Restoration Update* newsletter

Table 1. The Restoration Reserve
Building Blocks for Restoration in the 21st Century

- Use -- How should the Restoration Reserve funds be used?
  Research & Monitoring
  Large Parcel Habitat Protection
  Small Parcel Habitat Protection
  Community-Based Restoration Projects
  Public Education, Outreach and Stewardship
  Additional Proposals

- Governance -- How should key funding and policy decisions be made?
  Present Trustee Council
  New Board or Boards
  Existing Board

- Public Advice -- How should future public input and comment be obtained?
  Current Public Advisory Group (PAG)
  PAG with Different Size and Makeup
  Public Outreach, but No PAG

- Term -- How long should the program last?
  Fixed Term
  Perpetual Endowment

Source: *Restoration Update* (March-April 1998)

was distributed to the entire Trustee Council mailing list of approximately 3,100 and to all local governments as well as tribal entities throughout the spill area.

The August-October 1998 edition of the Restoration Update provided additional notice that public comment was still being accepted on the Restoration Reserve and the January-February edition of the Restoration Update announced a public hearing, jointly hosted by the Trustee Council and the PAG to be held January 21-22, 1999. A deadline for public comment on the Restoration reserve was set for February 12, 1999.

Community Meetings - During the spring of 1998, the Restoration Office held meetings in 22 communities throughout the spill impact area as well as Anchorage, Fairbanks and Juneau.[6] At each meeting a brief 12-minute orientation video provided a consistent overview of the restoration program and the Restoration Reserve planning process. A representative of the Restoration Office provided meeting participants with a copy of the special edition of the *Restoration Update* newsletter, responded to questions and took notes of comments made by meeting participants. Those in attendance were also encouraged to submit written comments. Two hundred forty-nine people attended the community meetings and summaries of each meeting were prepared for the Trustee Council and the PAG.

[6] A listing of the community meeting schedule is provided on the back page of the special edition *Restoration Update* (March-April 1998) newsletter. The meetings scheduled for Chignik, Perryville and Old Harbor had to be canceled due to bad weather.

Public Advisory Group - In March 1997, the Trustee Council initiated efforts to seek input from the PAG regarding the Restoration Reserve. Assistant Attorney General Craig Tillery met with the PAG and asked members to consider this issue. Since that time, the PAG has discussed the Restoration Reserve at many of its meetings and has devoted a substantial amount of time to this effort.

At its meeting on July 17, 1997, the PAG reviewed the Restoration Reserve "options paper" and also discussed long-term restoration research needs with Dr. Robert Spies, the Trustee Council's independent Chief Scientist, who outlined the possibility of using reserve funds to establish a long-term interdisciplinary monitoring and research program to track and predict ecological change and provide data for conservation and management. The PAG discussed the Restoration Reserve at its meeting on November 4-5, 1997 and then again at its June 1-2, 1998 meeting when it developed a working draft document entitled "Summary of Areas of Agreement re: Restoration Reserve".

Individual PAG members have articulated a diverse range of opinions on how to use and manage the Restoration Reserve. In the draft "Summary of Areas of Agreement" the PAG identified several broad categories of restoration activities as appropriate means to achieve the overarching goal of restoration and stewardship. These include:

- scientific research
- education/information
- community projects, and
- land acquisition.

The PAG's draft "Summary of Areas of Agreement" does not expressly address the questions of future governance or term.

The PAG continued its discussions at its July 28, 1998 meeting when they were joined by Trustee Council member Deborah Williams, Special Assistant to the Secretary of Interior for Alaska, who outlined potential future habitat protection possibilities.

Summary of Public Comment

As of early January 1999, the Restoration Office had received more than 2,100 public comments on the future use of the Restoration Reserve. Comments were in the form of completed surveys from the special edition *Restoration Update* newsletter, personal letters, form letters, e-mail messages, telephone messages, and testimony at public meetings.

The Trustee Council solicited public comment on four basic issues: use, governance, public advice, and term. (See above, Table 1.) Comments received by the Trustee Council reflect a broad spectrum of opinion. All responses addressed the issue of use and most responses reflected support for seeing the Restoration Reserve support a combination of uses rather than a single use.

A significant number of comments appear to be the direct result of outreach efforts by organizations or individuals advocating a particular outcome. A significant portion of all responses appears to have resulted from efforts by the Sierra Club, the Alaska Center

for the Environment and the Alaska Rainforest Campaign. These responses varied slightly in content and form and generally urge the use of at least 75 percent of the Restoration Reserve for habitat protection. Another outreach effort on the part of a UAA faculty member has generated numerous comments in support of using the Restoration Reserve to endow research centers and chairs at the University of Alaska. Yet another effort on the part of the Chugach Regional Resources Commission appears to have resulted in comments from hundreds of residents within the spill area expressing support for a set-aside of Restoration Reserve funds for tribes.

(Note: An updated analysis of the public comment on the Restoration Reserve will be presented at the joint Trustee Council – PAG meeting on January 22, 1999.)

DISCUSSION DRAFT: FUTURE USES OF THE RESTORATION RESERVE

The *Restoration Plan* adopted by the Trustee Council in 1994 reflects a comprehensive and balanced approach to the restoration of injuries from the oil spill that provides flexibility to address restoration needs over time through an adaptive management process. The establishment of the Restoration Reserve was itself a part of the adaptive management approach, in order to support long term restoration activities beyond the last settlement payment in September 2001.

On the basis of past restoration program experience, and with consideration of the broad range of public comment concerning future use of the Restoration Reserve, it is evident that:

1. a continuing long-term commitment to a comprehensive and balanced approach to restoration is necessary and appropriate;
2. major elements of a continuing restoration program should continue to include:
   -- scientific research/monitoring,
   -- habitat protection, and
   -- general restoration/community-based projects.
3. changes in the governance structure and decision-making processes could help further reduce program administration costs.

Elements of a Long-Term Restoration Program

By October 2002, it is projected that the Restoration Reserve will contain approximately $140 million inclusive of accrued interest.[7]

Without reaching the question of precisely how funding should be allocated among the respective uses, the basic elements of a possible long-term restoration program are outlined below together with the identification of key issues or questions associated with implementation of each element.

[7] Total earnings on Restoration Reserve funds could be substantially improved if congressional legislation is enacted to permit investment of the reserve principal outside of the Court Registry Investment System.

Fisheries and Marine Research, Improved Management and Conservation Fund

The mission of the Trustee Council is to restore the environment injured by the oil spill to a "healthy, productive world-renowned ecosystem while taking into account the importance of the quality of life and the need for viable opportunities to establish and sustain a reasonable standard of living."[8] The success of this mission rests on not only understanding how the northern Gulf of Alaska ecosystem was impacted by the oil spill, but also how it functions and changes in relation to natural systems and to human influences.

Since it was first established in 1989, the Trustee Council's science program has evolved substantially from a series of mostly individual species-oriented natural resource damage assessment studies to a more broad, integrated suite of multi-year, ecosystem-based investigations. The *Restoration Plan* expressly recognizes that monitoring and research activities require more than the study of individual species and that long-term research is needed to understand the physical and biological interactions that affect a resource or service and may constrain its recovery.[9]

The current Trustee Council program has four essential interrelated components:

- monitoring the recovery of injured populations;
- identification of factors limiting or influencing productivity and populations;
- developing new management tools and techniques; and
- synthesis of results and modeling the state of the ecosystem.

The program has systematically approached the issues controlling recovery and productivity through investigations along several different fronts. These include a broad array of projects, including studies of physiology, disease, productivity, diet, trophic relationships and oceanographic influences. Through the three major ecosystem projects (SEA, NVP, APEX), understanding of the living marine resources of the northern Gulf of Alaska has been greatly accelerated. These efforts have been coupled with projects that have developed pioneering management techniques to help managers better protect recovering resources (e.g., genetic stock identification for in-season sockeye management, disease research on herring, pink salmon otolith marking).

As of the most recent update on the status of injured resources and services in September 1996, only one resource (bald eagle) was fully recovered. While there are indications that several injured resources are now making progress toward recovery, the outlook for many injured resources and services remains uncertain. Recovery for injured resources is extremely complex as ecosystems are always fluctuating due to both natural (e.g., oceanographic) as well as human-induced (e.g., pollution) changes. Accordingly, the lingering effects of the *Exxon Valdez* oil spill, while acting in combination with other factors, continues to influence the health of living systems. For example, the oil spill mortality of 300 harbor seals exacerbated the decline of these marine mammals which were already in decline prior to that time. Another example of spill-related impacts possibly joining with natural variability involves the collapse of the

[8] *Restoration Plan*, Chapter 2, p. 11.
[9] *Restoration Plan*, Chapter 2, p. 12.

PWS herring fishery in 1993, partly due to a viral epidemic which, in turn, may be linked to the stress of oil exposure.

The implications and extent of long-term changes in trophic relationships resulting from the oil spill in the nearshore environment being investigated under the NVP project are only now beginning to be understood. The physiology, diet and productivity work under the APEX project is resolving some questions, even as it is leading to others. The SEA program has brought forward new insight into the oceanographic and biological dynamics of Prince William Sound, but key questions about predator-prey relationships as they relate to injured species remain unresolved. At the same time, all of these investigations are generating new information that is helping to describe, for the first time, essential marine habitats such as bays and coves that provide foraging areas for seabirds, overwintering refuge for juvenile herring and nursery areas for pink salmon.

Many important questions and concerns remain. On-going declines of marine mammal populations, seabird die-offs, continuing depression of herring stocks, the decline of some major salmon runs even while others appear to flourish, and changing ocean temperatures with potentially severe implications for injured resources and services are just a few examples of the need for a sustained, long-term commitment to fisheries and marine ecosystem research/monitoring.

Proposal for discussion - The Trustee Council would establish a Fisheries and Marine Research, Improved Management and Conservation Fund to support a long-term interdisciplinary program to improve the understanding and management of living marine resources of the Northern Gulf of Alaska.

-- The fund would be managed as a long-term funding source, inflation-proofed with only the net earnings spent on an annual basis. Funds would be invested through the State of Alaska and an exemption from the Executive Budget Act would be sought to allow state agencies to receive and expend funds without the additional requirement of an annual appropriation.

-- The fund would be used to facilitate integrated, cooperative research in the northern Gulf of Alaska as part of a larger collaborative effort in the northern Pacific coordinated with the North Pacific Research Board (NPRB).

-- Building on the restoration research program to date, the fund could be used to:
... develop information needed for long-term restoration, enhancement, management and conservation of injured resources and the marine ecosystem upon which they depend;
... track key changes in the Northern Gulf of Alaska to distinguish natural variability from human influences;
... support programs that promote the long-term sustainable use, conservation and stewardship of fisheries and other living resources of the Northern Gulf of Alaska ecosystem;
... develop new management tools and information; and
... support the identification of essential marine habitats.

-- The core of the program would be an integrated monitoring project that would take the "pulse" of the northern Gulf of Alaska ecosystem measuring such key parameters as long-term ocean temperature trends, the timing and strength of the spring plankton blooms, the strength and direction of the Alaska Coastal Current, distribution and population trends of forage fish species and the survival/productivity of apex predators.

-- The long-term monitoring would be supplemented with shorter term strategic research initiatives targeting specific resources (e.g., harbor seals) and/or management and conservation problems (e.g., genetic discrimination of fish stocks).

-- Specific funding decisions would be made by a new board, including federal and state agencies responsible for fish and wildlife resources, key stakeholders, and representatives of the scientific community.

-- Program management would be limited to a small professional staff to manage the administration, interagency coordination and scientific planning/peer review process. Opportunities for public comment on the science work plan would be provided although no formal public advisory body would exist.

-- A portion of the fund could be used to endow a research chair based at each of the three principal regional marine research institutions within the spill area (Alaska SeaLife Center, Near Island Research Facility, PWSSC) that provide key support for marine research efforts.

-- Program implementation would promote the integration of traditional knowledge and local involvement in project development and implementation.

-- The fund could also be used to support public information and education efforts, and possibly a small program of undergraduate and graduate scholarships and internship programs (e.g., Youth Area Watch) in marine sciences that would be coordinated with long-term research efforts.

Implementation Issues:

1. What, if any, changes in statute or the settlement would be necessary?
2. How would decisions be made on individual projects?
3. What kind of board would be created? What kind of participation by federal or state resource agencies?
4. What level of public involvement in decisions is appropriate?
5. What kind of cooperation should there be with other research efforts?
6. How would research priorities be set?
7. How would funds be invested?

Habitat Protection

The *Restoration Plan* (1994) recognizes that habitat "protection and acquisition is one of the principal tools of restoration [and] important in ensuring continued recovery in the

spill area."[10] The Trustee Council, the PAG and general public comment generally reflect support for a continuing habitat protection program although there is a range of opinion regarding the appropriate scope of such an effort in the future.

Habitat protection provides a public resource endowment in perpetuity, which helps to sustain the world-renowned ecosystems of the northern Gulf of Alaska while also benefiting the people who use and enjoy them. This strategy for restoration involves the protection of large parcels of important habitat for injured resources and services and small parcels in key locations. Habitat protection may involve fee simple acquisition from willing sellers, conservation easements or a combination of both. Habitat protection through the Trustee Council process usually has the associated benefit of improving overall land management by consolidating mission and management of the lands and may reduce agency operational costs.

Several large blocks of privately held habitat exist that are potentially important to restoration. Examples include: private holdings in Lake Clark National Park; lands surrounding Afognak Lake; additional acquisitions from Afognak Joint Venture; large private holdings along the Kenai River; the Karluk Reservation adjacent to the Kodiak National Wildlife Refuge; and lands owned by five native corporations on the Pacific side of the Alaska Peninsula within the Alaska Peninsula NWR and Aniakchak National Monument and Preserve. In addition to these potential future opportunities, adequate funds may not currently be available to successfully complete ongoing negotiations with Koniag Inc. for permanent protection of the Karluk and Sturgeon Rivers unless additional Restoration Reserve funds are made available.

A substantial number of public comments have been received by the Trustee Council urging that the spill area boundaries be expanded to the east of Prince William Sound to encompass the entire Copper River/Bering River delta in order to allow purchase of habitat potentially threatened by development. This area is outside of the designated spill area and was not impacted by oiling from the spill. While the landowner (KADCO) of a portion of the subsurface estate in the vicinity of Carbon Mountain has indicated a willingness to sell those holdings, the surface estate owner (Chugach Alaska Corporation) has repeatedly indicated firm opposition to having its lands considered for acquisition. As the primary government land management agency for this area, the U.S. Forest Service informally examined the KADCO proposal but was not able to identify a significant linkage between the restoration of injured resources in the spill area and the purchase of KADCO's subsurface holdings.[11]

The Restoration Office continues to receive a small but steady stream of small parcel nominations even though there has been no active advertising of the Small Parcel program for three years and an informal "moratorium" has been in place for sometime. Comments by the Public Advisory Group have been supportive of continuing a small parcel program to protect strategic parcels with important resource or service values. As

[10] *Restoration Plan*, Chapter 2, p. 22.

[11] The *Restoration Plan* includes a policy regarding the location of restoration actions: "Restoration activities will occur primarily within the spill area. Limited restoration activities outside the spill area, but within Alaska, may be considered under the following conditions: when *the most effective restoration actions for an injured population* are in a part of its range outside the spill area; or when the information acquired from *research and monitoring activities* outside the spill area will be significant for restoration or understanding injuries within the spill area." (*Restoration Plan*, p. 14, emphasis added.)

with the Large Parcel program, future opportunities are also subject to uncertainty but some level of small parcel nominations can be reliably anticipated.

Proposal for discussion - To provide for future habitat protection needs the Trustee Council would authorize the creation of a Habitat Protection Trust Fund to be administered by a private non-profit organization.[12]

- The Habitat Protection Trust Fund would be used to acquire and protect parcels of land within the spill area that have significant value for the protection or enhancement of injured resources or services.

- The fund would be sufficiently large to generate annual earnings that could support an on-going small parcel program and potential large parcel protection.

- Small parcel protection would be on the basis of fair market value appraisals.

- Large parcel protection would follow the established precedent of previous transactions.

- Priorities for acquisition would be selected following public comment by an advisory group of state and federal resource management agencies and public members.

- Proposed acquisitions would be publicly noticed with an opportunity afforded for public comment.

Implementation Issues:

1. What, if any, changes in statute or the settlement would be necessary?
2. Would problems arise from having this program administered by a private vs. public entity? Are there legal impediments?
3. What if any direct participation by federal or state agencies?
4. Should lands be acquired for ownership by the state and federal government only or include possible ownership by local governments and/or land trusts?
5. What level of public involvement in decisions is appropriate?
6. How would funds be managed and invested?
7. How could financial accountability for the trust funds be assured?
8. What if any limitations on administrative costs?
9. Should funds be used for the purchase of conservation easements?
10. Would conservation easements on fee simple acquisitions be conveyed to the governments or other parties?
11. How would subsequent land management costs be addressed?
12. How would decisions be made on individual parcels?

<u>General and Community-Based Restoration</u>

[12] A proposal to establish a $20 million small parcel endowment was submitted to the Trustee Council for consideration by the Conservation Fund as part of the public comment process on the Restoration Reserve. Established and nationally recognized land trust organizations with substantial experience in Alaska include the Conservation Fund, the Nature Conservancy and the Trust for Public Lands. Each of these three organizations has participated in various ways with the development and implementation of the Trustee Council habitat protection program.

The Trustee Council has been approached with numerous proposals for general and community-based restoration efforts intended to restore injuries sustained by communities impacted by the oil spill. To date, the Trustee Council has authorized a total of approximately $32 million for general and community-based restoration projects.

Several projects have been designed to improve the ability of resource managers to control human activities (e.g., coded wire tagging, otolith marking, recreational use modeling). Some projects have involved direct manipulation of the environment as means of restoring, enhancing or replacing resources and the human services supported by those resources. For example, in-stream habitat improvements have been undertaken to bolster wild salmon stocks that support commercial fisheries (e.g., Port Dick). Salmon release projects have been used to increase the local availability of salmon for subsistence harvest (e.g., Chenega chinook release). Still other projects have been designed to reduce sources of potentially harmful marine pollution (e.g., PWSWMP, KWMP, CIWMP).

Comment from residents within the spill area demonstrates strong interest in using the Restoration Reserve to support additional general and community-based restoration projects. Proposals from spill area communities include a wide range of activities, efforts and facilities to help restore, replace and enhance the services that were injured by the spill (subsistence, commercial fishing, recreation/tourism). Examples include additional shoreline cleanup work, small facilities for the processing of subsistence foods, clam bed seeding, skiff docks to facilitate subsistence activities, additional salmon releases to increase local harvest opportunities, programs and facilities to implement comprehensive pollution and solid waste management, small-scale hatchery construction, community multi-purpose facilities and cultural centers, youth education programs, and enhanced fisheries marketing assistance. While many general and community-based restoration proposals have been funded by the Trustee Council or through use of state criminal settlement restitution funds (SB 183), numerous additional proposals remain.

Proposal for discussion - The Trustee Council would make a one-time disbursement to the Alaska Department of Community & Regional Affairs (DCRA) and create a fund for general and community-based restoration projects. The grant would be managed and invested by the State of Alaska on a declining balance basis. A small percentage of the funds would be used to offset the costs of administering a grant program.

Proposals would be submitted to DCRA by local and regional governments and other community-based organizations for the purposes of restoring, replacing or enhancing human services injured by the oil spill (subsistence, commercial fishing and recreation/tourism).

Implementation Issues:

1. What, if any, changes in statute or the settlement would be necessary?
2. How would decisions be made on individual project or program proposals?
3. What kind of decision-making body or process? What kind of participation by federal or state resource agencies?
4. What level of public involvement in decisions is appropriate?

5. How would project priorities be set? What criteria would be used to evaluate projects?

The Gulf Ecosystem Monitoring (GEM) Program:
A Permanent Fund for the Management and Conservation
of the Northern Gulf of Alaska Marine Ecosystem.

Mission: To efficiently sustain a healthy and productive marine ecosystem in the northern Gulf of Alaska, while maintaining the quality of life and economic opportunities for residents and visitors.

Concept: Using funds now set aside in the *Exxon Valdez* oil spill (EVOS) Restoration Reserve, establish a perpetual, inflation-proofed endowment, from which the earnings would support long-term ecological monitoring and research in the EVOS area and adjacent northern Gulf of Alaska. This interdisciplinary program would improve understanding, conservation, and management of the living marine resources of the northern Gulf of Alaska. The GEM Program would aim to:

-track lingering oil spill injury (e.g., oil exposure in sea otters) and apply what is learned to injury assessment and response to future oil spills (e.g., NRDA/contingency planning);

-identify and understand annual and long-term changes in the marine ecosystem, distinguishing natural variability from human influences (e.g., wide swings in salmon, marine mammal, and seabird populations);

-develop new fish and wildlife management tools (e.g., genetic stock identification in commercially important fish species);

-provide integrated and synthesized information on the status, trends and health of fisheries and other marine resources, including water quality and contaminants in fish and wildlife consumed by people (e.g., produce annual "state of the gulf" report, with periodic updates as new information becomes available);

-support the identification and protection of important marine habitats (e.g., assist with siting of marine industrial and mariculture facilities; establish protected reserves);

-foster efficiency through interagency coordination and scientific leadership and the leveraging of GEM funds to guide uses of funds from other sources (e.g., the NOAA/NSF GLOBEC program on climate change and the oceans); and

-involve stakeholders in guiding and carrying out the program.

Program Elements: Building on the current EVOS restoration science program and, without duplication, the on-going programs of government agencies, academic institutions, and other entities, the core program would have four main aspects:

-long-term (decadal scale) monitoring of productivity and health of the marine ecosystem, including oceanic influences, the composition, size, and distributions of fish and wildlife populations, and contaminants in organisms and the environment;

-shorter-term (3-5 years) research directed to understanding and resolving specific problems, including the development of new tools and techniques needed to advance fish and wildlife conservation and management;

-ongoing participation and education of residents, young people and future professionals through traditional knowledge projects, scholarships, student research and University of Alaska endowed chairs in coastal communities and at such institutions as the Near Island Research Facility, Alaska SeaLife Center, and the Prince William Sound Science Center; and

-ongoing interagency coordination through workshops and other means and the integration and synthesis of data from multiple sources to constantly update understanding of the status, trends, and health of the marine ecosystem.

Governance and Administration: The GEM Program would be governed by a new board with representatives of state and federal natural resource agencies, stakeholders, and the scientific community, and it would be administered by an executive director and small professional staff with the aid of a panel of scientific peer reviewers. Public education and participation would be encouraged through an annual work plan, "state of the gulf" reports, community and school presentations, and a web site. Minimum annual cost would be $5-6 million dollars, inclusive of all aspects of the program.

[1-Oct-98]

Examples of Practical Applications of EVOS Research, Monitoring and General Restoration Projects

[December 10, 1998 draft]

Changes in Regulations

☞Studies on the effects of hydrocarbon exposure on early life stages of pink salmon and herring have initiated reevaluation of water quality standards and influenced permit decisions (e.g., project numbers /076, /191, 194).

☞Information on the status and life history of cutthroat trout supported harvest restrictions in sport fishing in Prince William Sound (e.g., F/S 5, /145).

☞Studies on harlequin duck ecology and populations supported harvest restrictions in sport hunting in Prince William Sound (e.g., BS 11, /427).

☞Evidence on changes in Gulf of Alaska ecosystem and the importance of forage fish to seabirds and marine mammals supported a decision to strictly limit bycatch of forage fishes and prohibit start up of new commercial fisheries on forage fish species (/163).

Ability to Manage Fish and Wildlife

☞Otolith marking of pink salmon at Prince William Sound hatcheries improves in-season fishery management, helping to conserve wild stocks and enhance commercial fishing by allowing fuller and more timely harvests of hatchery fish (e.g., /188).

☞Information on genetic stock structure of pink salmon supports decisions by fisheries managers who must issue hatchery and supplementation permits and avoid compromising the genetic diversity of wild stocks (e.g., /196, /191).

☞Spawn deposition surveys and hydroacoustic and aerial surveys have supplemented and improved traditional techniques for assessing herring stocks in Prince William Sound (e.g., /166, /320).

☞Information on disease transmission related to herring "pound" fisheries in Prince William Sound initiated reevaluation of and change in management of this type of commercial fishery (/162).

☞Techniques for genetic stock identification and hydroacoustic assessments of sockeye salmon in Cook Inlet improved in-season management of this valuable and contentious fishery (/255, /505).

☞Knowledge of biological mechanisms underlying the phenomenon of overescapement and population cycling in glacial lakes aids fisheries managers in predicting and managing sockeye runs (/258, /048).

☞Information on many different fish and wildlife species (e.g., cutthroat trout, black oystercatcher) is improving resource assessments and planning for revisions to the Chugach Forest Plan (e.g., /289).

☞Hydroacoustic work on pollock in Prince William Sound helped confirm presence of a large spawning aggregation of pollock, helping to create an opportunity for commercial harvest and enhancing available management information (/320).

☞Involvement of the Alaska Native Harbor Seal Commission and subsistence hunters in harbor seal research is contributing to development of a comanagement agreement between the ANHSC and the National Marine Fisheries Service (/244).

☞Genetic analyses and tracking of movements of harbor seals in the Gulf of Alaska is helping wildlife managers define appropriate scale of management units (/064, /341).

Important Terrestrial and Marine Habitats

☞Studies on ecology, movements, and distribution of herring, harbor seals, sea otters, pink salmon, and seabirds provide managers and stakeholders new information on location and seasonal use of sensitive marine habitats (e.g., /025, /064, /320, /163).

☞Information on harlequin duck and marbled murrelet nesting habitats aided evaluation of EVOS habitat protection opportunities (e.g., R71, R15-2).

☞Stream assessments on Afognak Island aided evaluation and negotiation of theAfognak habitat protection package (R47).

Improve Habitats and Enhance Populations

☞Projects on the outer Kenai Peninsula, Afognak Island, and in Prince William Sound are rebuilding fish runs by creating, providing access to, or improving spawning and rearing habitats for pink, chum, and silver salmon and cutthroat trout. The results replace and enhance opportunities for commercial fishing and recreation (sport fishing) (e.g., /139A1, 139A2, /043B).

☞Fertilization and stocking of lakes to supplement Prince William Sound sockeye salmon runs is replacing and enhancing opportunities for subsistence and commercial fishing (e.g., /254, /259, /256).

☞Appropriate access to and restoration of eroding stream banks on the Kenai River helps restore sockeye salmon and enhances opportunities for recreation (sport fishing)(/180).

☞Supplementation of local salmon runs (e.g., pink salmon) and seeding of shellfish (e.g., littleneck clams) on community beaches are replacing and enhancing subsistence opportunities in Prince William Sound and on the Kenai Peninsula, (e.g., /127, /131, /225, /247).

☞Removal of foxes introduced to seabird nesting islands will increase populations of pigeon guillemots and black oystercatchers on two of the Shumagin Islands (/041).

☞Data on boat traffic and increasing human uses in western Prince William Sound is aiding development of a revised Chugach Forest Plan (/339).

☞Information on the growth and survival of juvenile pink salmon is improving hatchery release strategies in Prince William Sound (/320).

☞Construction of waste disposal facilities in Prince William Sound reduces marine pollution, such as boat engine oil (/115).

Oil Spill Prevention, Response, and Assessment

☞Publication of revised maps showing sensitive areas and seasons for Prince William Sound fish and wildlife populations will aid contingency planning (/368).

☞Several intertidal and nearshore studies provide improved sampling designs and approaches for application in future oil-spill injury assessments (e.g., /CH1A, /025, 086C).

☞Shoreline assessments and intertidal studies contribute to evaluations of the efficacy of cleanup techniques and helped to refine approaches to future spills (e.g., /266B, NOAA HAZMAT studies).

☞Experimental treatment of oiled mussel beds provides an on-going test of a cleanup/restoration technique for a sensitive nearshore resource (/090).

☞Baseline data on hydrocarbon concentrations and exposure will be invaluable in future injury assessments (/290).

☞Development of analytical techniques to identify the "fingerprint" of North Slope crude oil in samples contaminated by hydrocarbons from multiple sources enhances ability to track sources and pathways of exposure (/290).

☞Simplified and uniform recording techniques for evaluating conditions and changes at archaeological sites improves rapid assessment of damages and protection and restoration priorities (/006, /007).

Research and Monitoring Techniques

☞Otolith marking of pink salmon at Prince William Sound hatcheries provides a tool for evaluating the distribution and ecology of pink salmon at sea and the extent and effects of straying by returning hatchery fish on wild populations (e.g., /188).

☞New gene detection methods) are being applied in fisheries research laboratories beyond the EVOS program (e.g., /196, /190).

☞Continuation of a 25+ year data set on oceanographic conditions in the Gulf of Alaska off Seward aids interpretation of effects of El Niño events, climate change, and anthropogenic perturbations (/340).

☞Improved aerial survey protocol and other techniques are being applied to sea otter research and monitoring projects beyond the EVOS program (e.g., MM6, /025, /043).

☞Development of a technique for monitoring marbled murrelet productivity based on adult-juvenile ratios on the water provides practical means of monitoring breeding success for this dispersed, cryptic, forest-nesting seabird (/031).

☞Long-term dataset on marine bird populations in Prince William Sound provides a statistically powerful tool for evaluating population changes (/159).

☞The results of Trustee Council-sponsored studies have appeared in more than 225 peer-reviewed scientific publications. These publications add credibility and value to the EVOS legacy.

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax: 907/276-7178

Memo

To: Trustee Council

From: Hugh Short, Community Involvement Coordinator HS

Through: Molly McCammon, Executive Director MM

Date: November 16, 1998

Re: Subsistence Projects

I have compiled a list of projects funded by the Trustee Council through the civil settlement and those funded by the state's criminal settlement of $5 million for subsistence restoration in the spill area communities that are unincorporated, administered by the Department of Community and Regional Affairs. These projects fall into four main categories: 1) enhancement and replacement of subsistence resources; 2) subsistence education and revitalization; 3) public outreach and cooperative scientific efforts, and; 4) marine pollution management for greater abundance of subsistence resources.

In addition, I have included a list of known subsistence projects that may take place in the next few years. These projects have or are expected to submit detailed proposals subject to Trustee Council scrutiny, but are likely to be funded to a certain degree.

This information is provided to assist Trustee Council members in reviewing what specifically has been done, is currently happening, and is expected to happen with regard to subsistence projects. Additionally, when discussing a $20 million endowment for subsistence projects, these projects are similar to those envisioned by spill area residents for use under the endowment.

Enhancement and Replacement of Subsistence Resources

Civil Settlement Projects

1. Tatitlek Coho Salmon Release, /127 – This ongoing project will create a coho salmon release to Boulder Bay, near the village of Tatitlek. This is the last year of Trustee Council funding.

2. Clam Restoration Project, /131 – This ongoing project will restore littleneck clams to the beaches of Port Graham, Nanwalek, Eyak, and Tatitlek. The Qutekcak Shellfish Hatchery in Seward will produce 800,000 littleneck clams and cockles annually. This is the last year of Trustee Council funding.

3. Eastern Prince William Sound Wildstock Salmon Habitat, /220 – FY98 was the closeout year on this project. This project assisted wild salmon stocks in eastern PWS to increase their numbers for use by subsistence users in Eyak and Tatitlek.

4. Port Graham Pink Salmon Subsistence Project, /225 – This project enhances the local run of pink salmon for use by Port Graham subsistence users. The project is slated to receive Trustee Council funding through FY00.

5. Solf Lake Salmon Stocking, /256B – This project is establishing self-sustaining runs of sockeye salmon in Solf Lake. This project will benefit subsistence users of Chenega Bay.

6. Chenega Chinook Salmon Release Program, /272 – Chinook salmon were released into Crab Bay, adjacent to Chenega Bay. This project closed out in FY97.

7. Assessment, Protection, and Enhancement of Salmon Streams in the Lower Cook Inlet, /263 – This project is constructing enhancement projects on Lower Cook Inlet streams near the village of Port Graham, eventually creating increased salmon runs for subsistence users in Port Graham.

8. Kametolook River Enhancement, /247 – Initially funded by the criminal settlement funds, this project has placed incubator boxes in the river in an effort to rebuild the coho salmon run for use by Perryville subsistence users. Annual funding has shifted to the civil settlement, which the Trustee Council administers.

State Criminal Settlement Projects

1. The Tatitlek Mariculture Operations and Capital Outlay projects - These two projects assist in producing oysters as a replacement subsistence resource for residents of Tatitlek. The Operations portion is currently an ongoing project.

2. Nanwalek Sockeye Enhancement – The purpose of this project is to increase the sockeye salmon run to the English Bay River for use as a local subsistence resource for Nanwalek residents. This is an ongoing project.

3. Chenega Bay Mariculture Project – Much like the Tatitlek Mariculture Project, this project provides oysters to Chenega Bay residents as a replacement subsistence resource. This is an ongoing project.

4. Port Graham Coho Restoration – The purpose of this project is to increase the coho salmon run to the Port Graham River for use as a subsistence resource by Port Graham residents. This is an ongoing project.

Subsistence Education and Revitalization

Civil Settlement Projects

1. Youth Area Watch, /210 – This project involves youth through the local schools in communities of Tatitlek, Chenega Bay, Cordova, Valdez, Seward, Seldovia, Port

Graham, and Nanwalek in scientific research and restoration projects. Fieldwork and classwork are the main components of the curriculum. This is an ongoing project.

2. Elder/Youth Conference on Subsistence, 98286 – This project funded a three-day conference on subsistence in Cordova organized by the Native Village of Eyak Traditional Council. Discussion centered on the status of important subsistence resources, melding traditional knowledge and western scientific knowledge, and communicating future goals in research and community-based projects. FY98 was the only year of Trustee Council funding.

3. Elders/Youth Conference, 95138 – This project funded a two-day conference in Anchorage to discuss restoration with spill-affected residents. The Alaska Department of Fish and Game used consultants to implement the conference. FY95 was the only year of funding.

4. Documentary on Subsistence Harbor Seal Hunting in PWS, 96214 – This project made a documentary on subsistence hunting of harbor seals in PWS. This video documented all facets of harbor seal hunting. This project was funded for only FY96.

5. Herring Nearshore Video, 98274 – This project produced a 28 minute video on the subsistence use of herring, herring spawn, and nearshore ecosystem resources in Prince William Sound. This project was funded only for FY98.

6. Subsistence Restoration Project, 93017 – This project held community meetings throughout the oil spill region to determine which areas and resources were of particular concern to residents regarding subsistence use. Samples of subsistence foods were collected from harvest areas. This was funded for one year.

7. Food Safety Testing, 94279 – This project collected subsistence foods throughout the spill region and tested them for ongoing safety issues as a result of the oil spill. This project was funded in FY93 as project 93017. Continued funding followed through FY95. Additionally, funding was made available for a food safety hotline in FY95 through FY98 under /052.

State Criminal Settlement Projects

1. Prince William Sound Regional Spirit Camp – This project funded two years of subsistence camps in the Prince William Sound for youth in Sound communities. Chugach Alaska Corporation has assumed funding for this project and is continuing to hold Spirit Camps.

2. Port Graham Floating Skiff Dock – This project will construct a floating skiff dock in Port Graham for use by local subsistence harvesters in an effort to allow them quicker access to traditionally used subsistence areas during periods of cooperative weather. This project is in the planning phase currently.

3. Perryville Subsistence Education and Training Center – This project provided funds for Perryville to construct a subsistence and cultural education center. Also included is a language lab and supplies needed for the center. This project is complete.

4. Tatitlek Fish and Game Processing Facility – This project constructed a fish and game processing facility for use by subsistence users. This project allowed local subsistence users to process foods more efficiently, as well as use methods that allow for the longer storage of foods. This project is in the final construction phase.

5. Kodiak Island Spirit Camp – This project funded two years of subsistence camps on Kodiak Island for youth in Kodiak Island communities. Kodiak Area Native Association has assumed funding for the Spirit Camps.

6. Chignik Lake, Chignik Lagoon, Perryville, and Ivanoff Bay Subsistence Fish and Game Processing Buildings/Cultural Education Center/Subsistence Cultural Education Programs – This project funded buildings in each of the above named communities to be used as multipurpose subsistence buildings. Additionally, the project funded the development of subsistence education programs. All facilities have been complete except for Chignik Lagoon.

7. Chenega Bay Subsistence Harvest Support – Subsistence resources near the village of Chenega Bay were severely depleted due to the oil spill. As a result, this project subsidized longer-range harvest trips to access traditionally used subsistence resources. This project is complete.

Public Outreach and Cooperative Science

Civil Settlement Projects

1. Community Involvement Project, /052A – This project maintains a network of liaisons in ten spill affected communities in Lower Cook Inlet, Prince William Sound, Kodiak Island, and the Alaska Peninsula. Communication regarding the status of restoration and recovery, the Council's scientific program, habitat program, and community-based projects is the main objective of the project. Additionally, six student interns in Kodiak Island communities are involved in the program. This is an on-going project.

2. Traditional Ecological Knowledge, /052B – This project supplies a Traditional Knowledge Specialist who works with EVOS scientists and Native communities to enhance the western scientific research with traditional knowledge. This is an on-going project.

3. Community Harbor Seal Biosampling, /245 – This project works with the Alaska Native Harbor Seal Commission to provide biosamples of harbor seals that have been caught by Native subsistence hunters to various research projects. This project is in the final year of Trustee Council funding.

4. Surf Scoter Life History and Ecology, /273 – This project involves using traditional knowledge with EVOS research to study the life history of surf scoters, which are a subsistence resource to residents of Prince William Sound. This project's last year is FY01.

5. Herring Traditional Ecological Knowledge, /320T – This project involves interviewing traditional herring harvesters, including subsistence and commercial users, and documenting historical data regarding abundance and geographic location. FY99 is the closeout year for this project.

6. Survey of Octopuses in Intertidal Habitats, /009 – This project assessed the condition and population of octopuses and chiton in the oil spill area. It particularly looked at the nearshore habitats that are important to octopus and the turnover rates of octopus in those habitats. FY97 was the final year of funding.

Civil Settlement Projects on the Deferred List for December 1998 Consideration

1. Spot Shrimp Population, 99401 – This project would be a cooperative population assessment of spot shrimp between the Valdez Native Tribe and the National Marine Fisheries Service.

2. Community Based Harbor Seal Research, 99444 – This project will combine the expertise of Alaska Native hunters and university researchers to monitor population parameters of harbor seals in the oil spill area.

3. Port Graham Hatchery Reconstruction, 99405 – This project proposed by the Port Graham Village Council would fund the partial reconstruction costs of the Port Graham Hatchery that was destroyed by fire on January 13, 1998.

Marine Pollution Management

Civil Settlement Projects

1. Sound Waste Management Plan, 97115 – This project implemented a waste management plan throughout the Prince William Sound communities. It provided for Environmental Operation Stations in each community and a used oil management plan. This project was completed in FY98.

2. Kodiak Waste Management Plan, 99304 – This project is implementing a Kodiak Island-wide waste management plan. Environmental equipment, land fill improvements, and community education will take place in all communities. This project is in the implementation phase.

3. Lower Cook Inlet Waste Management Plan, 99514 – This project is contracting an environmental engineer to assess pollutants seeping into Port Graham Bay and Kachemak Bay from the communities of Port Graham, Nanwalek, and Seldovia. This is a one-year project.

Possible Subsistence Projects to be Funded in the Next Three Years

1. Archaeological Repository and Local Display Facilities in Chugach Region – This project would fund a central archaeological repository in one of the eight Chugach region communities, as well as local display facilities in the remaining seven communities. Additionally, traveling displays would be developed and the network of archaeological facilities would operate perpetually. A Request For Proposals was sent out through the Alaska Department of Natural Resources in June 1998, with two proposals eventually submitted in August 1998. An Addendum to the RFP was sent out in September 1998 requesting more information regarding financial commitments from proposers and their co-sponsors, as well as long term funding plans. The Trustee Council is expected to discuss this issue at the November 30, 1998 meeting. The total cost of this project is projected to be $2.8 million.

2. Lower Cook Inlet Waste Management Plan, 99514 – In an effort to address pollutants reaching the Port Graham Bay and Kachemak Bay, the Trustee Council has funded an environmental assessment of the lower Cook Inlet communities of Port Graham, Nanwalek, and Seldovia. The expected recommendations of this assessment will likely include the construction of facilities and purchase of equipment to protect marine animals in the waters near these communities. The Sound Waste Management Plan, which took place in Prince William Sound communities, addressed many of the same concerns as those currently being addressed in the lower Cook Inlet assessment. Additionally, the Kodiak Island communities are implementing the recommendations of their environmental assessment that took place in FY98, known as the Kodiak Waste Management Plan.

3. Paralytic Shellfish Poisoning – PSP continues to be the major concern expressed by subsistence users in the Kodiak Island communities. The Trustee Council, for various legal and policy concerns, rejected a proposal several years ago to develop and field test a new test for PSP. Since that time the Alaska Science and Technology Foundation has become seriously involved in PSP research. Very preliminary discussions have been held with ASTF, the Alaska Department of Environmental Conservation, and the University of Alaska over what possible role the Trustee Council might have in this overall effort. Nothing definitive has yet been prepared.

The above projects are those currently being discussed as possibilities for funding in the next three years.

If you have any questions regarding any of these projects, please do not hesitate to contact me. Thank you.

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax: 907/276-7178

Memo

To: Trustee Council

From: Hugh Short, Community Involvement Coordinator HS

Through: Molly McCammon

Date: 10/21/98

Re: Restoration Reserve "Community Fund" Meeting

On October 13, 1998, I assisted in chairing a meeting with Patty Brown-Schwalenberg, Executive Director of Chugach Regional Resources Commission, to discuss the proposed $20 million "community fund" vis-à-vis an appropriation from the Restoration Reserve as proposed by Chugach Region villages. In attendance at this meeting were representatives from Ivanoff Bay, Perryville, Chignik Bay, Seldovia, Seward, Chenega Bay, Tatitlek, Kodiak, Ouzinkie, and Eyak. At this meeting, those present endorsed the following items:

1. The formation of a $20 million endowment for communities in the oil spill region. This endowment would be perpetual and administered through representatives of communities throughout the spill region and state and federal government representatives. After inflation proofing and administration costs, grants would be awarded through a competitive RFP process on an annual basis.

2. Projects considered for this funding would include subsistence and cultural-based preservation, subsistence enhancements, and stewardship of natural resources. Many projects previously funded by the Trustee Council, numerous projects not considered permissible for funding by the Trustee Council, and the projects funded through the state's Criminal Settlement and administered by the Department of Community and Regional Affairs were mentioned as the types of projects that communities would pursue.

3. Communities would want to ensure that they could also get projects funded through other Restoration Reserve programs when applicable. Examples of this would include the continuation of the Community Involvement Project, Traditional Ecological Knowledge Project, community/agency cooperative science projects, and the Youth Area Watch.

4. The preferred method of administering the endowment would include the formation of a new foundation made up of tribal, state, and federal representation. A small administrative staff would assist the foundation board in reviewing and granting projects. Regional representation is necessary.

5. A broader interpretation of subsistence projects eligible for funding under this endowment would need to be set in place. Currently, many projects of excellent technical merit simply do not meet the requirements of the current Consent Decree as interpreted by the United States Department of Justice. For this endowment to operate properly and meet the set objectives, new guidelines

would have to be implemented which would broaden subsistence restoration to include a more holistic view of subsistence as part of cultural preservation.

6. Finally, communities who are currently not eligible under the DCRA Criminal Settlement fund need to be included in the $20 million community endowment. This would include tribal councils in Valdez, Cordova, Seward, Seldovia, Ouzinkie, Old Harbor, Akhiok, Larsen Bay, Port Lions, Kodiak, and Chignik Bay.

If you have any questions regarding outcomes of this meeting, please do not hesitate to contact me. Thank you.

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax:907/276-7178

MEMORANDUM

TO: *Exxon Valdez* Oil Spill Trustee Council

THROUGH: Molly McCammon
Executive Director

FROM: Sandra Schubert
Project Coordinator

RE: Community Projects

DATE: November 19, 1998

You asked me to compile a list of restoration projects, other than subsistence projects, that have been proposed by spill-area communities. The list includes projects funded by the Trustee Council as well as projects proposed but not funded. Attached to this memo is a summary listing of other EVOS-related settlement funds received by communities.

Already Funded

Kenai River Restoration (96-99180, $1,870,700)

Is funding a number of streambank and related restoration projects along the Kenai River.

Valdez Duck Flats (97230, $67,800)

Is developing a concept plan for protection of habitat on the Valdez Duck Flats. Goal is to ensure that future use of the flats will promote recovery of injured resources given increased public usage.

Homer Mariner Park (99314, $99,500)

Is producing a feasibility study and environmental review for restoration of an intertidal area damaged by spill response efforts.

Alaska SeaLife Center ($26,224,000)

Trustee Council contributed $25.5 million to construction of this marine research facility in Seward and funded an additional $724,000 in 1997 to purchase equipment and other durable goods at the center.

To Be Considered at 12/15/98 Meeting

East Amatuli Island Video Link (99434, $75,200)

Proposed by Pratt Museum (Homer), would place remotely operated video cameras in the Barren Islands seabird colonies as both a research and educational tool.

Requested But Not Funded

Additional Kenai River restoration (total $1,200,000)

Three proposals for additional work on the Kenai River were submitted as part of the FY 99 Work Plan. Two proposals were submitted by the City of Kenai (South Spruce Street Beach Parking/99387 and Kenai River Mouth South Side Access and Parking/99388); one was submitted by the City of Soldotna (Swiftwater Park Recreational Access and Habitat Restoration/99495); there is potential for additional restoration work along the river as well. Not funded because of Trustee Council's already substantial investment in sockeye research and management, habitat acquisition, and habitat restoration along the Kenai River.

Cordova Multi-Purpose Facility (probably $3-5 million; total project cost is $8,500,000)

Although a formal proposal has not been submitted to the Trustee Council, we received a letter describing the facility as including meeting facilities, space for performing arts events and museum exhibits, a marine research library, enhancement of existing office space for PWSSC and OSRI, an oil spill response emergency communications center, etc. The facility is viewed by the City of Cordova as a way to generate economic development.

CDFU Salmon Marketing Program (99443, $1,200,000)

Marketing program would be designed to enhance the value and market share of commercially harvested salmon. Not funded because project does not demonstrate a relationship to the restoration objectives adopted by the Trustee Council; according to Department of Justice, is legally impermissible under the terms of the settlement agreement; aims to restore the market for Alaska salmon rather than restoring the salmon resource as the Restoration Plan requires; and the issues raised by the proposal are being addressed under the private plaintiffs' claims against Exxon.

Permanent Location for Darkened Waters Exhibit (97183, cost unknown)

Would fund acquisition and placement of Darkened Waters: Profile of an Oil Spill in a permanent Alaskan exhibition site. City of Valdez has expressed interest.

Other Possibilities

Implement Valdez Duck Flats concept plan (see above)

Implement of Homer Mariner Park restoration (see above)

OTHER EVOS-RELATED SETTLEMENT FUNDS RECEIVED BY COMMUNITIES

State's criminal settlement

Cordova:	PWSAC-Main Bay Hatchery	$2.0 million
	Shepard Point Road (1997)	$1.4 million
	Fish net pens (1998)	$0.03 million
Whittier:	Whittier Road	$15.0 million
Kenai:	Kenai River restoration	$3.0 million
	Kenai R. Visitor Center (1997&98)	$1.85 million
Seward:	Alaska SeaLife Center	$12.5 million
	Shellfish hatchery	$3.3 million
	Hatchery equipment (1997)	$0.25 million
Homer:	Kachemak Bay Park	$7.5 million
Kodiak:	Fishery Industrial Tech. Center	$3.0 million

In addition to these community-specific projects, 44 recreation projects -- including access improvements, campsites, hiking trails, boardwalks, public use cabins, picnic shelters, interpretive displays, viewing platforms, docks, fish tables, facilities for disabled fishers, and restrooms -- have been funded through DNR. In summary:

Prince William Sound	13 projects	$2,470,000
Kenai Peninsula	22 projects	$3,888,900
Kodiak	9 projects	$1,298,000

Alyeska Pipeline settlement

Cordova:	Shepard Point Road	$7.2 million
Valdez:	Emergency Operations Center	$0.2 million
Tatitlek & Chenega:	Docks	$14.5 million
Homer:	Kachemak Bay Park	$7.5 million

Much is unknown about the following because the terms of the settlements have not been made public. However, various sources have provided the following information:

Private claims brought in state court

Kodiak Island Borough $1.2 million

Private claims brought in federal court

$5 billion punitive damage award is under appeal; municipalities are among the plaintiffs

TAPLF (Trans-Alaska Pipeline Liability Fund)

Municipalities were among the claimants paid; amounts unknown.

Out-of-court settlements with Exxon

Cordova, Seward, Old Harbor, Ouzinkie, Larsen Bay, Port Lions, and Kodiak Island Borough settled portions of their claims out of court for a collective $955,000

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax:907/276-7178

MEMORANDUM

TO: Mayor Ed Zeine
Dan Hull

FROM: Eric F. Myers
Director of Operations

DATE: January 15, 1999

SUBJ: PAG Orientation Materials

As new members of the Public Advisory Group (PAG) I wanted to provide you with several items to help orient you.

1. PAG Orientation Binder. A three-ring binder is enclosed that provides general information about the Trustee Council, the PAG and its role in the restoration program.

2. PAG packet for the January 21-22, 1999 meeting. This includes a copy of the agenda for the meeting on January 21-22 as well as materials pertaining to the Restoration Reserve.

3. Additional Restoration Reserve materials. Because you are joining the PAG far along in its discussions concerning the Restoration Reserve, I have also enclosed meeting notes from two prior PAG meetings when the Restoration Reserve was discussed. Also enclosed are segments from two Trustee Council meeting transcripts when the Restoration Reserve was reviewed in considerable detail.

I hope you find this information helpful. I realize that this is a great deal of material to digest but wanted to make sure that you had the benefit of reviewing the deliberations that have brought the PAG to this point.

If you have any questions, please contact Cherri Womac at the Restoration Office. I look forward to your involvement and contribution to the restoration process.

enclosures

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax:907/276-7178

MEMORANDUM

TO: Dede Bohn / DOI-USGS

FROM: Molly McCammon
Executive Director

RE: Authorization -- Project 99459 / Residual Oiling of Armored Beaches and Mussel Beds in the Gulf of Alaska

DATE: January 15, 1999

The purpose of this memorandum is to formally authorize work to proceed on Project 99459/Residual Oiling of Armored Beaches and Mussel Beds in the Gulf of Alaska. The work must be performed consistent with the Detailed Project Description and budget dated July 1998.

cc: Bruce Wright / NOAA

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax:907/276-7178

MEMORANDUM

TO: Dede Bohn / DOI-USGS

FROM: Molly McCammon
Executive Director

RE: Authorization -- Project 99466 / Recovery Status of Barrow's Goldeneyes

DATE: January 15, 1999

The purpose of this memorandum is to formally authorize work to proceed on Project 99466/Recovery Status of Barrow's Goldeneyes. The work must be performed consistent with the Detailed Project Description and budget dated April 15, 1998.

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax:907/276-7178

MEMORANDUM

TO: Ken Holbrook / USFS Liaison

FROM: Molly McCammon
Executive Director

RE: Authorization -- Project 99470 / 10 Year Symposium and Related Events and Materials (USFS Component)

DATE: January 15, 1999

The purpose of this memorandum is to formally authorize work to proceed on Project 99470 / 10 Year Symposium and Related Events and Materials (USFS Component). The work must be performed consistent with the memorandum from Joe Hunt to the Trustee Council dated December 7, 1998 and the budget dated December 10, 1998.

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax:907/276-7178

MEMORANDUM

TO: Catherine Berg / DOI-USFWS

FROM: Molly McCammon
Executive Director

RE: Authorization -- Project 99434 / East Amatuli Island Remote Video Link

DATE: January 15, 1999

The purpose of this memorandum is to formally authorize work to proceed on Project 99434/East Amatuli Island Remote Video Link. The work must be performed consistent with the Detailed Project Description and with the revised budget dated December 1998.

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax:907/276-7178

MEMORANDUM

TO: Claudia Slater / ADFG Liaison

FROM: Molly McCammon
Executive Director

RE: Additional Authorization: Project 99131 / Chugach Native Region Clam Restoration

DATE: January 15, 1999

The purpose of this memorandum is to authorize the expenditure of the balance of funds ($222,800) for Project 99131/Chugach Native Region Clam Restoration. These funds must be spent consistent with the revised Detailed Project Description and budget dated November 1998.

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax:907/276-7178

MEMORANDUM

TO: Claudia Slater/ADFG

FROM: Molly McCammon
Executive Director

RE: Additional Authorization -- Project 99052B / Traditional Ecological Knowledge

DATE: January 15, 1999

The purpose of this memorandum is to formally authorize work to proceed on Objective 3 (one technical training workshop) of Project 99052B/Traditional Ecological Knowledge.

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax:907/276-7178

MEMORANDUM

TO: Claudia Slater/ADFG

FROM: Molly McCammon
Executive Director

RE: Authorization -- Project 99379 / Assessment of Risk Caused by Residual Oil in Prince William Sound Using P450 Activity in Fishes

DATE: January 15, 1999

The purpose of this memorandum is to formally authorize work to proceed on Project 99379/Assessment of Risk Caused by Residual Oil in Prince William Sound Using P450 Activity in Fishes. The work must be performed consistent with the Detailed Project Description and budget dated December 1998.

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax:907/276-7178

MEMORANDUM

TO: Bruce Wright / NOAA

FROM: Molly McCammon
Executive Director

RE: Authorization -- Project 99361 / Dynamic Graphical Techniques for Ecosystem Synthesis, Communication, and Product Delivery

DATE: January 15, 1999

The purpose of this memorandum is to formally authorize work to proceed on Project 99361/Dynamic Graphical Techniques for Ecosystem Synthesis, Communication, and Product Delivery. The work must be performed consistent with the Detailed Project Description dated December 14, 1998.

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax:907/276-7178

MEMORANDUM

TO: Bruce Wright / NOAA

FROM: Molly McCammon
Executive Director

RE: Authorization -- Project 99289 / Status of Black Oystercatchers in Prince William Sound

DATE: January 15, 1999

The purpose of this memorandum is to formally authorize work to proceed on Project 99289/Status of Black Oystercatchers in Prince William Sound. The work must be performed as outlined in the December 11, 1998 letter from S. Murphy to S. Senner.

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax:907/276-7178

MEMORANDUM

TO: Bruce Wright / NOAA

FROM: Molly McCammon
Executive Director

RE: Authorization -- Project 99393-BAA / Prince William Sound Food Webs: Structure and Change

DATE: January 15, 1999

The purpose of this memorandum is to formally authorize work to proceed on Project 99393/Prince William Sound Food Webs: Structure and Change. The work must be performed consistent with the Detailed Project Description and budget dated July 6, 1998.

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax:907/276-7178

MEMORANDUM

TO: Bruce Wright / NOAA

FROM: Molly McCammon
Executive Director

RE: Authorization -- Project 99401 / Assessment of Spot Shrimp Abundance in Prince William Sound

DATE: January 15, 1999

The purpose of this memorandum is to formally authorize work to proceed on Project 99401/Assessment of Spot Shrimp Abundance in Prince William Sound. The work must be performed consistent with the Detailed Project Description and budget dated November 3, 1998.

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax:907/276-7178

MEMORANDUM

TO: Bruce Wright / NOAA Liaison

FROM: Molly McCammon
Executive Director

RE: Additional Authorization -- Project 99329 / Synthesis of the Toxicological Impacts on Pink Salmon

DATE: January 15, 1999

The purpose of this memorandum is to formally authorize spending of the additional funds approved by the Trustee Council ($24,500) for Project 99329/Synthesis of the Toxicological Impacts on Pink Salmon. The work must be performed consistent with the budget dated December 9, 1998 and the letter dated December 3, 1998 from Stanley Rice and Bruce Wright to Molly McCammon.

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax:907/276-7178

MEMORANDUM

TO: Bruce Wright/NOAA

FROM: Molly McCammon
Executive Director

RE: Authorization -- Project 99090 / Monitoring of Oiled Mussel Beds in Prince William Sound

DATE: January 15, 1999

The purpose of this memorandum is to formally authorize work to proceed on Project 99090/Monitoring of Oiled Mussel Beds in Prince William Sound. All work must be performed consistent with the Detailed Project Description and with the revised budget dated July 6, 1998.

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax:907/276-7178

January 14, 1999

Mr. Stan Stephens
Stan Stephens Cruises & Charters
PO Box 1297
Valdez, Alaska 99686

Dear Stan:

Stan Jones at the Prince William Sound Regional Citizens' Advisory Council advised us that you will represent the RCAC to wrap up the discussion of Response and Prevention on the agenda of the first day of the "Legacy of an Oil Spill" symposium, March 23, 1999. Previously we had John Devens down for this slot, and I am writing simply to confirm that we will make this change in the program. Thank you for your willingness to participate; we look forward to your talk on the afternoon of the 23rd.

On this first day, we also invite you to be our guest at lunch. Our special guest will be Dr. Jane Lubchenco, past president of the American Association for the Advancement of Science, and she will be speaking on the state of the world's oceans.

In the event that you plan to stay for the entire symposium, which I hope you will do, I have enclosed a brochure with a registration form. Please submit this before March 1 to take advantage of a reduced preregistration fee. I will go ahead and register you for the first day.

Will you require any audio-visual equipment for your talk? Thanks again.

Sincerely,

Molly McCammon
Executive Director

encl: (1)

cc: Stan Jones, PWS RCAC

MM/pdb

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax:907/276-7178

January 14, 1999

Mr. Robert A. Malone
President
Alyeska Pipeline Service Company
1835 S. Bragaw Street
Anchorage, Alaska 99512

Dear Mr. Malone:

This letter is to confirm the telephone call I received from Ms. Wanda Peal in your office about your willingness to participate in the "Legacy of an Oil Spill" symposium on the afternoon of March 23, 1999. I am pleased to have you on the agenda.

I do hope you can join us for the entire first day of the symposium, and I invite you to be our guest at lunch. The keynote speaker is Dr. Jane Lubchenco, past president of the American Association for the Advancement of Science, and she will be talking about the state of the world's oceans.

As the time of the symposium gets closer, I will send you a reminder and a revised day-one agenda. In the meantime, if you have any questions, please contact me or Stan Senner, the Trustee Council science coordinator. Also, would Ms. Peal let one of us know if you require any audio-visual equipment for your presentation? Thank you.

Sincerely,

Molly McCammon
Executive Director

MM/pdb

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax:907/276-7178

January 14, 1999

Mr. George Frampton
Acting Chair
Council on Environmental Quality
722 Jackson Place NW
Washington, DC 20503

Dear George:

Ten years after the *Exxon Valdez* oil spill, the Trustee Council is sponsoring a "Legacy of an Oil Spill" symposium from March 23-27, 1999. The first day of the symposium, Tuesday, March 23, is planned as an overview session for the general public; the rest of the meeting will focus on the results of scientific studies carried out following the spill.

The purpose of this letter is to invite you to address symposium participants on the first day, March 23. The agenda on this first day is organized around questions like "what is the status of resources injured by the spill?" and "what are lessons learned and steps taken to prevent future oil spills." I have enclosed an agenda so you can get a sense of the entire program.

Although Secretary Babbitt was invited to participate, it appears unlikely that he will be able to do so. Secretaries Glickman and Daley also have been invited, and I do not yet know whether they will be able to attend. Would you be willing to give one of two possible presentations on the morning of the 23rd? One possibility is to share the platform with Governor Knowles, offering an overall perspective on the spill and restoration program. We also plan to ask Senator Stevens to address the group at this time. The second possibility is for a talk describing the rationale for and benefits of the habitat protection program, of which you were a chief architect.

Given your history with EVOS and your position at the Council on Environmental Quality, it

would be very appropriate for you to participate in the Legacy symposium. Please let me know if you are willing and able to do so. We are anxious to finalize the agenda as soon as possible. Thank you.

Sincerely,

Molly McCammon
Executive Director

enclosures (2)

MM/pdb

Legacy of an Oil Spill: 10 Years After *Exxon Valdez*

March 23-27, 1999
(Proposed Agenda)

Report to the Nation

Tuesday, March 23, 1999

8:45 am	Welcome and Introduction *Craig Tillery, Trustee Representative, Alaska Department of Law*
9:00 am	State and Federal Perspectives on the Legacy of the *Exxon Valdez* Oil Spill * *Honorable Tony Knowles, Governor, State of Alaska* * *Honorable Dan Glickman, Secretary, U.S. Department of Agriculture*
10:00 am	What is the Status of Fish and Wildlife Injured by the Oil Spill? *Steve Pennoyer, Trustee and Alaska Director, National Marine Fisheries Service*
11:00 am	Habitat Protection Following the *Exxon Valdez*: A Lasting Treasure * *Honorable Bruce Babbitt, Secretary, U.S. Department of the Interior*
	Research and Monitoring: Restoration Through Knowledge and Management *Dr. Robert Spies, Chief Scientist, Exxon Valdez Oil Spill Restoration Program*
Noon (*Lunch*)	Keynote Address by Dr. Jane Lubchenco: "The State of the World's Oceans" *Dr. Jane Lubchenco is a professor of marine biology and zoology at the University of Oregon. She sits on the board of directors of the National Science Foundation and is past president of the American Association for the Advancement of Science and the Ecological Society of America.*
1:30 pm	Human Dimensions of the Oil Spill *Introduction: Frank Rue, Trustee and Commissioner, Alaska Department of Fish and Game* *Alaska Native Perspective: Gary Kompkoff, President, Tatitlek IRA Council* *Community Perspective: Jerome Selby, former Mayor, Kodiak Island Borough*
3:15 pm	Oil Spill Response and Prevention: Can it Happen Again? *Introduction: Michele Brown, Trustee and Commissioner, Department of Environmental Conservation* *Prevention: Robert Malone, President, Alyeska Pipeline Service Company* *Response: Kurt Fredriksson, Director, Division of Spill Prevention and Response, ADEC* *Cleanup: Alan Mearns, Senior Scientist, National Oceanic and Atmospheric Administration* *Citizen Oversight: Stan Stephens, Chairman, PWS Regional Citizens' Advisory Council*
4:30 pm	Planning for the Future: Restoration in the 21st Century * *Honorable William Daley, Secretary, U.S. Department of Commerce*
30 - 7:00 pm	Trustee Council Reception

The Report To The Nation will be followed by a three-day scientific symposium covering lessons from the Exxon Valdez oil spill.

* *Speaker invited or to be invited.*

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax: 907/276-7178

MEMORANDUM

TO: Kim Garnero, Alaska Department of Fish and Game
Claudia Slater, Alaska Department of Fish and Game
Laura Beason, Alaska Department of Environmental Conservation
Dan Easton, Alaska Department of Environmental Conservation
Carol Fries, Alaska Department of Natural Resources
Ken Holbrook, U.S. Department of Agriculture, Forest Service
Bonnie McElmurry, U.S. Department of Agriculture, Forest Service
Bob Baldauf, U.S. of the Interior
Catherine Berg, U.S. of the Interior
Bruce Wright, National Oceanic & Atmospheric Administration

FROM: Traci Cramer
Administrative Officer

DATE: January 12, 1999

RE: FY 1999 Fifth and FY 1999 First Quarter Financial Reports

Pursuant to the Procedures of the *Exxon Valdez* Trustee Council expenditure and obligation activity are due thirty days following the end of each quarter. The purpose of this memorandum is to request that Quarterly Financial Information for the period ending **December 31, 1998** be submitted to this office by **January 31, 1999**.

Attached are three spreadsheets. The first spreadsheet is the 1998 Work Plan for your agency. The Work Plan spreadsheet currently contains expenditures and obligations reported for the period ending September 30, 1998. The second spreadsheet is the 1999 Work Plan for your agency. The third spreadsheet incorporates other projects approved by the Trustee Council such as special projects and land acquisitions. Agencies are requested to use these spreadsheets to updated expenditure and obligation activity for the period ending December 31, 1998.

I would also suggest that each of you review the Trustee Council Procedures relating to lapse (pages 13 and 14). The Procedures require that by January 31 of each year, agencies shall report to the Executive Director the total expended for each project, plus any obligations relating to the fiscal year just ended. From this point forward, adjustments relating to the 1998 Work Plan that result in an increase require the approval of the Executive Director.

If you have any questions, give me a call at (907) 586-7238.

Attachments
cc: Molly McCammon

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax:907/276-7178

January 12, 1999

Dr. Edward H. Owens
Polaris Applied Science, Inc.
755 Winslow Way East, Suite 302
Bainbridge Island, Washington 98110-2483

Dear Dr. Owens:

Brenda Baxter forwarded your fax of 11 January in regard to the "Legacy of an Oil Spill" symposium program. I am sorry that you have chosen to withdraw both of your presentations and ask that you reconsider.

As the session on "Prevention, Response, and Treatment" has taken shape, it now appears that we have time for an additional oral presentation. If you would like the opportunity to present your paper on oil-fine particle interactions orally in this session, please let me know.

In regard to the overall content of the program, there is no question that much of the content of the symposium addresses work sponsored by the Trustee Council. The original Call for Papers stated explicitly that "the symposium will emphasize what has been learned and accomplished in the restoration process following the oil spill." The scientific sessions, however, are open to all persons "who conducted research related to the *Exxon Valdez* oil spill and restoration program, whether or not their work was sponsored by the Trustee Council." We think that the current program reflects this fact: No requests to present papers were rejected, and more than 33 percent of all presentations (both oral and poster) are from work not sponsored by the Trustee Council. Twenty percent of all oral presentations are from projects not sponsored by the Trustee Council.

We had requests for many more oral presentations than could be accommodated. In the case of the SCAT process, yours' was the only abstract received. In the case of oil-fine particle interactions, yours' again was the only abstract received. Your work is highly regarded. If the

opportunity to present both papers orally is acceptable to you, we would be pleased to have you on the program. If not, we shall have no choice but to honor your request to withdraw.

Please give me a call at 907-278-8012, or, if it is more convenient to reply by e-mail, please contact me at <stan_senner@oilspill.state.ak.us>. Thank you.

Sincerely,

Stan Senner

Stanley E. Senner
Science Coordinator

cc: Brenda Baxter, Alaska Sea Grant Program
Bruce Wright, NMFS

SS/pdb

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax:907/276-7178

MEMORANDUM

TO: Alex Wertheimer / NOAA

FROM: Molly McCammon
Executive Director

RE: Extension of Due Date: Final Report
Project 97076 / Effects of Oiled Incubation Substrate on Straying and Survival of Wild Pink Salmon

DATE: January 7, 1999

This memo is to confirm an extended due date of March 31, 1999 for your final report on Project 97076/Effects of Oiled Incubation Substrate on Straying and Survival of Wild Pink Salmon. I understand that this additional time is needed to respond to internal reviews of the five manuscripts that will constitute the final report.

cc: Bob Spies, Chief Scientist
Bruce Wright, NOAA Liaison

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax:907/276-7178

January 5, 1999

Nancy C. Barnes
President
The Eyak Corporation
POB 22028
Juneau, Alaska 99802

John Johnson
Chairman of the Board
The Eyak Corporation
POB 1179
Cordova, Alaska 99574

Dear Nancy and John:

I would like to take this opportunity to express to you my genuine appreciation for the patience, perseverance and understanding that you, the Eyak Board of Directors and your shareholders have shown with respect to the Lands Agreement negotiated with the *Exxon-Valdez* Oil Spill Trustee Council.

It is a tribute to your and their combined tenacity, good judgment and commitment that the Purchase and Sale Agreement was executed and recorded before the end of 1998. We congratulate you on that and share with you great satisfaction with that noteworthy achievement.

In spite of this accomplishment, it was a disappointment for me, as I know it was for you and your shareholders, that several hurdles to this transaction arose in recent months and now require an additional step to facilitate the implementation of the Lands Agreement. I sincerely regret your having to confront and deal with these problems. Some of them fortunately, we were able to resolve as they occurred. Others were not so easy.

Each lands agreement the Council has been involved with has had its own unique set of challenges and problems. In fact, most major land acquisitions of this nature are extremely complex and typically take years to bring to conclusion. Although the particular problems with the Eyak transaction are unique, the fact that there are problems is not.

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax: 907/276-7178

4667

FAX COVER SHEET

Redirected to Roy's home fax # 659-1027

To: Roy Jones Number: 202-862-8365

From: Molly McCammon Date: 1/5/99

Comments: Total Pages: 3

FAX COMPLETE

HARD COPY TO FOLLOW _____

Document Sent By: _____

3/27/96

****
*** ACTIVITY REPORT ***
****

TRANSMISSION OK

TX/RX NO.	4667
CONNECTION TEL	12026591027
CONNECTION ID	
START TIME	01/05 16:39
USAGE TIME	01'33
PAGES	3
RESULT	OK

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax: 907/276-7178

FAX COMPLETE

FAX COVER SHEET

To: Jim Caplan Number: _____

From: Molly McCammon Date: 1/5/99

Comments: Total Pages: 3

HARD COPY TO FOLLOW _____

Document Sent By: _____

3/27/96

****
*** ACTIVITY REPORT ***
****

TRANSMISSION OK

TX/RX NO.	4668
CONNECTION TEL	19075867840
CONNECTION ID	P.JANIK
START TIME	01/05 16:32
USAGE TIME	01'55
PAGES	3
RESULT	OK

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax: 907/276-7178

FAX COMPLETE

FAX COVER SHEET

To: Walt Ebell Number: 206-623-7521

From: Molly Date: 1/5/99

Comments: Total Pages: 3

HARD COPY TO FOLLOW _____

Document Sent By: _____

3/27/96

****
*** ACTIVITY REPORT ***
****

TRANSMISSION OK

TX/RX NO.	4670
CONNECTION TEL	12066237521
CONNECTION ID	
START TIME	01/05 16:29
USAGE TIME	01'28
PAGES	3
RESULT	OK

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax: 907/276-7178

FAX COVER SHEET

FAX COMPLETE

To: Craig Tilley Number: _____

From: Molly Date: 1/5/99

Comments: Total Pages: 3

HARD COPY TO FOLLOW _____

Document Sent By: _____

3/27/96

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*** ACTIVITY REPORT ***
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TRANSMISSION OK

TX/RX NO.	4669
CONNECTION TEL	2787022
CONNECTION ID	ALEX-CRAIG
START TIME	01/05 16:27
USAGE TIME	01'56
PAGES	3
RESULT	OK

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax: 907/276-7178

FAX COMPLETE

FAX COVER SHEET

To: Brian LeHitch/EyakCorp Number: 424-5161

From: Molly McCammon Date: 1/5/99

Comments: Total Pages: 3

HARD COPY TO FOLLOW _____

Document Sent By: Rebecca

3/27/96

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*** ACTIVITY REPORT ***
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TRANSMISSION OK

TX/RX NO.	4666
CONNECTION TEL	19074245161
CONNECTION ID	
START TIME	01/05 16:20
USAGE TIME	02'00
PAGES	3
RESULT	OK

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax:907/276-7178

January 5, 1997

The Honorable Brian Porter
House of Representatives
Alaska State Legislature
State Capitol
Juneau, Alaska 99801-1182

Dear Representative Porter:

As I believe you may be aware, the *Exxon Valdez* Oil Spill Trustee Council has two *ex-officio* seats on its Public Advisory Group (PAG) for a representative from the Alaska State Senate and the State House of Representatives. Public Advisory Group members are appointed for two year terms.

The *ex-officio* members from the State Legislature were appointed during the 1996 session. The current House member is Mark Hodgins. Since a new legislature has been elected since that time, the Trustee Council would like to confirm whether the House wishes to appoint a new *ex-officio* member to the PAG.

For your reference I have enclosed a copy of the current PAG membership. The next meeting of the PAG is scheduled for January 21-22 in Anchorage.

If you have any questions, please do not hesitate to contact me.

Sincerely,

Molly McCammon

Molly McCammon
Executive Director

enclosure

reading file
same attach-
ment sent to
both.

Exxon Valdez Oil Spill

Public Advisory Group

January 5, 1999

Member	Mailing Address	Work Telephone Home Telephone Fax/Email	Principal Interest
Rupert E. Andrews	9416 Long Run Drive Juneau, AK 99801	hm (907) 789-7422 fx (907) 789-1846 randrews@eagle.ptialaska.net	Sport Hunting & Fishing
Torie Baker	3320 Wentworth Street Anchorage, AK 99508	hm (907) 258-6990 fx (907) torie@ptialaska.net	Commercial Fishing
Christopher Beck	1786 Forest Park Drive Anchorage, AK 99517	wk (907) 272-6365 fx (907) 272-6391 Chrisabeck@aol.com	Public-at-Large
Pamela Brodie	P.O. Box 1139 Homer, AK 99603	hm (907) 235-3855 fx (907) 235-6306 pbrodie@xyz.net	Environmental
Sheri Buretta	7644 East 17th Ave Anchorage, AK 99504	wk (907) 563-8866 fx (907) 563-8402 hm (907) 333-3774	Subsistence
Dave Cobb	Valdez City Council P.O. Box 307 Valdez, AK 99686	wk (907) 835-4874 hm (907) 835-2637 fx (907) 835-4831	Public-at-Large
Chip Dennerlein	1627 West 14th Avenue Anchorage, AK 99501	wk (907) 277-6722 hm (907) 278-3420 fx (907) 277-6723 cdennerlein@npca.org	Conservation
Eleanor Huffines	P.O. Box 981 Palmer, AK 99645	wk (907) 745-4047 fx (907) 745-6069	Commercial Tourism

Exxon Valdez Oil Spill

Public Advisory Group

January 5, 1999

Member	Mailing Address	Work Telephone Home Telephone Fax/Email	Principal Interest
Dan Hull	1930 Villages Scenic Parkway Anchorage, Ak 99516	hm (907) 345-8738 fx (907) 345-9585 dnhull@alaska.net	Public-at-Large
James G. King	1700 Branta Road Juneau, AK 99801	hm (907) 789-7540	Public-at-Large
Mary McBurney	310 K Street, Suite 200 Anchorage, AK 99501	wk (907) 264-6619 fx (907) 264-6622 WAFDA@prodigy.net	Aquaculture
Chuck Meacham	553 Main Street Juneau, AK 99801	hm (907) 463-5493 wk (907) 463-3335 fx (907) 463-3335 FFCPM1@UAF.edu	Science/Academic
Brenda Schwantes	Kodiak Area Native Association 3449 Rezanof Drive, East Kodiak, AK 99615	wk (907) 486-9800 hm (907) 486-1015 fx (907) 486-9894 brendasc@ptialaska.net	Public-at-Large
Stacy Studebaker	P.O. Box 970 Kodiak, AK 99615	hm (907) 486-6498 fx (907) 486-6468 tidepool@ptialaska.net	Recreation User
Charles Totemoff	Chenega Corporation 4000 Old Seward Highway, Suite 101 Anchorage, AK 99503	wk (907) 277-5706 fx (907) 277-5700 cwt@chenegacorp.com	Native Landowners

Exxon Valdez Oil Spill

Public Advisory Group

January 5, 1999

Member		Mailing Address	Work Telephone Home Telephone Fax/Email	Principal Interest
Howard Valley		Box 8051 Kodiak, AK 99615	hm (907) 486-1972 fx (907) 486-1072 hwvalley@ptialaska.net	Forest Products
Ed Zeine		P.O. Box 34 Cordova, AK 99574	wk (907) 424-6200 fx (907) 424-6000 edward@ptialaska.net	Local Government
Ex-Officio Members				
Loren Leman		Room 115 State Capitol Juneau, AK 99801-1182	wk (907) 465-2095 fx (907) 465-3810	Alaska State Senate
	or	716 West 4th, Suite 520 Anchorage, AK 99501-2133	wk (907) 258-8189 fx (907) 258-3768	
Mark Hodgins		Room 110 State Capitol Juneau, AK 99801-1182	wk (907) 465-3779 fx (907) 465-2833	Alaska State House
	or	145 Main Street Loop, Suite 211 Kenai, AK 99611	hmfx (907) 283-7863 wk (907) 283-7223 fx (907) 283-3075	
Designated Federal Officer				
Douglas L. Mutter		1689 C Street, Room 119 Anchorage, AK 99501-5126	wk (907) 271-5011 hm (907) 345-7726 fx (907) 271-4102 douglas_mutter@ios.doi.gov	Department of the Interior

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax:907/276-7178

January 5, 1997

The Honorable Drue Pearce
The State Senate
Alaska State Legislature
State Capitol
Juneau, Alaska 99801-1182

Dear ~~Senator~~ Drue Pearce:

As I believe you may be aware, the *Exxon Valdez* Oil Spill Trustee Council has two *ex-officio* seats on its Public Advisory Group (PAG) for a representative from the Alaska State Senate and the State House of Representatives. Public Advisory Group members are appointed for two year terms.

The current *ex-officio* members from the State Legislature were appointed during the 1996 session. The current Senate member is Loren Leman. Since a new legislature has been elected since that time, the Trustee Council would like to confirm whether the Senate wishes to reappoint its current *ex-officio* member for an additional term.

For your reference, I have enclosed a copy of the current PAG membership. The next meeting of the PAG is scheduled for January 21-22 in Anchorage.

If you have any questions, please do not hesitate to contact me.

Sincerely,

Molly McCammon
Executive Director

enclosure