11.15.05

May 14, 2004

Exxon Valdez Oil Spill Trustee Council Meeting

Exxon Valdez Oil Spill Trustee Council

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

AGENDA
EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
TELECONFERENCE MEETING
May 14, 2004 8:30 a.m.
441 West 5th Avenue, Suite 500, Anchorage

DRAFT

Trustee Council Members:

GREGG RENKES
Attorney General
State of Alaska

JAMES BALSIGER
Administrator, Alaska Region
National Marine Fisheries Service

ERNESTA BALLARD
Commissioner
Alaska Department of
Environmental Conservation

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

KEVIN DUFFY
Commissioner
Alaska Department of Fish
and Game

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

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

1. Call to Order – 8:30 a.m.
   - Approval of Agenda

2. Public comment – 8:35 a.m.

3. Executive Director's report
   - May 3, Community Involvement teleconference
   - May 19, TC meeting with the PAC invited

4. FY 04 Work Plan
   - Kachemak Bay mapping project*

4. FY 04 Work Plan-Phase III
   - Lingering oil projects*

5. Discussion and approval of Scientific and Technical Advisory Committee (STAC) member*

6. Reappointment of two current STAC members to a succeeding four-year term*

Adjourn

* Indicates action items.

STATE OF ALASKA

FRANK MURKOWSKI, GOVERNOR

DEPARTMENT OF FISH AND GAME

EVOS RESTORATION PROGRAM

441 W 5th Avenue, Suite 500
ANCHORAGE, AK 99501-2340
PHONE: (907) 265-9329
FAX. (907) 276-7178

MEMORANDUM

TO: Gail Phillips, Executive Director
Exxon Valdez Oil Spill Trustee Council

FROM: Brett W. Huber, Coordinator
ADF&G EVOS Restoration Program

DATE: 30 April 2004

SUBJECT: Request for Trustee Council Consideration – Kachemak Bay mapping project

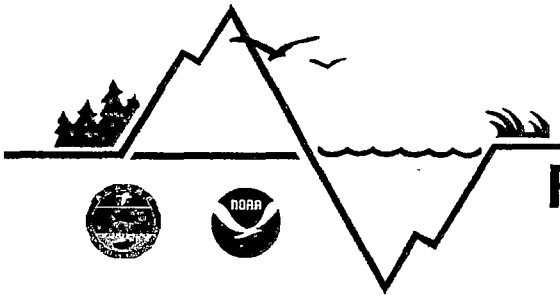
By way of this memo and attached information, the Alaska Department of Fish and Game, Kachemak Bay Research Reserve respectfully requests Trustee Council consideration for our proposal to complete the high resolution coastal habitat mapping of Kachemak Bay.

As we discussed the other day, this proposal is in follow-up to the previous EVOS projects for this mapping and database development effort (#020556 and #030556). Under those projects, EVOS funding has been employed to gather the information and create the database for approximately 80 percent of the coastline. Dr. Pegau of KBRR has provided EVOS with the database (populated with the data gathered thus far) and will have final reports for project #020556 and #030556 submitted within the next two weeks. However, due to the departure of the lead project PI and associated complications, additional field and computer work remains to be accomplished.

Over the last several months, and in consultation with Dr. Mundy, the department has been working to find an approach to complete this important work. This proposal is a result of that effort. The attachments to this memo include a cover letter of request from Dr. Pegau, EVOS project summary page and detailed project description, as well as a budget and narrative justification.

Should the Council choose to approve this proposal, the $15,000 of EVOS funds requested will be matched by $15,000 of other funds we have identified to help complete this work. Field and computer work would be conducted this season and completed in September, with a final report following in December. In order to have Council approval in time to meet this timeline, it would be necessary to include this project on either the May 14th or May 19th Council meeting agenda.

Thank you for your consideration of this request. Should you have any questions, or need additional information for this project, please let me know.



KACHEMAK BAY RESEARCH RESERVE

A Unit of the National Estuarine Research Reserve System

95 Sterling Highway, Suite 2
Homer, Alaska 99603
Phone (907) 235-4799
Fax (907) 235-4794

Dear EVOS Trustee Council,

Please find the attached request for funding to complete the high-resolution habitat mapping of Kachemak Bay. This request is to allow completion of a project begun in 2002 by Dr. Carl Schoch. Dr. Schoch left the Kachemak Bay Research Reserve in October 2003. Much of the data that he had collected was in a form that required his personal attention to complete. We have been able to build the GIS and relational databases for this project and populate them with the data for approximately 80% of Kachemak Bay. The full utility of this project cannot be realized until the mapping is completed. We are requesting funding to allow us to complete the project using a set of protocols that provide data in a simpler manner to interpret and quality control. The funding requested from EVOS/GEM will be matched using KBRR funding for biological characterization and from our NOAA operations award.

Thank you for your consideration of this proposal,

W. Scott Pegau
Research Coordinator

EVOS PROPOSAL SUMMARY PAGE

(Trustee council use only)
Project No._____
Cluster _____
Date Received _____

Project Title: High Resolution Mapping of the Intertidal and Shallow Subtidal Shores in Kachemak Bay

Project Period: 6/1/04 to 12/31/04

Proposer: W. Scott Pegau
Kachemak Bay Research Reserve
95 Sterling Hwy, Suite 2.
Homer, AK 99603
Tel: 907-226-4654
Scott_pegau@fishgame.state.ak.us

EVOS Funding:
Received in FY 02: $62,200
Received in FY 03 $33,600
Requested in FY04 $15,000

Matching Funds: $15,000

Study Location: Kachemak Bay/Lower Cook Inlet

Trustee Agency: ADF&G

ABSTRACT

This is a continuation of the field-mapping project started in FY02 by Dr. G. Carl Schoch. This proposal seeks funding to complete the field mapping and building a database of the geomorphology and physical attributes of shallow intertidal habitats for the Kachemak Bay area. We regard this as the foundation for developing a monitoring program to detect changes in nearshore communities resulting from shifts in watershed and marine processes. Other map tools such as the NOAA Environmental Sensitivity Index (ESI), and the Shore-zone Classification were developed for oil spill response planning and do not contain the data necessary for resolving small spatial scale features of the shoreline needed in ecological studies where biophysical linkages often occur at scales of less than one meter.

I. INTRODUCTION

This proposal was funded by the EVOS Trustee Council late in the 2002 fiscal year. The project was led by Dr. Carl Schoch who left the Kachemak Bay Research Reserve in October 2003. Much of the mapping work conducted in the 2003 field season required his expertise to complete, however much of the original mapping effort was conducted using a more stringent set of protocols that led to data sets that were easier to quality control. At this time about 80% of the Kachemak Bay shoreline has been mapped using the more stringent protocols (Figure 1). This work has been entered into a GIS mapped project and into a database. We are requesting funding to complete the work using the more stringent protocols. The remaining work consists of field mapping the remaining 15% of the shoreline, data entry, and GIS database development. Now that the database is set up and the GIS project relatively mature we will be able to complete the work in a single field season using a two-person crew.

II. NEED FOR THE PROJECT

A Statement of Problem

The ecology of the nearshore benthos (from intertidal to 10 m depth) has been studied in detail at many coastal locations in the U.S. However, the processes that couple the intertidal regions with those in the nearshore ocean are poorly understood. For example, it is not apparent if production in some intertidal communities is regulated by the delivery of nutrients from the coastal ocean or by drainage from nearby rivers and estuaries. Such "edge" communities at the transition between one regime and another have rarely been studied as an integrated system. However, it is clear that there is strong physical and biological coupling between the nearshore and the intertidal. Prediction of how these communities will change over time or space is still a significant challenge. Map data of dominant habitats, as well as statistics about spatial frequency and abundance, are important to our understanding of how these systems interact and function and have many applications in resource management as well as basic research. Such understanding is especially critical as we try to make predictions about impacts of large-scale environmental phenomena, from coastal eutrophication, to oil spills, to shifts in weather patterns and wind driven processes (ENSO and global climate change).

Figure 1. Map of the completed habitat characterization. Areas with red dots have data and photographs. Areas with green dots indicate areas with photographs but no data. Blue lines without dots are regions that must be completed. Salt marshes are being surveyed by a different projects and will fill in large areas at the head of bays and in the Fox River Flats region.

B. Rationale/Link to Restoration

In establishing the GEM Program, the Trustee Council explicitly recognized that complete recovery from the oil spill may not occur for decades and that full restoration of injured resources will most likely be achieved through long-term observation and, as needed, restoration activities. The Council further recognized that conservation and improved management of injured resources and services will require substantial ongoing investment to improve understanding of the marine and coastal ecosystem that supports the resources, as well as the people, of the spill region. In addition, prudent use of the natural resources of the spill area without compromising their health and recovery requires increased knowledge of critical ecological information about the northern Gulf of Alaska. This knowledge can only be provided through a long-term monitoring and research program that will span decades, if not centuries.

C. Link to GEM Program Document

Habitat mapping was one of the key components of the Nearshore monitoring strategy identified at a series of workshops sponsored by the EVOS trustee Council.

III. PROJECT DESIGN

A. Objectives

Our objective is to produce a high-resolution database of nearshore habitats in Kachemak Bay.

B. Procedural Methods

The proposed shoreline partitioning model relies on quantifying physical features known to have direct and indirect ecological responses, and uses these as criteria for partitioning complex shorelines into a spatially nested series of homogeneous segments. For example, at small spatial scales the quantified geophysical parameters include sediment grain size, wave energy, substrate dynamics, and sediment chemistry. At larger spatial scales water chemistry attributes such as salinity, chlorophyll and nutrient concentrations are used. These nested segments can be used to study between-segment and within-segment physical variability, which in turn will support studies of the biotic and abiotic processes that control variability in community structure. This nested segmentation approach allows large areas of shoreline to be classified based on relatively limited *in situ* sampling. The results of Dr. Schoch in Alaska (Lake Clark, Kenai Fjords, Katmai and Glacier Bay National Parks) have shown this to be a robust approach, despite the enormous complexity of these regions. An additional use of this database has recently been developed through an Olympic Coast National Marine Sanctuary initiative to establish a marine reserve network on the outer Washington coast.

This project will take place in Kachemak Bay: the north shore from Anchor Point to the Fox River, then the south shore from Fox River to Pt. Pogibski. The remaining region to be mapped is along the southern shore (Figure 1). The proposed work focuses on intertidal areas other than salt marshes. The salt marshes are currently being mapped under another project and the GIS product will be modified in the future to include that information.

Homogeneous alongshore segments (10-100 meters in length) are delineated and the physical component of the habitat characterized by using indices of geophysical variables within each of four intertidal zones. Indices of the presence of common biological communities within each intertidal zone are also to be logged. The four intertidal zones are low, low-mid, high-mid, and high with Mean Lower Low water as the bottom of the low zone. Mapping will occur during times with a tide of plus two feet or lower. Each alongshore segment will be marked on aerial photographs of the beach, and later the segment lines will be incorporated into the GIS project. We will photograph each segment and link the photos with the shoreline segment in the GIS project. The datasheets of physical and biological characteristics are to be entered into an Access database that is also linked to the segments in the GIS project. Because we will be able to

complete field work half of the time at most, we expect that the data entry portion of this project will be completed during the times we are unable to work in the field.

C. Statistical Methods

The proposed project is a data compilation and inventory of beach types. Statistical power to detect a change does not apply at this stage, however, future work will show the statistical rigor that can be generated when this database is used to identify replicate shore segments.

D. Description of Study Area

This project will take place in Kachemak Bay: the north shore from Anchor Point to the Fox River, then the south shore from Fox River to Pt. Pogibski.

E. Coordination and Collaboration with Other Efforts

We are coordinating this project with ADFG Commercial and Sport Fish Division projects in Kachemak Bay focusing on clam bed research, with the Cook Inlet RCAC to map beaches for oil spill response planning, with The Nature Conservancy to map important conservation areas, and with the City of Homer to map high use beaches for potential land use zoning.

IV. SCHEDULE

A. Project Milestones and Endpoints

The project milestones are to synthesize complete the high-resolution mapping of nearshore habitats in Kachemak Bay, complete the relational database of all the acquired nearshore attributes, and complete the GIS database of raster imagery and vector coverages to represent the nearshore habitat segmentation.

B. Measurable Project Tasks

We intend to resume this project as soon as we are notified of a successful proposal. We anticipate 6 additional tide series (3 months) to complete the field data collection. An additional three months are requested to allow the principal investigator time to complete quality checks of the data and writing the final report.

September 2004	complete all field and data entry work
December 2004	submit final report

V. RESPONSIVENESS TO KEY TRUSTEE COUNCIL STRATEGIES

A. Community Involvement and Traditional Knowledge (TEK)

The KBRR is an integrated research and education program. A goal of the KBRR education program is to provide for community involvement and conduct educational programs that will interpret and instruct the public on research projects conducted in the region. The KBRR will interpret research results by the following means:

- The KBRR web page;
- The KBRR interactive research and education programs;
- Conferences, workshops, and presentations on our programs to the community and schools;
- Display information on research projects at the new KBRR facilities in the Alaska Islands and Oceans Visitor Center.

B. Resource Management Applications

The project will benefit all the resource management agencies in the Bay, oil spill advisory councils, conservation agencies, and local governments (see letters of support submitted with the original proposal). The communities include the City of Homer and greater Homer area, Anchor Point, Seldovia, and the many small unorganized communities on the south shore or Kachemak Bay (e.g. Halibut Cove, Jakalof Bay, Bear Cove). Immediate resource management applications include using the database to quantify clam habitat to improve estimates of abundance. The database will also be used to quantify juvenile rockfish habitat and determine shores at risk to oilspills and other development related stressors.

VI. PUBLICATIONS AND REPORTS

The product of this work is regarded as the foundation for further monitoring of the biological components of the ecosystem. As such, we do not expect to publish this data in a scientific journal until the biological data has also been collected and analyzed.

VII. PROFESSIONAL CONFERENCES

The principal investigator is professionally obligated to present the results of Kachemak Bay research projects at the annual NERRS Research Conference (travel funded by NOAA).

VIII. PERSONNEL

A. Principal Investigator (PI)

Dr. W. Scott Pegau
Kachemak Bay Research Reserve

95 Sterling Hwy, Suite 2
Homer, AK 99603
907-226-4654
907-235-4794
scott_pegau@fishgame.state.ak.us

B. Other Key Personnel

This grant will provide support for a GIS Analyst and a Research Assistant for field support, data entry, and analysis.

C. Contracts

IX. PRINCIPAL INVESTIGATOR QUALIFICATIONS

W. Scott Pegau
Research Coordinator, Kachemak Bay Research Reserve
Professional Preparation:

University of Alaska, Fairbanks	Physics	B.S./1990
Oregon State University	Oceanography	Ph.D./1996
Oregon State University	Oceanography	Post doc./1996-1997

Appointments:

Senior Scientist, Kachemak Bay Research Reserve (KBRR)	2002-present
Assistant Professor (tenure track), Oregon State University	1999-present
Faculty Research Associate, Oregon State University	1997-1999
Faculty Research Associate (Post Doc), Oregon State University	1996-1997
Graduate Research Assistant, Oregon State University	1990-1996
Research Assistant, University of Alaska, Fairbanks	1987-1990

Current duties:

Current duties at KBRR include being the Research Coordinator, maintaining and expanding the in-situ monitoring program, and developing new research programs examining the circulation and primary production in Kachemak Bay and Lower Cook Inlet. As Research Coordinator, I coordinate KBRR research with other research being conducted within the Reserve boundaries, such as the taxonomic work being performed by Drs. Konar and Eiken.

Expertise:

My primary area of expertise is the interpretation of in-situ and remote optical measurements to determine types of materials in the water column, determination of vertical distributions from

space, water masses, and circulation patterns. I have extensive experience in the conceptual design and deployment of sensors on a number of platforms ranging from traditional cages, ferry vessels, and autonomous vehicles. I also have experience determining heat fluxes using meteorological and oceanographic measurements.

5 recent or significant publications:

Pegau, W. S., Inherent optical properties in the Central Arctic surface waters, in press *J. Geophys. Res.* (in press)

Pegau, W. S., E. Boss, and A. Martinez, Ocean color observations of eddies during the summer in the Gulf of California, *Geophys. Res. Lett.*, **29**, 10.1029/2001GL014076, 2002.

Weideman, A. D., D. J. Johnson, R. J. Holyer, W. S. Pegau, L. A. Jugan, and J. C. Sandidge, Remote imaging of internal solitons in the coastal ocean, *Remote Sensing of Environment,* **76**, 260-267, 2001.

Twardowski, M. S., E. Boss, J. B. MacDonald, W. S. Pegau, A. H. Barnard, J. R. V. Zaneveld, A model for estimating bulk refractive index from the optical backscattering ratio and the implications for understanding particle composition in case I and case II waters, *J. Geophys. Res.*, **106**, 14129-14142, 2001.

Zaneveld, J. R. V., and W. S. Pegau, A model for the reflectance of thin layers, fronts, and internal waves and its inversion, *Oceanography*, **11**, 44-47, 1998.

X. LITERATURE CITED

See original FY02 proposal

EXXON VALDEZ OILSPILL TRUSTEE COUNCIL
PROJECT BUDGET

Budget Category:	Proposed FY
Personnel	$12.3
Travel	$0.0
Contractual	$1.0
Commodities	$0.5
Equipment	$0.0
Subtotal	$13.8
General Administration	$1.2
Project Total	$15.0
Other Funds	

Comments:

FY04

Prepared:

Project Number:
Project Title:High Resolution Mapping of the Intertidal and Shallow Subtidal Shores in Kachemak Bay
Agency: Alaska Dept. of Fish and Game

FORM 3A
TRUSTEE
AGENCY
SUMMARY

EXXON VALDEZ OILSPILL TRUSTEE COUNCIL
PROJECT BUDGET

Personnel Costs:		GS/Range/	Months	Monthly		Personnel
Name	Description	Step	Budgeted	Costs	Overtime	Sum
Fish and Wildlife Tech III	Fish and Wildlife Tech III	11A	3.5	3.5		12.3
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
	Subtotal		3.5	3.5	0.0	
					Personnel Total	$12.3

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

FY04

Prepared:

Project Number:
Project Title: High Resolution Mapping of the Intertidal and Shallow Subtidal Shores in Kachemak Bay
Agency: Alaska Dept. of Fish and Game

FORM 3B
Personnel
& Travel
DETAIL

EXXON VALDEZ OILSPILL TRUSTEE COUNCIL
PROJECT BUDGET

Contractual Costs:	Contract Sum
Description	
Boat fuel and maintenance	1.0
When a non-Trustee organization is used, the 4A and 4B forms are required. **Contractual Total**	$1.0
Commodities Costs:	Commodity Sum
Description	
field notebooks, digital camera	0.5
Commodities Total	$0.5

FY04

Prepared:

Project Number:
Project Title: High Resolution Mapping of the Intertidal and Shallow Subtidal Shores in Kachemak Bay
Agency: Alaska Dept. of Fish and Game

FORM 3B
Contractual & Commodities DETAIL

EXXON VALDEZ OILSPILL TRUSTEE COUNCIL
PROJECT BUDGET

New Equipment Purchases: Description	Number of Units	Unit Price	Equipment Sum
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
Indicate replacement equipment purchases with an R.		**New Equipment Total**	$0.0

Existing Equipment Usage: Description	Number of Units	Inventory Agency

FY04

Prepared:

Project Number:
Project Title: High Resolution Mapping of the Intertidal and Shallow Subtidal Shores in Kachemak Bay
Agency: Alaska Dept. of Fish and Game

FORM 3B
Equipment
DETAIL

Budget explanation

Personnel: We are requesting funds to hire one technician to assist with fieldwork and data entry. KBRR will supply funding for a second person to assist in collecting data and for the Principal investigator to write the final report.

Contractual: Funds are requested to cover the cost of boat operations and routine maintenance associated with the fieldwork required in this project.

Commodities: Funds are requested to replace the digital camera used in the field, and to provide the appropriate field log books.

RESOLUTION 04-07 OF THE
***EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL**
REGARDING THE FY 04 WORK PLAN Phase III

We, the undersigned, duly authorized members of the *Exxon Valdez* Oil Spill Trustee Council do hereby certify that, in accordance with the Memorandum of Agreement and Consent Decree entered as settlement of United States of America v. State of Alaska, No. A91-081 Civil, U.S. District Court for the District of Alaska, and after a public meeting, unanimous agreement has been reached to expend funds received in settlement of State of Alaska v. Exxon Corporation, et al., No. A91-083 CIV, and United States of America v. Exxon Corporation, et al., No. A91-082 CIV, U.S. District Court for the District of Alaska, for necessary natural resource damage assessment and restoration activities for fiscal years 2004 and 2005, as described in the attached spreadsheet. The third phase of the Fiscal Year 2004 Work Plan is funded to provide for the multi year activity for the following Projects:

- 040477 – Oil Exposure Biomarkers and Population Trends of PWS Marine Vertebrates ($178,000.00 FY04 and $150,500.00 FY05);
- 040775 – Pathways of Exposure and Recovery Status ($20,500.00 FY04 and $126,900.00 FY05);
- 040574 – Assessment of Bivalve Recovery on Treated Mixed-soft Beaches in PWS ($36,200.00 FY04);
- 040740 – Contaminant Inputs to PWS and CYP1A Induction in Fish ($177,300 FY 04 and $130,100.00 FY 05);
- 040772 – Sediment Quality Survey of Heavily-Oiled Beaches in Prince William Sound ($79,679.00 FY04 and $56,571.00 FY05);
- Contract with Integral Consulting, Inc., to be administered by the Department of Law, for applied research related to lingering oil, resource recovery, and management and monitoring of impaired water bodies ($650,000.00 FY 04)

Total funding for FY 2004 - $1,141,679.00

Total Funding for FY 2005 - $464,071.00

Fiscal Year 2005 allocations are to be disbursed on or after October 1, 2004.

The monies are to be distributed according to the following schedule:

Fiscal Year 2004

Alaska Department of Law	$ 729,679.00
SUBTOTAL TO STATE OF ALASKA	$ 729,679.00
U.S. Department of the Interior	$ 198,500.00
National Oceanic & Atmospheric Administration	$ 213,500.00
SUBTOTAL TO UNITED STATES OF AMERICA	$ 412,000.00
TOTAL APPROVED FY 2004	**$ 1,141,679.00**

Fiscal Year 2005

Alaska Department of Law	$ 56,571.00
SUBTOTAL TO STATE OF ALASKA	$ 56,571.00
U.S. Department of the Interior	$ 277,400.00
National Oceanic & Atmospheric Administration	$ 130,100.00
SUBTOTAL TO UNITED STATES OF AMERICA	$ 407,500.00
TOTAL APPROVED FY 2005	**$ 464,071.00**

Funds must be spent in accordance with the attached Funding Recommendations, with the following conditions: (1) If a Principal Investigator (PI) has an overdue report or manuscript from a previous year, no funds may be expended on a project involving the PI unless the report is submitted or a schedule for submission is approved by the Executive Director; (2) a project's lead agency must demonstrate to the

Executive Director that requirements of the National Environmental Policy Act (NEPA) are met before any project funds may be expended (with the exception of funds spent to prepare NEPA documentation); and (3) a PI for each project must submit a signed form to the Executive Director indicating their agreement to abide by the Trustee Council's data and report requirements before any project funds may be expended.

By unanimous consent, we hereby request the Alaska Department of Law and the Assistant Attorney General of the Environmental and Natural Resources Division of the United States Department of Justice to take such steps as may be necessary to make available for the Fiscal Year 2004 Work Plan Phase III, the amount of $1,605,750.00 from the appropriate account designated by the Executive Director.

DRAFT

Approved by the Council at its meeting of May 14, 2004 held in Anchorage, Alaska as affirmed by our signatures affixed below.

JOE L. MEADE
Forest Supervisor
Forest Service Alaska Region
U.S. Department of Agriculture

GREGG RENKES
Attorney General
State of Alaska

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

JAMES W. BALSIGER
Administrator, Alaska Region
National Marine Fisheries Service
U.S. Department of Commerce

KEVIN DUFFY
Commissioner
Alaska Department of Fish and Game

ERNESTA BALLARD
Commissioner
Alaska Department of Environmental Conservation

DRAFT

Attachments:
Spreadsheet
Funding Recommendations

Projects approved for Funding May 14, 2004

NOAA	$	213,500
DOI/USGS	$	198,500
Total to United	$	412,000

DOL	$	729,679
ADFG	$	-
Total to State to GeFONSI	$	729,679

Approved	Agency	Cooperating Agency	Listing	Project Number	FY04	FY05	FY06	Decision	Amount Funded FY 04 Including GA
14-May	DOI/USGS		Ballachey, Bodkin, Irons - Oil Exposure Biomarkers and Population Trends of PWS Marine Vertebrates	40774	$ 178,000 00	$ 150,500 00	$ -		$ 328,500 00
14-May	DOI/USGS		Ballachey, Bodkin - Pathways of Exposure and recovery status	40775	$ 20,500 00	$ 126,900 00	$ -		$ 147,400 00
			Total for USGS/DOI		**$ 198,500.00**	**$ 277,400.00**			**$ 475,900.00**
14-May	NOAA		Lees - Assessmetn of Bivalve Rcovery on Treated Misxed -Soft Meaches in PWS	40574	$ 36,200 00	$ -	$ -		$ 36,200 00
14-May	NOAA		Rice - Contaminant Inputs to PWS and CYP1A induction in Fish	40740	$ 177,300 00	$ 130,100 00	$ -		$ 307,400 00
			Total for NOAA		**$ 213,500.00**	**$ 130,100.00**			**$ 343,600.00**
14-May			Lingering Oil Project Review		$ 650,000 00				$ 650,000 00
14-May	DOL		Day - Sediment Quality Survey of Heavily-Oiled Beaches in PWS	40772	$ 79,679 00	56,571 00	$ -		$ 136,250 00
			Total for DOL		**$ 729,679.00**	**$ 56,571.00**			**$ 786,250.00**

FY 04 EVOS FUNDING RECOMMENDATIONS May 14, 2004	Fund FY 04	Fund FY 05	Total Funding by Agency (includes GA)	GA
NOAA	$ 213,500	$ 130,100	$ 343,600	$ 25,382
DOL	$ 729,679	$ 56,571	$ 786,250	$ 11,250
ADFG	$ -	$ -	$ -	$ -
DOI	$ 198,500	$ 277,400	$ 475,900	$ 39,295
EVOS Admin funding*			$ -	
Total	$ 1,141,679	$ 464,071	$ 1,605,750	$ 75,927

Total Allocation	$	1,500,000 00
Authonzed Exenditure May 14	$	1,605,750
Remaining available	$	(105,750 00)

FY 2004 Work Plan Phase III – Proposal Abstracts
May 14, 2004

Project Number:	040740
Funding Requested:	FY04 $177,300.00 FY05 $130,100.00 Total $307,400.00
Project Title:	Lingering Oil: Contaminant Inputs to PWS and CYP1A induction in Fish
Proposer(s):	Stanley Rice (Habitat Program Manager), Jeff W. Short, Mandy Lindeberg - NOAA/NMFS Auke Bay Laboratory

Abstract:

Recently lingering oil studies have found that Exxon Valdez oil persists, and continued CYP1A induction in sea otters and sea ducks have become the best documented long-term impacts of the spill. Exxon scientists suggest there are many other potential pollutant sources in PWS that confound measurements of CYP1A induction. The project proposed here will definitively assess contributions, if any, from other contaminant sources to contaminant stresses on biota in Prince William Sound (PWS). At a suite of sites, passive sampling devices will be deployed and then analyzed to evaluate their induction potential. Aliquots of concentrated extracts from the samplers will be injected into cultured rainbow trout (Oncorhynchus mykiss), and the induction of cytochrome P450A1A (CYP1A) measured. These measurements would compliment the on-going sea otter studies of FY04, where a final measurement of CYP1A will be made in summer 2004.

Project Number: 040775
Funding Requested: FY04 $20,500.00 FY05 $126,900.00 Total $147,400.00

Project Title: Lingering oil and sea otters: Pathways of exposure and recovery status (continuation of work in project 040620)

Proposer(s): James L. Bodkin & Brenda E. Ballachey, ASC, USGS.

Abstract:

Some of the strongest evidence of continuing effects of lingering oil from the *Exxon Valdez* spill comes from long term monitoring of sea otter populations and their exposure to hydrocarbons. Sea otters in heavily oiled areas of western PWS had not recovered as of 2003. Through 2002, sea otters continue to exhibit elevated levels of the cytochrome P4501A biomarker in areas where lingering oil deposits are most prominent. In 2002/03, sea otters at northern Knight Island were instrumented with radiotransmitters and time-depth recorders. Ongoing monitoring of these individuals is quantifying home ranges relative to known intertidal lingering oil deposits, and when the dive data are retrieved and analyzed, we will link foraging behaviors of individual sea otters to oiled shorelines, and relate patterns of habitat use to individual variation in cytochrome levels. For FY2005, we propose to conduct surveys of population size and distribution, continue to monitor instrumented sea otters to obtain habitat use and survival information, and obtain an additional sample of cytochrome P4501A. This will allow evaluation of continuing exposure to residual oil, population trends, and the status of recovery of sea otters in western PWS.

Project Number: 040774
Funding Requested: FY04 $178,000.00 FY05 $150,500.00 Total $328,500.00

Project Title: Oil exposure biomarkers and population trends of Prince William Sound marine vertebrates

Proposer(s): Brenda E. Ballachey and James L. Bodkin, Alaska Science Center, USGS, and David Irons, US Fish and Wildlife Service.

Abstract:

Some of the strongest evidence of continuing effects of lingering oil from the Exxon Valdez oil spill comes from long term monitoring of vertebrate populations and their exposure to hydrocarbons. Population recovery of sea otters remained incomplete as of 2002, and individual sea otters continue to exhibit elevated levels of the Cytochrome P450 1A biomarker in areas where lingering oil deposits are most prominent. Surveys of population size and individual P450 measures of sea otters and marine birds will provide continuing information on population trend and individual exposure to lingering oil.

Project Number: 040574
Funding Requested: FY04 $36,200.00 FY05 $0.00 Total $36,200.00

Project Title: Assessment of Bivalve Recovery on Treated Mixed-Soft Beaches in Prince William Sound - Submitted Under the BAA

Proposer(s): Dennis C. Lees, Littoral Ecological & Environmental Services, dennislees@earthlink.net

Abstract:

Due to favorable weather, we were able to collect 25 percent more infaunal samples during the August 2002 field effort for Project No. 02574 than we had initially proposed for this work. This should improve the program's statistical power by about 15 percent. Current trends observed in samples analyzed to date suggest that treated sites have fewer bivalves than reference sites.

Unfortunately, sediment characteristics differed substantially between the new sampling sites and those sampled during previous work in the region. Consequently, sample volumes for these infaunal samples are four to five times larger than was anticipated. Therefore, the time required to sort the samples far exceeds the budget for sorting.

This proposal is directed at obtaining additional funds for sample sorting. Accelerating the sorting process will allow us to complete sample analysis and publication of our results and will allow the Trustee Council to draw inferences regarding lingering effects to intertidal bivalve assemblages from the oil spill in a timely manner.

Project Number: 040772
Funding Requested: FY04 $76,679.00 FY05 $56,571.00 Total $136,250.00

Project Title: Sediment Quality Survey of Heavily-Oiled Beaches in Prince William Sound

Proposer(s): Betsy Day, Integral Consulting, Inc., bday@integral-corp.com

Abstract:

Recent work by Short et al. (2004) demonstrated that lingering oil is found in subsurface intertidal sediments in 43 of the 91 beaches sampled during the summer of 2001. This proposed research project is directed at understanding potential ecological effects to invertebrate populations resulting from lingering oil in subsurface intertidal sediments. Sediments from five locations containing heavily-oiled subsurface sediments, and five nearby reference areas, will be collected concurrently with the NMFS continuing lingering oil studies, and evaluated for PAHs, sediment toxicity using the mussel larvae bioassay, and benthic community structure. The results will provide information on the potential ecological impacts from lingering subsurface oil and will be evaluated using a weight-of-evidence approach. If this project shows that the heavily-oiled sediments are not causing impacts to benthic invertebrates then it can be assumed that benthic invertebrate populations in moderately or lightly-oiled sediments would not be affected by the lingering oil.

Draft FY 2004 Lingering Oil Work Plan

Funding Recommendations

May 14, 2004

Project Title:	Lingering Oil: Contaminant Inputs to PWS and CYP1A induction in Fish
Proposer(s):	Stanley Rice (Habitat Program Manager), Jeff W. Short, Mandy Lindeberg - NOAA/NMFS Auke Bay Laboratory
Project Number:	040740
Funding Requested:	FY04 $177,300.00 FY05 $130,100.00 Total $307,400.00

Abstract:

Recently lingering oil studies have found that Exxon Valdez oil persists, and continued CYP1A induction in sea otters and sea ducks have become the best documented long-term impacts of the spill. Exxon scientists suggest there are many other potential pollutant sources in PWS that confound measurements of CYP1A induction. The project proposed here will definitively assess contributions, if any, from other contaminant sources to contaminant stresses on biota in Prince William Sound (PWS). At a suite of sites, passive sampling devices will be deployed and then analyzed to evaluate their induction potential. Aliquots of concentrated extracts from the samplers will be injected into cultured rainbow trout (*Oncorhynchus mykiss*), and the induction of cytochrome P450A1A (CYP1A) measured. These measurements would compliment the on-going sea otter studies of FY04, where a final measurement of CYP1A will be made in summer 2004.

Science Director Summary and Recommendation:

The value of this project is to help resolve any remaining arguments about the origin of the induction of cytochrome enzyme responses in some fishes in PWS. It is specifically designed to distinguish the effects of oil effects from those of another significant class of contaminants, persistent organic pollutants, POPs. POPs are widely distributed throughout the marine environment, so it is important to consider them when addressing the effects of lingering oil. This project's passive samplers (SPMDs) are capable of integrating chemical signals from POPs and polyaromatic hydrocarbons, PAHs that are too dilute for detection in individual water samples. In addition, sampling of returning salmon for POPs can determine the magnitude of POPs carried into anadromous streams by this vector. The injection of materials collect by SPMDs into lab trout to test their potential for induction of P4501A enzymes is innovative and clever. PIs are asked to consider if the study might be made even stronger by the addition of a fish species that occurs in PWS that has shown elevated cytochrome enzymes in some oiled places but not

at control sites. That way, the contaminant materials collected from the SPMDs that were also deployed in the oiled sites could be experimentally injected into fish in the lab at a series of concentrations (or amounts) to establish which concentration (or amount) produced the effects in that species that were observed in the field earlier. With such calibration, one might be able to better defend the quantities used in the broader injection design that included the survey of sites of various types (near villages, mines, hatcheries, control areas, etc.). Fund, very high priority.

Executive Director Recommendation:

This project is recommended as the highest priority for funding. The PI is required to respond to peer reviewer comments, and to make necessary modifications, if any, in consultation with the Science Director.

Overall Recommendation: Fund

Project Title:	Lingering oil and sea otters: Pathways of exposure and recovery status
Proposer(s):	James L. Bodkin & Brenda E. Ballachey, ASC, USGS.
Project Number:	040775 (continuation of work in project 040620)
Funding Requested:	FY04 $20,500.00 FY05 $126,900.00 Total $147,400.00

Abstract:

Some of the strongest evidence of continuing effects of lingering oil from the *Exxon Valdez* spill comes from long term monitoring of sea otter populations and their exposure to hydrocarbons. Sea otters in heavily oiled areas of western PWS had not recovered as of 2003. Through 2002, sea otters continue to exhibit elevated levels of the cytochrome P4501A biomarker in areas where lingering oil deposits are most prominent. In 2002/03, sea otters at northern Knight Island were instrumented with radiotransmitters and time-depth recorders. Ongoing monitoring of these individuals is quantifying home ranges relative to known intertidal lingering oil deposits, and when the dive data are retrieved and analyzed, we will link foraging behaviors of individual sea otters to oiled shorelines, and relate patterns of habitat use to individual variation in cytochrome levels. For FY2005, we propose to conduct surveys of population size and distribution, continue to monitor instrumented sea otters to obtain habitat use and survival information, and obtain an additional sample of cytochrome P4501A. This will allow evaluation of continuing exposure to residual oil, population trends, and the status of recovery of sea otters in western PWS.

Science Director Summary and Recommendation:

This well designed and carefully executed study is essential to understanding recovery of sea otters in the Knight Island area. The project is designed to measure exposure of PWS sea otters to residual oil and to consider if oil could be involved in the population's persistent failure to achieve recovery, as measured by abundance. The use of high tech time-depth recorders on the otters in combination with locating the position of the otters by use of satellite is a definitive way of showing that high measures of oil exposure in otters (P4501A) is indeed a function of foraging in oiled sediments. In addition, independent confirmation from other studies that otter foraging habitats around the bays of northern Knight Island still contain EV oil that is leaching into the marine environment provides a very compelling justification for continuing to study the routes of oil exposure and to document the status of recovery of local populations. Measures of oil exposure (P4501A induction) in otters at Knight Island appear to be becoming more similar to levels in the control population of otters around Montague with each passing year. The study provides important and timely information on the time frame within which recovery of affected sea otter populations may occur. The comparison of sea otter population levels in oiled and unoiled areas of PWS is important collateral information for interpreting the oil exposure data. The extent to which declines in oil exposure measures may be coincident with returns to normal population levels and age structure will be established by this survey. Authors are advised to continue the highly effective

survey and tagging methods of past years for comparability. This is a high priority for funding. Fund.

Executive Director Recommendation:

This study is needed at this time to provide assurance to the public that the Trustee Council knows where the sea otters stand on the path to recovery from the effects of oiling. It is recommended as the second highest priority for funding. The PI is required to respond to peer reviewer comments, and to make necessary modifications, if any, in consultation with the Science Director.

Overall Recommendation: Fund

Project Title:	Oil exposure biomarkers and population trends of Prince William Sound marine vertebrates
Proposer(s):	Brenda E. Ballachey and James L. Bodkin, Alaska Science Center, USGS, and David Irons, US Fish and Wildlife Service.
Project Number:	040774
Funding Requested:	FY04 $178,000.00 FY05 $150,500.00 Total $328,500.00

Abstract:

Some of the strongest evidence of continuing effects of lingering oil from the Exxon Valdez oil spill comes from long term monitoring of vertebrate populations and their exposure to hydrocarbons. Population recovery of sea otters remained incomplete as of 2002, and individual sea otters continue to exhibit elevated levels of the Cytochrome P450 1A biomarker in areas where lingering oil deposits are most prominent. Surveys of population size and individual P450 measures of sea otters and marine birds will provide continuing information on population trend and individual exposure to lingering oil.

Science Director Summary and Recommendation:

This study addresses a real need to follow both the exposure time series and the population time series to the point of recovery of the most seriously injured resources in the PWS ecosystem, or at least until convergence (recovery) can be reliably predicted by extrapolation. That has not yet been achieved. I consider inclusion of black oystercatchers (BLOY) as a positive aspect of this work because there has been little attention given to shorebirds even though they consume invertebrate prey where oiling was worst. BLOYs were injured by the spill and exhibited effects of ingestion of oiled prey long after the spill, so adding that species makes compelling sense. All the other species make terrific sense because of the long time series of identical measures of cytochrome induction for each of them. The power analyses done to examine the optimal frequency for the surveys suggest that the small boat survey should be repeated as proposed in this fiscal year. The PIs are experienced and well respected. They have published extensively in peer-reviewed journals and have had substantial impact with their publications. The collaboration between this project and other related ones is excellent and creates cost savings through efficient employment of other teams of researchers to collect samples during their field programs. Funding is recommended for this project as an important part of fulfilling the Trustees' obligation to the public to monitor recovery of still injured species.

Executive Director Recommendation:

This study is needed at this time to track recovery of oil-injured resources. It is recommended as the third highest priority for funding. The PI is required to respond to peer reviewer comments, and to make necessary modifications, if any, in consultation with the Science Director.

Recommendations: Fund

Project Number: 040574
Funding Requested: FY04 $36,200.00 FY05 $0.00 Total $36,200.00

Project Title: Assessment of Bivalve Recovery on Treated Mixed-Soft Beaches in Prince William Sound - Submitted Under the BAA

Proposer(s): Dennis C. Lees, Littoral Ecological & Environmental Services, dennislees@earthlink.net

Abstract:

Due to favorable weather, we were able to collect 25 percent more infaunal samples during the August 2002 field effort for Project No. 02574 than we had initially proposed for this work. This should improve the program's statistical power by about 15 percent. Current trends observed in samples analyzed to date suggest that treated sites have fewer bivalves than reference sites. Unfortunately, sediment characteristics differed substantially between the new sampling sites and those sampled during previous work in the region. Consequently, sample volumes for these infaunal samples are four to five times larger than was anticipated. Therefore, the time required to sort the samples far exceeds the budget for sorting. This proposal is directed at obtaining additional funds for sample sorting. Accelerating the sorting process will allow us to complete sample analysis and publication of our results and will allow the Trustee Council to draw inferences regarding lingering effects to intertidal bivalve assemblages from the oil spill in a timely manner.

Science Director Summary and Recommendation:
The initially funded proposal had great merit, and the new proposal asks for only a small increment of funding to achieve a much more powerful and extensive evaluation of the hypothesis. This study will provide improved geographic coverage (and thus public confidence) and increased statistical power to detect differences among affected habitats. Since intertidal monitoring had ended for most sites in 1991 or 1992 before recovery had been demonstrated, nagging questions about the duration of the injury persisted, if the habitat itself was injured, as hypothesized, then the injury might have very long duration and might deserve remediation and habitat restoration. The proposal was limited to the most important group for human services and perhaps also for vertebrate predators, the bivalves. Earlier research provides preliminary results suggesting that the loss of fine sediments from pressurized washing does not still show up in this new sampling many years later. The extent of damage remaining in these habitats is problematic, and the study will clarify this issue. The PI is requested to clarify how the exact nature of the differences in the sediments in these newly sampled beaches from those sediments of the beaches sampled in the previous HAZMAT program. Fund.

Executive Director Recommendation:

The Trustees need the information on the status of bottom habitats possibly injured by the clean up efforts in order to know if they have an unfulfilled responsibility

to restore this habitat. It is recommended as the fourth highest priority for funding. The PI is required to respond to peer reviewer comments, and to make necessary modifications, if any, in consultation with the Science Director.

Recommendations: Fund

Project Title: Sediment Quality Survey of Heavily-Oiled Beaches in Prince William Sound

Proposer(s): Betsy Day, Integral Consulting, Inc., bday@integral-corp.com

Project Number: 040772

Funding Requested: FY04 $76,679.00 FY05 $56,571.00 Total $136,250.00

Abstract:

Recent work by Short et al. (2004) demonstrated that lingering oil is found in subsurface intertidal sediments in 43 of the 91 beaches sampled during the summer of 2001. This proposed research project is directed at understanding potential ecological effects to invertebrate populations resulting from lingering oil in subsurface intertidal sediments. Sediments from five locations containing heavily-oiled subsurface sediments, and five nearby reference areas, will be collected concurrently with the NMFS continuing lingering oil studies, and evaluated for PAHs, sediment toxicity using the mussel larvae bioassay, and benthic community structure. The results will provide information on the potential ecological impacts from lingering subsurface oil and will be evaluated using a weight-of-evidence approach. If this project shows that the heavily-oiled sediments are not causing impacts to benthic invertebrates then it can be assumed that benthic invertebrate populations in moderately or lightly-oiled sediments would not be affected by the lingering oil.

Science Director Summary and Recommendation:

The study is intended to provide a direct measure of potential biological impacts of the lingering oil in the subsurface sediments of intertidal beaches. Such measures need to be carried out in direct coordination and the samples gathered during the NOAA field work to insure location and sampling of the more heavily oiled patches for the tests. The grouping of measurements of contaminant levels, bioassay results, and community structure approaches the idealized and widely practiced sediment triad approach to assessing impacts of sediment pollution.

The PI is requested to strengthen the proposal by addressing the following points.

(1) Improve benthic community analysis portion of the study by increasing sample replication and modify design to adequately pair invertebrate samples with associated chemical-sediment samples.

(2) Second, the benthic community analysis portion of the study neds improved analytic methodology. The most powerful method of distinguishing patterns in community composition is achieved by Bob Clarke's nonmetric MDS (multi-dimensional scaling), an ordination procedure. The methods and software have been well developed by IMER in Plymouth and are available as a commercial package. This technique is now

universally adopted and accepted as the best tool for achieving powerful discrimination in community ecology. The PRIMER software package even includes programs that quantify the degree to which various taxa contribute to differences in community composition and programs that allow correlation between independent chemical-physical variables and the biological patterns. This analysis should be part of any community contrast and should even be the centerpiece.

(3) Third, the amphipod sediment bioassay needs to be considered an important component of the study, and it needs to be included. It provides an endpoint that is growth as well as one that is mortality. Such sublethal impacts have potential to translate into population effects and are important to include. Furthermore, this test involves sediment directly, extends over a longer time frame so approaches chronic exposures, and includes another sensitive phylum, a crustacean. A project such as this is needed. The study design needs improvement to address the concerns raised above before it is conducted. Fund contingent on addressing peer reviewer concerns within budgetary constraints.

Executive Director Recommendation:

A project like this would help to settle questions about how toxic the sediments in the areas still containing oil actually are. Note that modifications recommended by peer reviewers could substantially increase costs. Fund contingent on addressing peer reviewer concerns, subject to review and approval of modified proposal by Science Director and modified budget by Executive Director.

Recommendations: Fund contingent

Department of Law Recommendation

At the Trustee Council meeting on March 1, 2004, the Council unanimously approved a motion by Mr. Balsiger to establish a contingency fund of up to one and one-half million dollars to be allocated to the Department of Law for the purpose of "funding research to fill in gaps related to lingering oil." The research plan was to be developed through the coordinated efforts of the EVOS TC staff, including the Science Director, the Department of Justice, NOAA, and Integral Consulting Inc. The Council indicated at the time that the purpose of the funding was to bring closure to injury assessment as it relates to lingering oil.

In accord with this request the Department of Law met on March 12th with representatives of the Department of Justice, NOAA, ADF&G, DEC, USFS, USGS, USFWS, the University of Alaska and Integral Consulting. At that meeting we went over a number of projects, including those previously before the Council, and new proposals. We also discussed particular research needs and projects that could be developed to meet those needs. As a result we came up with a suite of field research projects totaling $955,750. These project proposals were reviewed by Dr. Spies and recommended, with some suggested changes. It appears likely that, as the result the scientific review by Dr. Spies, one of those projects (sediment analysis) will benefit greatly by the addition of approximately $75,000 in non-budgeted work. This would equal a total of $1,030,750 in requested funding for field research during FY 04 and FY 05.

In addition, we believe it to be very important that there be an independent analysis of these and other studies to confirm the existence, location and ecological significance of any lingering oil as well as the recovery status of certain other injured resources. As part of this we also recommend that efforts be made to identify any potential restoration options related to lingering oil any other injuries that have unexpectedly occurred. Finally, it is important to document for the Council's record as well as the public's understanding, our findings on these remaining issues. To accomplish this we recommend that the Department of Law be tasked to contract with Integral Consulting, Inc. Integral has been the subject of an evaluation process and found to be well qualified for the task. Integral is already under contract with the Department of Law for similar issues and using them will increase the efficiency and quality of the project. The recommended amount for this project is $650,000 for FY 04 and FY 05. However, this amount combined with the other monies requested for the field studies, will exceed the $1.5 million that the Council agreed to provide. Should the Council feel that it is not appropriate to exceed the $1.5 million cap, we suggest that the difference be taken from the amount allocated for the Integral contract.

Although it was our understanding at the time the March 1, 2004 motion was made that the Council did not feel that further approval was necessary, the need to have some of the money go directly to federal agencies made it appropriate to come back to the Council with a specific resolution that allocates the monies among the projects. We request that you approve these projects as described in your packet.

Applied Research Related to Lingering Oil, Resource Recovery, and Management and Monitoring of Impaired Water Bodies

Project Period—FY04 through FY05

Principal Investigators—Lucinda Jacobs, Les Williams, Damian Preziosi, Betsy Day, Dana Houkal

Study Location—This work is an evaluation and synthesis of work conducted by others in Prince Williams Sound and vicinity

Abstract—The natural resources and habitats of Prince William Sound and other Alaskan waters have been studied extensively for the 15 years since the occurrence of the Exxon Valdez Oil spill. The collective data from studies conducted largely by natural resource Trustee scientists suggest that the coastal and marine ecosystems in the oil spill region have not fully recovered, that populations of several species remain impaired, and that continued exposure to persistent, biologically available and toxic Exxon Valdez oil (EVO) might be at least partially responsible. These findings are not without scientific or public controversy. Most recently, for example, Exxon-funded scientist published data suggesting that EVO was neither bioavailable nor toxic[1], and that the methods used and conclusions reached by NOAA researchers in the lingering oil studies were flawed[2]. A full and complete understanding of the degree to which natural resources are injured and the degree to which that injury is caused by lingering oil is critical to defining the probability and timeframe of resource recovery, the options (if any) for restoration, and the necessity, type and geographic extent of continued monitoring and research.

We propose to conduct a series of evaluations using the available scientific data to provide an independent and comprehensive analysis of recovery status of key resources and define any linkage to residual oil. The overall goal of this work will be to provide information that can be used to better characterize recovery status, better define restoration options, better target future monitoring and research, and more explicitly define when restoration can be considered complete.

Specifically, the work proposed here is intended to achieve the following objectives:

1. Provide the Trustee Council with an independent analysis of the ecological significance of lingering oil
2. Provide an independent evaluation of the recovery status of injured resources
3. Provide information to help focus and refine future work on oil-affected resources
4. Develop a process for achieving closure on the scientific and technical activities related directly to impacts from the Exxon Valdez Oil Spill
5. Identify areas in Prince Williams Sound (or other areas affected by the Exxon Valdez Oil Spill) where lingering oil persists or is likely to persist

[1] Page et. al. 2002. Environ. Toxicol. Chem. 21(7):1438-1450.
[2] Page et al. 2003. Environ. Toxicol. Chem. 22 (11):2540-2542.

6. Develop a long-term monitoring and management program for problems areas where lingering oil persists, with an emphasis on monitoring tools that are routinely used and broadly accepted by the regulatory community
7. Communicate progress and results of these efforts to the Trustee Council
8. Communicate important technical conclusions to the public.

Funding—A total budget of 650K is needed to complete all of the tasks specified below. Timing of expenditure (in FY 04 or FY05) will depend on milestones that will be established in planning discussions. The budget for individual tasks is noted below in parentheses.

Approach to Evaluation and Synthesis of Existing Studies

Task 1: Project Scoping and Meetings ($75,000)—Scoping activities include initial document compilation and review; meetings and discussions with ADEC staff, Trustee council members, and agency scientists; and identification of the different library resources, technical experts, and data/mapping sources to determine what available work on resource characterization, monitoring design, and restoration should be incorporated into this applied research. This scoping effort will ensure that work that has already been done is not repeated, and will serve to focus the work on those investigations and studies of greatest relevance to achieving the task objectives described above.

Meetings and other forms of communication are critical to the successful completion of this work, given the magnitude of work performed to date, the large number of parties involved both currently and historically, the decisions that need to be made regarding prioritizing activities, and the need to communicate the results of the various work efforts described here to trustee council members. It is assumed that a total of seven meetings will be held in Anchorage (two), Juneau (two), and Seattle (three).

Task 2: Evaluate Lingering Oil Studies ($55,000)—Publications and reports by Jeff Short, Stanley Rice, and others will be reviewed to assess the strengths and weaknesses of the technical approach, statistical design and interpretation, and to characterize the inherent uncertainty of the technical findings regarding the presence, amount, and bioavailability of lingering oil. Related work and analyses performed by David Page, Paul Boehm, and others will also be evaluated. Additional research to refine the scientific understanding and/or reduce scientific uncertainties in the distribution and bioavailability of lingering oil may be warranted. Activities under this task include document review and data analysis, internal discussions, telephone conversations with the scientists conducting the studies, and development of the framework for any additional research tasks designed to refine scientific findings.

Task 3: Evaluate and Synthesize Information on the Nature of Resource Injury and Recovery Status ($304,000)—Extensive investigation and research has been performed to characterize the overall health and degree of recovery of resources adversely affected

by the Exxon Valdez Oil Spill. Much of this work has been done by researchers focused on specific topics and areas of specific expertise and interest. Some of the conclusions of this research have been the subject of debate, largely between Trustee agency scientists and Exxon-funded investigators. It is widely acknowledged that stressors other than oil (e.g., overfishing, large scale shifts in weather or ocean circulation) contribute to delayed recovery or shifts in population, and it is critical that the impacts of these other types of stressors be fully considered during the evaluation of injury status and the link to EVO. In addition, the contributing or confounding role of contaminants other than EVO should be fully explored.

We propose to independently assess work performed related to the various factors affecting resources and habitat in Prince Williams Sound (and other areas affected by the oil spill), distill the information to the core technical arguments, and reassess the technical basis for the recovery status classification (recovering, not recovered, unknown). Existing studies will be identified, screened for relevance, integrated into the overall resource-specific analysis, and synthesized. This evaluation will involve reanalysis of existing data using statistical methods or other technical tools not previously applied, and mapping of information to provide a clear picture of inter-related conditions and information (habitat, presence of lingering oil, shoreline geomorphology). Meetings and conference calls will be held with the scientists that performed the work to better understand the technical approaches and unique resource and site-specific issues, and to perform the work in a cost-effective manner.

The seven resources that are currently classified as not recovering[3] and the twelve resource categories currently classified as recovering[4] are of highest priority. For the purpose of this cost estimate, it is assumed that six resource categories will require detailed evaluation and interpretation, four resource categories will need more limited analysis, and remaining resource categories will not be addressed.

Activities under this task include document review, data analysis, internal discussions, and communication with the scientists that performed the resource studies. The product of this task will be a balanced, technically rigorous classification of resources using a screening and classification process with well-defined criteria that relies on weight-of-evidence for final decisions. Key scientific uncertainties associated with the conclusions also will be fully characterized.

Task 4: Evaluate Existing Data to Identify Areas of Concern ($40,000)—Information relevant to the identification of areas of concern will be identified, reviewed, and distilled to develop a map or series of maps of current shorelines, shoreline areas, adjacent water bodies, and sediment areas of concern due to lingering oil. This work will be closely coordinated with the agencies and scientists who have developed detailed maps of these properties and conditions. Areas of concern will be based on the best available and most current information, although historical shoreline characterizations dating back to the spill will be considered. Varying degrees of impairment will be characterized where

[3] common loon, cormorants (3 spp.), harbor seal, harlequin duck, Pacific herring, pigeon guillemot

[4] clams, designated wilderness areas, intertidal communities, killer whales (AB pod), marbled murrelets, mussels, sea otter, sediments, recreation/tourism, commercial fishing, passive uses, subsistence

possible. Technical information that supports the classification will be summarized in tables and text for each water body/area of concern.

Task 5: Develop a Long-term Monitoring and Management Plan ($50,000)—A monitoring plan will be developed that will assess the persistence and attenuation of lingering oil and provide regulatory decision-makers with the information needed to determine when water and sediment in areas of concern have achieved acceptable quality. The objectives and study elements of the long-term monitoring plan prepared under this task may overlap in some areas with the work being done by Jim Bodkin (Monitoring in the Nearshore—a Process for Making Reasoned Decisions) and Jeff Short (Development of a Strategy for Monitoring Exxon Valdez Oil and Other Contamination in Prince Williams Sound). This work will be closely coordinated with these and other researchers to distinguish similarities and differences and to identify if and when the complimentary efforts should be combined. It is assumed that the focus of this monitoring will be on residual oil in intertidal and subtidal sediments and pore waters, not surface water. The monitoring and management plan will emphasize monitoring tools that are routinely used and broadly accepted by the regulatory community. A decision process and specific decision criteria will be developed to determine when an affected water body can be determined to have achieved acceptable sediment quality.

Task 6: Development of Restoration Options ($80,000)—If adverse effects associated with lingering oil are determined to be of sufficient concern, restoration alternatives will be developed and then evaluated to assess technological and ecological feasibility, efficacy, and implementation timeframe. The types of restoration activities likely to be explored during this task include 1) long-term monitoring of resources adversely affected by residual oil 2) supplemental studies of lingering oil and associated resources, 3) in-place treatment of residual oil, and 4) removal and disposal of contaminated media and associated habitat restoration. If it is determined that restoration options should be considered, cost-benefit criteria and an evaluation process will be developed and applied to candidate restoration alternatives. This task will draw on available cost-benefit evaluations developed by other regulatory entities. Restoration options will be evaluated using cost and benefit criteria to select the option that reflects a reasonable and appropriate balance.

Task 7: Public Communication ($46,000)—Effective communication of the technical decisions made regarding lingering oil, resource recovery, and long-term monitoring in Prince Williams Sound and other areas affected by the spill will require preparation of a clear and well-defined message and understandable presentation material. This task encompasses the development and finalization of presentation material, which will include PowerPoint presentations, maps, and fact sheets. It is assumed that three presentations will be prepared under this subtask. Travel to Alaska is included in this cost estimate.

Information Produced: The following information will be produced:

- An analysis of the ecological significance of lingering oil, with recommendations for areas of additional study, if applicable

- An independent evaluation of the recovery status of injured resources, focusing on the resources of greatest ecological relevance and scientific debate
- A recommended process for achieving closure on the scientific and technical activities related directly to impacts from the Exxon Valdez Oil Spill, including criteria for focusing and refining future work on oil-affected resources
- A clear and understandable characterization of ongoing problems areas
- A long-term monitoring and management program for problems areas, using monitoring tools and a decision process widely accepted by the regulatory community
- Presentations to the Public.

A Motion to appoint the following nominee, Leslie Holland-Bartels, and to reappoint Brenda Norcross and Tom Royer to the Scientific and Technical Advisory Committee. These members are to serve for a 4 year term beginning May 1, 2004 ending April 30, 2008. Named recipient contracts will be extended for Brenda Norcross and Tom Royer and initiated for Leslie Holland-Bartels. Members will be required to provide the services outlined in the attached Appendix C "Scope of Services". Members will be compensated at the rate of $500.00 per day while traveling, preparing for and attending meetings. Travel expenses (airfare; ground transportation, and lodging) are to be reimbursed at actual cost. Per Diem will be paid at the current state Per Diem rate.

Appendix C
Scope of Services

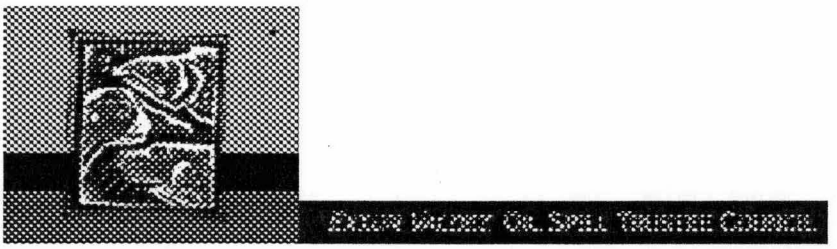
The Contractor will provide the following:

1. Attendance at Scientific and Technical Advisory Committee (STAC) meetings (2 to 3 times a fiscal year) as often as needed to provide the Executive Director programming advice and guidance on the GEM Work Plan.
2. Provide leadership and scientific guidance developing the GEM Science Plan, consistent with the GEM Program's mission and goals and the policies of the Trustee Council.
3. Using recommendations from the subcommittees and other means, identify and recommend activities for the annual Invitation to Submit Proposals.
4. Meet with subcommittees and the Public Advisory Committee as needed.
5. Recommend subcommittee members, following a process approved by the Trustee Council.
6. Assist Trustee Council staff in identifying peer reviewers, and conduct peer review on individual responses to the Invitation for Proposals and, upon request, project reports.

Schedule

The Contractor will attend approximately 2 to 4 meetings a year (dates to be determined later). The Contractor shall provide advice and recommendations as described above following a schedule determined by the Trustee Council.

ADF&G enters into this agreement under authority of AS 36.30.850(b)(20).



May 14, 2004

The STAC nominating committee met on May 4th to consider nominations for the EVOS Scientific and Advisory Committee vacancy. You have in your packet a memorandum from our committee, and, resumes from those we recommend. You may wonder why a medical doctor was elected to chair the committee. In my ten years as Vice-Chair of the Board of the Alaska Science & Technology Foundation, I reviewed over a thousand technical and scientific grant proposals, until our current Governor canned the Foundation and spent it's Permanent-Fund invested Endowment. I reviewed over a hundred resumees of Scientific reviewers, who then peer-reviewed grant applications for the Science Foundation.
The STAC nominating committee received 12 resumees to consider, of which one was recused because he is interested in applying for a grant, and removed himself from consideration. In the EVOS document Program Process for providing Scientific and Technical Advice and Peer Review, the STAC nominating committee may "suggest names of persons not nominated", "if there are gaps in desired expertise among the nominees provided to it". Our committee found all 11 nominees to be qualified, and, did not see it necessary to search for additional candidates. I spent two days reviewing resumees, calling references, and, reading selected publications on the Internet. Our panel also carefully considered all the qualifications of the nominated applicants. My first choice was Dr. Holland-Bartels, Director of the Upper-MidWest Environmental Sciences Center, USGS, LaCrosse, Wisconsin. It is interesting that the rest of the panel had independently come to the same conclusion, and, the vote was unanimous. She has supervised an annual budget of $16million, and, worked extensively with State and Federal Agencies. We were particularly intrigued with her experience in large river science, invasive species, and monitoring programs, which our panel felt were high priority items in the GEM program. She also has a particular interest in Alaska, serving on the faculty of UAF, and a number of peer-reviewed publications. We believe she would bring considerable expertise back to benefit Alaska. Our panel nominates Dr. Holland-Bartels to the STAC. However, in the enabling legislation, the STAC nominating committee can also forward names of Alternates for Trustee approval. Our panel felt that two other candidates stood out, and, that their expertise should not be ignored, but, put to good use. An Alternate, could stand in for a member of the STAC who is not available, or, could serve as a resource that a STAC member could call up and ask for a second opinion. We were intrigued with Dr. Bill Streever, Environmental Studies Leader for BP Alaska. He serves on the National Technical Review Committee, advising the Federal Government on the $14billion rehabilitation of Coastal Lousiana, and is editor in chief of Wetlands Ecology and Management. Dr. Doug Segar, is one of the world's foremost Oceanographers, with an impressive resumee, author of the definitive textbook in Oceanography (Introduction to Ocean Sciences), has a wide breadth of knowledge that the STAC should be able to call upon. The nominating committee strongly recommends the Trustees approve these two Alternates as well.

Dr. John Gerster, Chair, STAC Nominating Committee

Electronic copies given to Phil to forward to STAC

Exxon Valdez Oil Spill Trustee Council

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

MEMORANDUM

TO: Trustee Council Members

FROM: John Gerster, Chairman
STAC Nominating Committee

THRU: Gail Phillips
Executive Director

DATE: May 4, 2004

The STAC Nominating Committee met on May 4th to consider nominations received for a vacancy on the Trustee Council's Scientific and Technical Advisory Committee (STAC) which was created by the resignation of Bill Seitz. Members of the committee present were Pete Hagen, Molly McCammon, John Gerster, Michael Baffrey, Clarence Pautzke, Robert Clark and Brett Huber. Phil Mundy was also present as a non-voting member of the STAC and Brenda Ramos and Gail Phillips were in attendance as staff.

Nominations for an appointment to the vacant seat were solicited through the public process via our web site and to the massive e-mail list we maintain in the office. Eleven applications were received and are listed on the attached spreadsheet.

The Nominating Committee carefully considered the qualifications and experience of all of the candidates. All were well qualified. Based upon a thorough review of each application and detailed discussion, the Committee recommends that Leslie Holland-Bartels (resume attached) be appointed to the vacant seat. Originally, Mr. Seitz's seat was a two-year term, which expired 5-01-04. The vacant seat will be a four-year term, beginning immediately.

Bill Streever and Douglas Segar (resumes attached) were recommended as alternates for Leslie.

Attachments: Nominating Committee Agenda
Resumes for Holland-Bartels, Streever and Segar
Spread sheet showing complete list of applications
List of current STAC members and their terms of membership

Cc: Dr. Phil Mundy, STAC Co-Chair

Exxon Valdez Oil Spill Trustee Council

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

AGENDA
STAC Nominating Committee
May 4, 2004 10:00am
Exxon Valdez Oil Spill Trustee Council
441 W. 5th Ave., Suite 500, Anchorage

STAC Nominating Committee Members

Peter Hagen, NOAA
Molly McCammon, AOOS
John Gerster, Northwest Medical
Michael Baffrey, DOI Office of the Secretary
Clarence Pautzke, NPRB
Robert Clark, ADF&G
Brett Huber, ADF&G

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1. Call to order – Gail Phillips, Executive Director
2. Acknowledgement of Nominating Committee members present – Brenda Ramos, EVOS Staff
3. Purpose of this meeting – Gail Phillips
4. Selection of Chairperson
5. Review of all applications for the STAC vacancy – Brenda Ramos
6. Open discussion of applicants – STAC Nominating Committee
7. Recommendation to Trustee Council – STAC Nominating Committee
8. Comments from members
9. Adjourn Meeting – Gail Phillips

STAC Nominations for STAC Replacement

First Name	*Last Name*	*Area of expertise*	*Location of expertise*	*Nominated by*	*Notes*
Matthew	Cronin	genetics, molecular biology, toxicology, population biology	watersheds, nearshore, terrestrial habitats	Matthew Cronin, ENTRIX, Inc.	
Ray	Jakubczak	marine ecology, regulatory affairs, marine mammal science	watersheds, nearshore, offshore	Matthew Cronin, ENTRIX, Inc.	Received resume 5/3/04.
Bill	Streever	wetlands ecology, restoration ecology, regulatory affairs	watersheds, nearshore, offshore	Matthew Cronin, ENTRIX, Inc.	
Mike	Bronson	biology, regulatory affairs, oil spill response	nearshore, offshore	Matthew Cronin, ENTRIX, Inc.	
Benny	Gallaway	fisheries, marine ecology	nearshore, offshore	Matthew Cronin, ENTRIX, Inc.	
Ole	Mathisen	see resume		Thomas Kline, PWSSC	
Michael	Champ	see resume		Michael Champ	
Alan	Mearns	biology, contaminants and pollutants, modeling, human activities and their potential ecological impacts, physical-chemical-biological-geological oceanography, fisheries		Gary Shigenaka	
Terry	Wade	human activities and their potential ecological impacts, chemical oceanography, biological oceanography, geological oceanography, chemistry, contaminants and pollutants	Alaska, offshore, intertidal and subtidal	Maholon Kennicutt	
Douglas	Segar	see resume		John Gerster	
Leslie	Holland-Bartels	see resume			Resume was provided late.

Leslie E. Holland-Bartels, Ph.D.
email: lholland-bartels@usgs.gov

EDUCATION

Ph.D., 1980, Purdue Univ.; M.S., 1977, Louisiana State Univ.; B.S., 1975, Univ. of Massachusetts

WORK EXPERIENCE

May 1998 - present: Director, Upper Midwest Environmental Sciences Center, U.S. Geological Survey, LaCrosse WI. (GS-401-15/9). Supervisor Dr. Suzette Kimball

During my tenure as Director I have supervised an annual budget of up to ~$16 million, including funds from ~80 reimbursable agreements from states, DOI, EPA, USACE, and the Great Lakes Fishery Commission. Onsite staff in FY 03 was ~150, including federal, university, and state cooperator appointments. Much of the Center's research is conducted through cross-branch self-directed teams. Staff includes terrestrial and aquatic ecologists, botanists, analytical and methods chemists, limnologists, aquatic and terrestrial vegetation classification and mapping specialists, monitoring science specialists, physiologists, statisticians, mathematical and geospatial modelers, and computer and database specialists. I also manage cooperative agreements with 1) states of MN, WI, IL, MO, IA to support 6 State-run field stations that collect monitoring data on the Mississippi and Illinois Rivers, and 2) several universities and technical colleges to provide technical and science specialties for UMESC studies. I manage Center research facilities (Federal >70,000 sq. ft, GSA ~30,000 sq ft.) and lands (65 acres). The Center facility budget is $1.4 million annually.

I direct the DOI research mission in the Upper Midwest and have developed a strategic program that is framed around themes of large river science; aquatic invasive species; inventory and monitoring science; medicinal drug development for public aquaculture; assessments of declining species (e.g. paddlefish, sturgeon, neotropical migrants, amphibians); and geospatially-based decision support and data serving systems developed to facilitate resource management. In FY 04, many of these themes are addressed through Center teams who are conducting these 5-year studies–Application of landscape approached to protection and restoration of endangered mussels, Landscape models for regional bird conservation planning, Factors affecting river productivity and restoration, Nutrient processing in the Upper Mississippi River basin, Long-term monitoring for the UMR, and Risk assessments for aquatic invasive species in the Upper Midwest. Additionally, UMESC directs elements of the USGS-NPS Vegetation Mapping Program, provides critical support for Fish and Wildlife Service Comprehensive Conservation Planning activities, and computer modeling and decision support systems development for both USFWS and NPS land units. (See www.umesc.usgs.gov). I lead USGS activities in 3 nationally significant partnerships: a) medicinal drugs for Public Aquaculture Program in cooperation with IAFWA (partners USFWS, Dept. Ag, 30 States, industry); b) sea lamprey control science for binational Great Lakes Fisheries Commission; and c) the Upper Mississippi River Long-term Resource Monitoring Program (MN, WI, IL, IW MO; U.S. Army Corps of Engineers, FWS, EPA, and NRCS) the Nation's largest river monitoring, research, and information program. UMESC has received over $32 million in reimbursable funds over the last 5 years from these programs.

August 92- May 98: Branch Chief, Marine and Freshwater Ecology Research, Alaska Biological Science Center, USGS Anchorage, AK. (GS-401-14) Supervisor Dr. Bill Seitz

As Branch Chief, I supervised >45 FTEs, including 27 scientists and budget in FY98 of ~$4.2 million in USGS funds and reimbursable funds of $1.4 million. Branch research themes included marine mammals,

anadromous fish, sea bird studies, and research for MMS, USFWS, and NPS. I also had center responsibilities for veterinary, statistics, and remote sensing and satellite telemetry programs. I supervised the Glacier Bay Field Station located at GB National Park and Preserve, focused on marine and coastal ecosystem issues and provided technical science guidance to park resource management on monitoring issues related to vessel impacts. I wrote and received funding for two Science Partnership Initiative Programs-- Greater Glacier Bay Ecosystem and the Prince William Sound Ecosystem–that involved partners from federal, State, Native, management agencies in efforts to identify common resource information needs and create meta-databases and GIS coverage libraries (total funding received--$1.5 million); was negotiator to the international Marine Mammal Working Group, Area V, U.S.-Russia Environmental Agreement, DOI science representative to the *Exxon Valdez* Oil Spill (EVOS) Trustee Council and served as Chief Scientist (1995-2002) for the $6 million EVOS grant "Mechanisms of Impact and Potential Recovery of Nearshore Vertebrate Predators", a research program with >40 participants from eight state, federal, university, and private research organizations.

July 1990 - August 1992: Deputy Assistant Regional Director, Division of Fisheries and Federal Aid, SE Region, U. S. Fish and Wildlife Service, Atlanta, GA. (GS-480-14) Supervisor Mr. John Brown, retired

I was a member of the Directorate for the Southeast Region of the U.S. Fish and Wildlife Service that encompasses 10 States, Puerto Rico, and the Virgin Islands. As Deputy, I supervised the daily operations of the Regional Office of the Fisheries and Federal Aid Program and its senior Program staff. I also directed the region's Fishery Resource Program and its six field stations (NC (2), SC, FL, MS, LA) who conducted coordination activities and technical studies in support of coastal and inter-jurisdictional fisheries restoration and inland mitigation issues. In that role, I was the DOI liaison to the Gulf States Marine Fisheries Commission, responsible for cooperative coastal management with appointees from state legislatures, resource use groups and state fishery resource agency directors. I developed the cooperative agreement with the Commission that established a USFWS coordination office and position to improve collaborative restoration efforts. I held the DOI seat on the Gulf of Mexico Fishery Management Council, an organization that also included the regional director of NMFS, state marine resource management agency directors, governor-appointed public user group representatives, among others. I also initiated and was the concept designer for the now functional Lower Mississippi River Conservation Committee that brings some 18 State and Federal agency groups together to develop cooperative management and research plans and efforts for the river.

October 1983 - July 1990: Section Leader, Research Grade Scientist, River Ecology. National Fishery Research Center, U. S. Fish and Wildlife Service, La Crosse, WI. (GS-408-13). Supervisor Dr. Fred Meyer, retired

I led 1 of the Center's 5 research programs and sat on the Center's Management Team. I supervised research staff and budget and program development. I designed and led, as principal investigator, research on larval fish ecology, endangered mussels (award received), contaminant issues, and impacts of river management. I sat on a variety of advisory committees which determined research and management approaches for resources of the upper Mississippi River, including the Fish and Wildlife Interagency Committee (MN, WI, IO, IL, ACOE-St. Paul District, FWS); Fish and Wildlife Work Group (IO, IL, MO, ACOE-St Louis District, FWS); Upper Mississippi River Conservation Committee (five State partnership--Fish Technical Section); and Mississippi River Research Consortium (Board of Directors, 1986-1987).

October 1980 - October 1983: Research Fishery Biologist, River Ecology. National Fishery Research Center, U. S. Fish and Wildlife Service, La Crosse, WI. (GS-408-12). Supervisor Dr. Fred Meyer, retired.

I was one of two scientists hired to establish, and was field and laboratory manager for, a new river ecology research program for the upper Mississippi River. I developed a research program to assess impacts of river management issues on fish recruitment and endangered species. I developed the first key for larval fishes of the river still used today, identified habitat and ecological characteristics, and determined risks from navigation and proposed hypropower development. My research became an essential part of the biological opinions established by the USFWS to discuss river management options with the USACE (award received). In addition, the value of my outreach publications and diversity efforts were acknowledged by several awards during my tenure in this position and my subsequent position as Section Leader.

PROFESSIONAL AND PERFORMANCE AWARDS *(highlights)*:

- USGS Excellence in Leadership Award June 2002.
- Quality Step Increase Outstanding Sustained Performance USGS January 2002
- Quality Step Increase Outstanding Sustained Performance USGS January 2000
- Distinguished Service Award-- American Fisheries Society 1999
- Department of the Interior Meritorious Service Award 1996
- Quality Step Increase Outstanding Sustained Performance 1996
- Special Achievement Awards USFWS: work force diversity (1989), assessments navigation impact Mississippi River (87), outstanding research award-endangered species (86), outstanding technical assistance (86)

SPECIALIZED LEADERSHIP TRAINING (*highlights*):

- Federal Executive Institute. Leadership for a Democratic Society. Graduated 2/4/2000.
- Upper-level Management Development Program. USFWS 1-year training program. 1989

SPECIAL ASSIGNMENTS *(highlights)*

May 2004:	USGS Workshop. Nutrient Issues and Science Strategy for the Upper Mississippi River Basin,Organizing Committee
April 2004:	DOI Workshop on Adaptive Management, April 2004. Prepared for senior executive and high-level managers of DOI bureaus. Co-Chairman.
February 2004:	Acting Chief Scientist, Biological Resources Discipline, 4-week detail.
Nov 02-January 03:	"Future of Regional and National Scientific Services in Support of the Water Discipline" for AD-Water, Committee member.
2003 to present:	BRD Invasive Species Program Element Strategic 5-year planning team.
2002:	Strategic Review Team, Eastern Region Office of Regional Support
2002-Present:	U.S. Geological Survey Leadership 101 Program, Instructor.
1999-present:	Environmental Management Program Coordinating Committee (USACE, States, USFWS), USGS representative.
1999-current:	Upper Mississippi River Basin Association. USGS Representative.
2001:	Great Lakes Science Center, 4-week detail. Acting Center Director.
1996:	Florida Caribbean Science Center, 4-week detail. Acting Center Director.
1994-1998:	Exxon Valdez Trustee Council. DOI Science Representative.
1990-1992	Member, Gulf of Mexico Fishery Management Council
1990-1992	USFWS Liaison, Gulf of Mexico Marine Fishery Commission
1989	Acting Program Coordinator, USFWS Region 8 Headquarters, 4 week detail

SCIENCE EDITORIAL AND SOCIETIES

1997-1998: Alaska Fishery Research Bulletin: Editorial Board
1995-1998: Science Editor: Transactions of the American Fishery Society
1988-1990: Life History Section: Secretary, American Fishery Society
1987-1988: Associate Editor: Transactions of the American Fishery Society
1986-1988: Life History Section: Secretary-Elect, American Fishery Society
1986-1987: Mississippi River Research Consortium: Board of Directors. .
1984-1985: Northcentral Representative, American Fishery Society

TEACHING AND UNIVERSITY ACTIVITIES:

Affiliate Assistant Professor, University of Washington. 1995-2000.
Adjunct Faculty, University of Alaska-Fairbanks, 1993-98.
Adjunct Faculty, Iowa St. University, Dept. of Animal Ecology, 1987-91.
Adjunct Faculty, Univ.Wisconsin-La Crosse, Grad. Dept Biology/Microbiology, 1982-90.

SELECTED PUBLICATIONS

Korschgen, C. E., M. G. Knutson, T. J. Fox, L. Holland-Bartels, H. C. DeHaan, C. H. Theiling, J. J. Rohweder, K. P. Kenow, L. E. Leake, and T. Will. In press. Natural resource assessment and decision support tools for bird conservation planning. C. J. Ralph and T. D. Rich, editors. Bird Conservation Implementation and Integration in the Americas: Proceedings of the Third International Partners in Flight Conference 2002. U.S.D.A. Forest Service, GTR-PSW-XXX, Albany, California, US.

Various Authors. 2003. Nutrients in the Upper Mississippi River: Scientific Information to Support Management Decisions. USGS Fact Sheet 105-03, July 2003.

Peterson, C. H. and L. Holland-Bartels. 2002. Chronic impacts of oil pollution in the sea: risks to vertebrate predators. Marine Ecology Progress Series Vol 241:235-236.

Holland-Bartels, L. (ed). 2002. Mechanisms of impact and potential recovery of nearshore vertebrate predators. Restoration Project 95025. Final Report. *Exxon Valdez* Trustee Council, Anchorage, Alaska. 210 pp.

Adkison, M.D., B. Ballachey, J. Bodkin, and L. Holland-Bartels. 1998. Integrating ecosystem studies: a Bayesian comparison of hypotheses. pp. 495-509. In: F. Funk, J.N. Ianelli, T.J. Quinn II, and P.J. Sullivan (eds.) Proceedings of the international symposium on fishery stock assessment models for the 21st century. Alaska Sea Grant College Program. AK-SG-98-01.

Finn, J., Burger, C., and L. Holland-Bartels. 1997. Discrimination among sockeye salmon fry populations using fourier analysis of otolith banding patterns formed during incubation. Transactions of the American Fisheries Society. 128: 559-578.

Holland-Bartels, L., and M. Dewey. 1997. The influence of seine capture efficiency on fish abundance estimates in the upper Mississippi River. Journal of Freshwater Ecology. 12:101-111.

Burger, C., J. Finn, and L. Holland-Bartels. 1995. Pattern of shoreline spawning by sockeye salmon in a glacially turbid lake: evidence for subpopulation differentiation. Transactions of the American Fisheries Society. 124:1-12.

Holland-Bartels, L., M. Dewey, and S. Zigler. 1995. Ichthyoplankton abundance and variance in a large river system: Concerns for long-term trend analysis. Regulated Rivers: Research and Management. 10:1-13.

Holland-Bartels, L., C. Burger, and S. Klein. 1994. Studies of Alaska's wild salmon stocks: some insights for hatchery supplementation. Transactions of the 59th North American Wildlife and Natural Resources Conference. 1994:244-253.

Woody, C. and L. Holland-Bartels. 1993. Reproductive characteristics of a population of the washboard mussel *Megalonaias nervosa* (Rafinesque 1820) in the upper Mississippi River. Journal of Freshwater Ecology. 8(1):57-66.

Holland-Bartels, L. 1992. Water quality changes and their relation to fishery resources in the upper Mississippi River. pp. 159-180. in C. Dale Becker and D. A. Neitzel, eds. Water Quality of North American Rivers. Battelle Press, Columbus, OH. 304 pp.

Naimo, T., D. Waller, and L. Holland-Bartels. 1992. Heavy metals in the threeridge mussel *Amblema plicata plicata* (Say, 1817) in the upper Mississippi River. Journal of Freshwater Ecology 7(2):209-217.

Naimo, T., G. Atchison, L. Holland-Bartels. 1992. Sublethal effects of cadmium on physiological responses in the pocketbook, *Lampsilis ventricosa*. Environmental Toxicology and Chemistry. 11:1013-1021.

Holland-Bartels, L. 1990. Physical factors and their influence on the mussel fauna of a main channel border habitat of the upper Mississippi River. Journal of the North American Benthological Society 9(4):327-335.

Holland-Bartels, L., S. Littlejohn, and M. Huston. 1990. A guide to larval fishes of the upper Mississippi River. University of Minnesota Extension Press. 107 pp.

Holland-Bartels, L., M. Dewey, and S. Zigler. 1990. Effects of water temperature on the mortality of field-collected fish marked with fluorescent pigment. North American Journal of Fisheries Management. 9(3):241-253.

Dewey, M., L. Holland-Bartels, and S. Zigler. 1989. Comparison of fish catches with buoyant pop nets and seines in vegetated and nonvegetated habitats. North American Journal of Fisheries Management. 9(2):249-253.

Holland-Bartels, L. and T. Kammer. 1989. Seasonal reproductive development in *Lampsilis ventricosa, Potamilus alatus*, and *Amblema plicata plicata* in Pool 7 of the upper Mississippi River. Journal of Freshwater Ecology 5:87-92.

Holland-Bartels, L. and M. Duval. 1988. Variation in abundance of young-of-the-year channel catfish in a navigation pool of the upper Mississippi River. Transaction of the American Fisheries Society 117:202-208.

Waller, D., L. Holland-Bartels, and L. Mitchell. 1988. Morphology of glochidia of *Lampsilis higginsi.* Malacological Review. 21:119-122.

Waller, D. and L. Holland-Bartels. 1988. Fish hosts of the endangered freshwater mussel *Lampsilis higginsi.* Malacological Review. 21:119-122.

Holland, L. 1987. Effect of navigation-related dewaterings on fish eggs and larvae. North American Journal of Fisheries Management. 7:145-147.

Holland, L. 1986. Distribution of early life stages of fishes in selected pools of the upper Mississippi River. Hydrobiologia 136:121-130

Holland, L. 1986. Effects of barge traffic on distribution and survival of ichthyoplankton and other small fish in the upper Mississippi River. Transactions of the American Fisheries Society. 115:162-165.

Waller, D., L. Holland, L. Mitchell, and T. Kammer. 1985. Artificial infestation of largemouth bass and walleye with glochidia of *Lampsilis ventricosa* (Pelecypoda: Unionidae). Freshwater Invertebrate Biology 4:153.

Holland, L. and M. Huston. 1985. Distribution and food habits of young-of-the-year fishes in a backwater lake of the upper Mississippi River. Journal of Freshwater Ecology. 3:81-91.

Holland, L. and M. Huston. 1984. Importance of aquatic vegetation types to juvenile northern pike (*Esox lucius* L.) in backwaters of the upper Mississippi River. North American Journal of Fisheries Management. 4:514-522.

Sylvester J., L..Holland, and T. Kammer. 1984. Observations on burrowing rates and comments on host specificity in the endangered *Lampsilis higginsi.* Journal of Freshwater Ecology. 2:555-559.

Holland, L. and J. Sylvester. 1983. Distribution of larval fishes related to potential navigation impacts on the upper Mississippi River, Pool 7. Transactions of the American Fisheries Society. 112:293-301.

Holland, L. C. Bryan, and P. Newman, Jr. 1983. Some relationships between water quality and rotifer plankton in the Atchafalaya River Basin, Louisiana. Hydrobiologia. 98:55-69.

Sylvester, J. and L. Holland. 1982. Influence of temperature, water hardness, and stocking density on MS-222 response in three species of fish. Progressive Fish-Culturist. 44:138-141.

Hambrick, P. and L. Holland. 1978. Rotifers new to the United States with comments on the distribution of other species. American Midland Naturalist. 100:456-458.

CURRICULUM VITAE

Dr. Bill Streever
Environmental Studies Leader
BP Exploration (Alaska) Inc.
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Anchorage, Alaska 99519-6612

Telephone: (907) 564-4383
Fax: (907) 561-5111
Cell: (907) 440-8324
Email: Streevbj@BP.com

PRESENT POSITION: **Environmental Studies Leader**
BP Exploration (Alaska) Inc.
(Environmental studies on the North Slope of Alaska, focusing on wildlife and wetlands, as well as advice on wetlands and other environmental issues affecting BP operations outside of Alaska, and systematically aligning BP's environmental studies and restoration program with business needs.)

PREVIOUS POSITIONS:

3/98 – 12/2000 **Research Ecologist (Restoration Ecology)**
Waterways Experiment Station, U.S. Army Corps of Engineers
Environmental Laboratory/Wetlands Branch
(Wetland rehabilitation research and training.)

5/95 - 3/98 **Assistant Professor**
Department of Biological Sciences
University of Newcastle
Callaghan, NSW 2308, Australia
(Wetland rehabilitation research and teaching.)

8/92 - 4/95 **National Science Foundation Research Fellow/Ph.D. student**
Department of Environmental Engineering Sciences
210 Black Hall
University of Florida
Gainesville, Florida, U.S.A. 32611
(Wetland rehabilitation research and teaching.)

2/88 - 4/95 **Hyperbaric Chamber Supervisor**
Jerome Johns Hyperbaric Chamber
Shands Hospital at the University of Florida
P.O. Box 100376
Gainesville, Florida, U.S.A. 32610
(Hyperbaric medicine, treatment of patients and training of staff.)

6/91 - 8/92 **Graduate Research Assistant**
Department of Environmental Engineering Sciences
University of Florida, U.S.A.
(Developed techniques for assessing created wetlands on phosphate-mined lands.)

6/89 - 8/91 **Research Diver**
Department of Fisheries and Aquaculture
University of Florida, U.S.A.
(Construction of replicate artificial reefs and monitoring of fish and invertebrate communities.)

2/83 - 8/87 **Commercial Oil Field Diver**
SubSea Offshore
Singapore
(Training Malaysian and Bruneian divers as well as supervision and participation in air, mixed gas, and saturation diving in conjunction with heavy construction and non-destructive testing of offshore oil field structures in Brunei, Thailand, Malaysia, and Indonesia.)

10/79 - 2/83 **Commercial Oil Field Diver**
Solus Ocean Systems
New Orleans, Louisiana, U.S.A.
(Air, mixed gas, and saturation diving in conjunction with heavy construction and non-destructive testing of offshore oil field structures in the Gulf of Mexico.)

EDUCATION:

Ph.D. 5/95 (Applied aquatic ecology, Department of Environmental Engineering Sciences) University of Florida, U.S.A.

B.S. 1991 (Zoology, graduated with high honors) University of Florida, U.S.A.

MEMBERSHIPS AND APPOINTMENTS:

National Technical Review Committee (NTRC) (advising the US Federal Government on a $14 billion rehabilitation of coastal Louisiana)

Ramsar International Convention on Wetlands, Scientific and Technical Review Panel (STRP) (co-leader of Restoration Task Force, with George Zalidis of Greek Biotope Centre, 1999 to present)

Society of Wetland Scientists (International Committee Chair and Board Member, 1996 to 2000)

EDITORIAL WORK:

Wetlands (book review editor)

Wetlands Ecology and Management editor-in-chief (January 2000-present)

Column editor for International Column of *Bulletin of the Society of Wetland Scientists* (1997-2000)

Wetlands Ecology and Management special issue (dredged material marshes) editor (2000)

Wetlands Ecology and Management special issue (Australian wetland rehabilitation) editor (1997, volume 5, number 1)

PUBLICATIONS

Books

Streever, Bill. 2001. *Saving Louisiana? The Role of Science in Restoring Coastal Ecosytems*. University Press of Mississippi. Jackson, Mississippi. 228 pages.

Turner, R.E. and Bill Streever. 2002. *Low-cost And Small-scale Approaches to*

Wetland Restoration in the Northern Gulf of Mexico. SPB Academic Publishing. The Netherlands.
Streever, Bill. 1999. *Bringing Back the Wetlands*. Sainty and Associates, Sydney, Australia. 204 pages.
Streever, W.J. (ed.) 1999. *An International Perspective on Wetland Rehabilitation*. Kluwer Academic Publishers, Dordrecht, The Netherlands 338 pages.

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Streever, W.J., J.F. Gottgens, B.E. Rood, and T.L. Crisman. 1998. Radiolimnology of the Sim□s Sink Permanently Flooded Cave, Florida, USA. *Verhandlungen Internationale Vereinigung fuer Theoretische und Angewandte Limnologie (SIL)*. 26: 1595-1598.
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Streever, W.J., J.F. Gottgens, and T.L. Crisman. 1993. Patterns of sediment flux in a subtropical permanently flooded cave. *In* A. Sladeckova (ed.) *Verhandlungen Internationale Vereinigung fuer Theoretische und Angewandte Limnologie (SIL)*. 25: 257-260.

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Streever, W.J. 1997. Kooragang Island Grey Mangrove (*Avicennia marina*) Research; Rehabilitation of the Denuded Southwestern Shoreline of Kooragang Island, September 1995-January 1997. Kooragang Wetland Rehabilitation Project, Wallsend, NSW, Australia. 53 pp.

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Curriculum Vita

DOUGLAS ALLAN SEGAR

Mailing Address: 7609 Potrero Ave., El Cerrito, CA 94530
Telephone: (510) 237-4227
Fax: (510)-234-9286
Email: dsegar@reefimages.com
United States Citizen, Born Liverpool, England, April 29, 1944

Education: B.Sc. (Hons.), 1965; Ph.D., 1969, Major: Oceanography; Minors: Chemistry, Physics
University of Liverpool, England

Professional Experience: More than 25 years as corporate owner and executive, administrator, program manager, policy analyst, researcher, and university faculty. Experience in academia, private industry, Federal government agency, U.S. Congress, non-profit, and international organizations.

Major Areas of Expertise: Natural resources and environmental management protection and development. Government and public relations. General corporate and organization/team management. Multidisciplinary policy, research and technology assessment, program design and program management. Interdisciplinary team leadership and synthesis, interpretation, application and dissemination of program findings. Research grant and contract management. Waste management technology and regulation. Science and environmental policy analysis. Environmental and public policy mediation. Educational applications of information technology. Technology applications development. Environmental sciences and oceanography graduate and undergraduate education.

Publications and Representation: College-level, introductory textbook in ocean sciences, over 100 scientific papers, book chapters, published reports, and published abstracts. About 30 invited papers at national and international scientific and management meetings on a wide range of scientific and policy topics and numerous other formal presentations at such meetings. Many presentations of oral and written testimony before the U.S. Congress, state legislatures, and administrative agencies, and many television and radio presentations. Substantial experience as expert witness in legal proceedings on environmental issues. Currently developing interdisciplinary internet study and teaching support site to support ocean sciences college textbook.

Career Focus: Develop and apply innovative approaches to oceans, environmental and Earth system sciences education. Apply management, leadership, policy, and scientific skills to achieving broad-based solutions to societal problems. Aid effective application of scientific research and technological development to these problems. Develop means of deriving and communicating scientific information that can be most useful in the policy and management decision-making process.

TABLE OF CONTENTS

WEBSITES

Textbook: "Introduction to Ocean Sciences"
http://www.reefimages.com/Segarbook.htm

Underwater photography image collection
http://www.reefimages.com

NARRATIVE SUMMARY

Dr. Segar is an internationally recognized expert in communication of scientific information to the public and policy-makers, and in environmental education research and monitoring programs, waste disposal management, natural resources management, and environmental impact assessment. Dr. Segar has recently authored an innovative, interdisciplinary introductory ocean sciences college textbook, and is currently developing means to support, and eventually supercede, the text through delivery of customized teaching modules via the Internet.

Dr. Segar has worked for the U.S. House of Representatives, first as an AAAS Congressional Science Fellow, and subsequently as the staff science advisor to the Fisheries and Wildlife Conservation and the Environment Subcommittee of the House Merchant Marine and Fisheries Committee. His principal responsibilities were oversight, investigation, and legislative development and analysis in the area of marine pollution, ocean dumping, fisheries conservation, habitat protection, marine mammals, endangered species, the National Environmental Policy Act process, and weapons technology development. He also served as the Congressional representative on the U.S. delegations negotiating several international treaties.

For nine years Dr. Segar was the President and CEO of SEAMOcean, Inc., a Washington D.C area public relations and consulting firm dedicated to improving utilization of scientific and technical information in the public policy process. SEAMOcean consulted in diverse areas including environmental pollution research, monitoring and education, and natural resources policy and management. Dr. Segar has performed research on many aspects of resource management and environmental pollution as a faculty member at the University of Alaska Anchorage, University of Miami and San Francisco State University, and as senior scientist with the National Oceanic and Atmospheric Administration; SEAMOcean, Inc.; and the San Francisco Bay-Delta Aquatic Habitat Institute. He has specialized in multidisciplinary studies of the impacts of development on ecosystems. Dr. Segar was responsible for designing and managing multimillion dollar investigations of several such ecosystems. During the design of these studies and throughout Dr. Segar's career, he has been responsible for evaluation and development of innovative technology and study protocols and has worked in several capacities to introduce such protocols/technology to the marketplace. Dr. Segar was, for five years, Director of the Environment and Natural Resources Institute (ENRI) of the University of Alaska Anchorage. In addition to its applied research and education components, ENRI includes the Alaska State Climate Center, Arctic Environmental Information and Data Center, the Alaska Natural Heritage Program and an environmental mediation program initiated by Dr. Segar. Dr. Segar was also Director of the Institute of the North, at Alaska Pacific University. The Institute of the North is dedicated to development of education and research programs related to management of the commonly owned natural resources of the Arctic and Subarctic regions of the world.

PROFESSIONAL POSITIONS

Consultant, Author, Underwater Photographer and Expert Witness: 1988-Present
Government and public relations: Energy and environment issues. Health and environmental impact studies and monitoring programs. Compliance. Mediation. Mitigation and restoration. Marine and environmental science education.

Affiliate Faculty Member: Energy and Resources Program, University of California, Berkeley, 1986-Present.
Participation in graduate research and education programs. Serve as member of academic committees.

Director, Institute of the North, Alaska Pacific University, 1995-1997.
Research, administration and teaching in Northern Regions policy and science.

Professor and Director, Environment and Natural Resources Institute, School of Public Affairs, University of Alaska Anchorage, 1991-1995.
Research, administration and teaching in environmental policy and science.

Instructor: Extended Education Program, University of California, Berkeley, 1991.
Teaching accredited undergraduate courses.

Senior Research Scientist, Lecturer and Adjunct Professor: San Francisco State University, Geosciences Department (and Tiburon Center for Environmental Studies 1987-90), 1987-1991.
Research and teaching in marine environmental policy and science.

President: SEAMOcean/SEAMOcean, Inc., 1979-1988.
Government and public relations. Environmental pollution effects assessment and monitoring. Research and technical support of policy, legal, and regulatory activities related to management of natural resources and environment.

Executive Director: San Francisco Bay-Delta Aquatic Habitat Institute 1986-1987.
Establishing Institute. Planning, coordination and evaluation of pollution monitoring research in San Francisco Bay-Delta.

Professional Staff Member and Consultant: Committee on Merchant Marine and Fisheries, Subcommittee on Fisheries and Wildlife Conservation and the Environment, United States House of Representatives, 1978- 1979.
Legislative research and development for wildlife and environmental protection. Technical advisor for program oversight and investigation, policy analysis for ocean and estuarine research, monitoring and assessment.

Congressional Science Fellow and Legislative Assistant: Office of Rep. Leggett (D-Cal), Chair, Subcommittee on Fisheries and Wildlife Conservation and the Environment and Chair, National Security Task Force, Budget Committee. Sponsored by American Association for the Advancement of Science and Optical Society of America, 1977-1978.
General legislative analysis and advisor for technical, scientific and international affairs.

Oceanographer: National Oceanic and Atmospheric Administration, National Ocean Survey, Engineering Development Laboratory, 1976- 1977.
Ocean pollution and dumping assessment, development of technology for ocean pollution monitoring.

Oceanographer: National Oceanic and Atmospheric Administration, Atlantic Oceanographic and Meteorological Laboratories, Miami, Florida, 1974-1976.
Establishment of ocean pollution chemistry facility; design and conduct study of pollution of the New York Bight.

Assistant Professor: Rosensteil School of Marine and Atmospheric Sciences, University of Miami, Florida, 1970-1974.
Graduate faculty, marine and analytical chemistry. Research in coastal zone development impact on estuaries, especially power plant siting, general marine chemistry studies, development of trace metal analysis techniques.

Postdoctoral Research Fellow: Marine Biological Association of the United Kingdom, Plymouth, England, 1969-1970.
Chemistry and biochemistry of marine pollutants.

Student Fellow: North Atlantic Treaty Organization, Anti-Submarine Warfare Research Center, La Spezia, Italy, 1965.
Classified ocean research.

PROFESSIONAL HONORS AND AWARDS

Member, Cook Inlet Keeper, Technical Advisory Board, 1996- Present

Treasurer, The Northern Forum Academy, 1995.

Founding Member, Executive Committee, The Northern Forum Academy, 1994-1995.

Member, CLEER University Advisory Board, The Energy Council, 1993-1995.

Keynote Address, Symposium on Environmental Monitoring and Emergency Response, 1st Northern Forum Conference, Tromso, Norway, September 1993.

Keynote Address, Northern Regions' Environment and Wildlife Symposium, Northern Forum, Sapporo, Japan, July 1993.

Council Member, Arctic Research Consortium of the United States (ARCUS), 1993-1995.

Plenary address, Symposium on Fish Ecology in Arctic North America, American Fisheries Society, Fairbanks, Alaska, May 1992.

Elected Alaska Area 1 Representative, Arctic Division, American Association for the Advancement of Science, 1992-1993.

Member, North Slope Borough Science Advisory Committee, Alaska, 1989-Present.

Keynote Address, Society of Environmental Toxicology and Chemistry, 8th Annual Meeting, Pensacola, Florida, November 1987.

Member, Editorial Board, Marine Pollution Bulletin, 1986 - 1989.

Keynote Address, IAWPRC/NERC Specialized Conference, Estuarine and Coastal Pollution: Detection, Research, and Control, Plymouth, England, 1985.

Member United States Advisory Committee to the International Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Materials (London Ocean Dumping Convention), 1981-1988.

Congressional Observer, Third United Nations Conference on the Law of the Sea, Seventh Session, New York, August - September 1978.

Member AISLE (An Intersociety Liaison Effort). Representative for Optical Society of America and American Society of Limnology and Oceanography, 1977-1982.

Congressional Representative, United States Delegation, Special Consultative Meeting, Antarctic Treaty, Canberra, Australia, February - March 1978, Buenos Aires, Argentina, July 1978, Washington, D.C., September 1978.

Chairman, Committee for Special Symposia, American Society of Limnology and Oceanography, 1977-1979.

Congressional Science and Engineering Fellowship. Sponsored by Optical Society of America and American Association for the Advancement of Science, 1977-1978, Office of Rep. Robert L. Leggett (D-Cal).

Distinguished Authorship Award, National Oceanic and Atmospheric Administration, Environmental Research Laboratories, for "Oxygen Depletion in the New York Bight: Causes and Consequences," May 1977.

Consultant to Environmental Protection Agency and Government of Poland cooperative study of the state of marine pollution of the Baltic sea. Aided and advised in preparation of final report, Gdynia, Poland, January-February 1977.

Member of Committee for Program and Special Symposia, American Society for Limnology and Oceanography, 1975-1977.

Plenary address, International Conference on Heavy Metals in the Environment, Toronto, Canada, 1975.

Plenary address, 5th International Conference on Atomic Spectroscopy, Melbourne, Australia, 1975.

Member of Governor's panel of experts to assess the environmental effects of ocean disposal of waste nerve gases in the Blake Basin. State of Florida, 1970.

Natural Environmental Research Council Postdoctoral Research Fellowship, Served at Marine Biological Association of the United Kingdom, Plymouth, England, 1969-1970.

Natural Environmental Research Council Studentship (Graduate Fellowship), Served at University of Liverpool, 1965-1968.

North Atlantic Treaty Organization Summer Student Fellowship, NATO Anti-Submarine Warfare Research Centre, La Spezia, Italy, 1965. (One award made for each member nation).

Placed 1st in graduating class in oceanography, 1965, University of Liverpool.

Placed 2nd in graduating high school class, 1962, and 1st in matriculating high school class, 1960, Quarry Bank High School, Liverpool, England.

PROFESSIONAL SOCIETY ACTIVITIES

Past or Present Member:

American Oceanic Organization
American Society of Limnology and Oceanography
American Association for the Advancement of Science
American Geophysical Union
American Chemical Society
Commonwealth North
Explorers Club
Oceanography Society
Optical Society of America
New York Academy of Sciences
Water Pollution Control Federation

Treasurer, The Northern Forum Academy, 1995.

Founding Member, Executive Committee, The Northern Forum Academy, 1994-1995.

Alaska Area 1 Representative (Elected), Arctic Division, American Association for the Advancement of Science, 1992-1993.

Elected National Fellow, The Explorers Club, 1993

Member Ad Hoc Program Review Committee, Ninth Biennial Estuarine Research Conference, Estuarine Research Federation, 1986-1987.

Member AISLE (An Intersociety Liaison Effort). Representing Optical Society of America and American Society of Limnology and Oceanography, 1977-1982.

Member Committee for Program and Special Symposia, American Society of Limnology and Oceanography, 1975-1977.

Chairman, Committee for Special Symposia, American Society of Limnology and Oceanography, 1977-1979.

INTERNATIONAL EXPERIENCE

Treasurer, The Northern Forum Academy, 1995.

Founding Member, Executive Committee, The Northern Forum Academy, 1994-1995.

Keynote Address, Symposium on Environmental Monitoring and Emergency Response, 1st Northern Forum Conference, Tromso, Norway, September 1993.

Keynote Address, Northern Regions' Environment & Wildlife Symposium, Northern Forum, Sapporo, Japan, 1993.

Invited Speaker, International Symposium on Problems in Ecoinformatics. Russian Academy of Natural Sciences, Institute of Ecoinformatic Problems, Suzdal, Russia, December 1992.

Member, Northern Forum Advisory Committee, Environmental Monitoring Project. 1992-1995.

Member, Northern Forum Advisory Committee, Wildlife Management Project. 1992-1995

Keynote Address, IAWPRC/NERC Specialized Conference, Estuarine and Coastal Pollution: Detection, Research, and Control, Plymouth, England, July 1985.

Participated in field study of the recruitment and spawning of Tridacnids, Lizard Island, Australia, 1985.

Planned and participated in studies of the distribution and biology of marine associates, Australia, Fiji, Palau, Papua New Guinea, Solomon Islands, Netherlands Antilles, Philippines, Red Sea, Vanuatu. 1983-Present.

Invited delegate and member of panel on Production and Use Policy, Mussel Watch II, Chemical Changes in the Coastal Zone, East-West Center, Honolulu, Hawaii, November 1983.

Consultant and Registered Foreign Agent, Her Majesty's Government, Cayman Islands, 1982.

Member United States Advisory Committee for the International Convention for the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Ocean Dumping Convention), 1981-Present.

Congressional Observer, Third United Nations Conference on the Law of the Sea, 7th Session, New York, 1978.

Congressional Advisor to the United States delegation negotiating a Convention for the Conservation of the Living Marine Resources of the Antarctic Region, Canberra, Australia, February-March 1978, Buenos Aires, Argentina, July 1978, and Washington, D.C., Sept. 1978.

Consultant to U.S. Environmental Protection Agency and Government of Poland cooperative study of status of marine pollution of the Baltic sea. Aided and advised in preparation of final report in Gdynia, Poland, January - February 1977.

Plenary address 5th International Conf. on Atomic Spectroscopy, Melbourne, Australia, 1975.

Plenary address International Conference on Heavy Metals in the Environment, Toronto, Canada, 1975.

Participated in international research programs during Summer Student Fellowship, North Atlantic Treaty Organization Anti-Submarine Warfare Research Centre, La Spezia, Italy, 1965.

Visited and consulted with members of the scientific community or performed studies in many countries including: Angola, Australia, Belgium, Brazil, Canada, Cayman Islands, Denmark, Egypt, Finland, Fiji, France, Germany, Great Britain, Holland, India, Indonesia, Italy, Ivory Coast, Jamaica, Japan, Mexico, Netherlands Antilles, New Caledonia, New Zealand, Norway, Palau, Papua New Guinea, Philippines, Poland, Portugal, Russia, Senegal, Singapore, Solomon Islands, Spain, Sweden.

Limited language ability in French, Italian and Spanish.

MANAGEMENT AND ADMINISTRATION EXPERIENCE

More than 20 years of experience in management, administration, and development of academic, research, small business and consulting organizations. Senior, principal, or co-principal investigator for numerous research studies totaling many millions of dollars. Managed research from conception to completion within a variety of organizations, including:

Alaska Pacific University
University of Alaska Anchorage;
University of Miami;
San Francisco State University;
National Oceanic and Atmospheric Administration;
United States Congress;
United Kingdom Marine Biological Association;
a private consulting research organization, SEAMOcean; and
a non-profit research institute, the San Francisco Bay-Delta Aquatic Habitat Institute.

Managed and administered multidisciplinary programs involving multiple investigators and institutions and budgets in the millions of dollars. Thoroughly familiar with, and practiced in, managing the entire research process, including:

program and project conception,
proposal development,
budget planning,
funding,
contract negotiation,
program planning,
field and laboratory program performance,
data analysis, and reporting.

Extraordinarily broad knowledge of the different requirements and approaches to the management of science in the diverse academic, governmental, private industry, and non-profit research sectors.

Proven ability and extensive experience in the communication of scientific information into the policy and management process. Substantial experience and expertise in the reverse process: translating policy and management needs to define scientific programs and information required to satisfy those needs.

Considerable experience in policy research and development at the international, national, state, and local levels. While with the U.S. Congress, reviewed and supported development of national policy pertaining to environmental issues, and to other issues ranging from weapons procurement to social security.

Extensive experience in non-technical management and administration, including:

personnel and organizational planning and management,
fiscal planning and control, accounting,
contract management, and
organizational representation.

Experienced in mediation of employment and other disputes (received formal training in environmental mediation)

Responsible for administrative and managerial duties in each position. For example, responsible for all such matters during nine years as Chief Executive Officer of SEAMOcean, Inc. and five years as Director of the Environment and Natural Resources Institute, University of Alaska, which had a staff of more than 30, a budget of several millions of dollars, and five joint-appointment faculty.

EXAMPLES OF SPECIFIC MANAGEMENT EXPERIENCE

Served as Chief Executive Officer, Director, or Division or Program Manager in a variety of governmental, private sector, non-profit, and academic organizations. Responsibilities included:

Personnel actions, including recruitment, hiring, salary and performance review.

Budgeting, accounting, and purchasing decisions.

Negotiation and approval of contracts.

Establishing schedule, budget, personnel, manpower, equipment, and other logistical requirements for research and other programs.

Review and approval of publications, contract reports, and other products.

Client relations and new business development.

Principal Investigator for many studies. Contracts have included a wide variety of policy analyses and/or scientific studies. Clients have included a variety of federal, state and local government agencies; international organizations and foreign governments; public utilities; trade organizations; and industrial, research, non-profit, and consulting organizations. As Principal Investigator, responsible for the following:

Authoring contract proposals and obtaining funding for the proposed study plans.

Fund raising, including private fund solicitation, and negotiation of grants and contracts with foundations, industry, municipal utilities, and state, local, and federal government agencies.

Defining with the client the nature of the client's problem and identifying the policy and/or scientific assessment and information needed to effectively address the problem.

Developing plans to provide the analyses or information needed to effectively address the client's problem, including outlines of reports and other required products.

Establishing schedule, budget, personnel, manpower, equipment, and other requirements to complete the contract study.

Consultant and subcontractor selection and management.

Defining specifications for equipment, data sets, or information required for the contract study and supervising acquisition of these items.

Conducting and supervising the study work. Budgeting and controlling expenditure of all contract funds.

Arranging and conducting meetings and interviews with appropriate scientists and other technical professionals, managers, policy-makers, including elected officials, and representatives of public interest groups.

Writing and reviewing, reports and other publications resulting from contract studies. Establishing procedures for review and approval of publications, reports, and proposals.

Conducting and developing communications with academia, industry, public interest groups, the public, and federal, state, and local government agencies.

Presenting expert testimony at Congressional, administrative, and legal hearings and proceedings.

Making recommendations to the client concerning his policy options on the basis of the contract study findings.

ORGANIZATIONAL REPRESENTATION EXPERIENCE

Arranged, conducted and participated in personal meetings with a variety of high-level officials, including:
U.S. Senate Committees on Environment and Energy and Commerce;
Chairmen and other members of the U.S. House of Representatives Committees on Merchant Marine and Fisheries, Public Works, Science and Technology, Interior, and Appropriations;
Administrator and Associate Administrator of NOAA;
Assistant Administrators of EPA;
Regional Administrators of EPA;
Assistant Secretaries of State;
representatives of the White House Office of Management and Budget;
numerous elected and appointed state officials; and
elected and appointed officials of various foreign governments.

Presented formal testimony before:
U.S. Senate Committee on Public Works;
U S. House of Representatives Committees on Merchant Marine and Fisheries, Interior, Public Works, and Science and Technology;
Alaska State legislature,
California State Water Resources Board,
U.S. Federal District Court of New York;
National Advisory Committee on Oceans and Atmosphere; and
EPA Administrative Hearings.

Participated in numerous workshops held by the National Academy of Sciences, the National Research Council, NOAA, EPA, and others.

Performed a variety of studies for many different sponsors including federal, state, and local government agencies, foreign governments; non-profit, industrial, manufacturing, research and consulting organizations. Personally represented, briefed, or prepared reports or briefing documents for most of these clients. Clients include:

Alaska Aerospace Development Corporation
Alaska Department of Environmental Conservation
Audubon Society
Battelle, New England Laboratories
Baykeeper, San Francisco Bay
Bergen County Utilities Authority, NJ
Brookhaven National Laboratory
California State Water Resources Control Board
Camp, Dresser and Mckee
Citizens for a Better Environment
Commonwealth of Massachusetts, Office of Environmental Affairs
Conference of Coastal Agencies, Association of Metropolitan Sewerage Agencies
EA Engineering Science and Technology
Dames and Moore
Dolphin Club, San Francisco
Florida Power and Light Company
Her Majesty's Government of the Cayman Islands
Idaho National Environmental and Engineering Laboratory
Joint Meeting of Essex and Union Counties, NJ
Linden Roselle Sewerage Authority, NJ
Massachusetts Institute of Technology, Sea Grant Program
MBC Applied Environmental Services
Middlesex County Utilities Authority, NJ
Nassau County, NY, Department of Public Works
National Academy of Sciences
National Ocean Pollution Program Office
National Oceanic and Atmospheric Administration
Marine Ecosystem Analysis Program

National Ocean Survey
Ocean Assessment Division
Office of Marine Pollution Assessment
Office of Technology and Engineering Services
Outer Continental Shelf Environmental Assessment Program
Office of Ocean and Atmospheric Research
Office of Sea Grant
National Science Foundation
New York City, Department of Environmental Protection
National Advisory Committee for Oceans and Atmosphere
North Slope Borough Council, Science Advisory Board, Alaska
Orange County Sanitation Districts, CA
Passaic Valley Sewerage Commissioners, NJ
San Francisco Bay-Delta Aquatic Habitat Institute
Sierra Club Legal Defense Fund
Surfrider Foundation
The Northern Forum
University of Hawaii, Institute of Geophysics
University of Miami
U.S. Army Corps of Engineers
U.S. Department of the Interior
Minerals Management Service
Fish and Wildlife Service
U.S. Department of Energy
U.S. Environmental Protection Agency
Westchester County, NY, Department of Environmental Facilities
Western States Legal Foundation
White, Fine and Verville
William and Flora Hewlett Foundation
World Bank

SELECTED POLICY AND MANAGEMENT STUDIES

Many years of experience in analysis and development of policy and management option, particularly pertaining to environmental policy. Many studies required both technical and policy/management analyses and expertise. Examples of specific policy and management studies include:

Developed an alternative dispute resolution program for natural resource and environmental issues in Alaska.

Performed an analysis of the policy and scientific implications of the construction of causeways in the Beaufort Sea oil and gas development area.

Participated in a series of studies and performed specific analyses of the various impacts of oil and gas development on the North Slope of Alaska and in Cook Inlet, Alaska.

Performed analysis of the environmental impacts of dredged material disposal in San Francisco Bay and the attendant policy implications.

Developed five year program development plan, funding plan, staffing and hiring procedures and plan, personnel management and benefits procedures and plan, fiscal monitoring procedures, personnel performance monitoring procedures, product quality assurance and peer review procedures for a new research Institute with a State legislative mandate to develop and coordinate the San Francisco Bay-Delta research program. Implementation of the first year of these plans.

Performed various oversight and investigation activities of the House Fisheries and Wildlife Conservation and the Environment Subcommittee including issues that were related to structure and implementation of:

Endangered Species Act,
National Environmental Policy Act,
Marine Mammal Act,
Fisheries and Wildlife Coordination Act,
Fisheries Conservation and Management Act,
Marine Protection Research and Sanctuaries Act,
Outer Continental Shelf Lands Act,
and that were related to
Antarctic conservation and
Alaskan D2 lands.

Performed oversight analyses of the goals, objectives, and effectiveness of a variety of federal research and monitoring programs, Dr. Segar including:

all marine pollution research monitoring and response programs conducted by NOAA, EPA, Department of the Interior, Department of Defense, and Department of the Army;
NOAA fisheries and marine mammals research and management programs;
proposed national climate study programs, including investigations of atmospheric transport, fate, and effects of pollutants;
federally-owned-and-funded research vessel fleet support for ocean research; and
aquaculture research demonstration and development programs.

Performed detailed studies of the possible implications of various options under consideration for reorganization of the Federal government departments and agencies performing ocean research and services, including the possible creation of a Department of Oceans. Studies included a detailed comparative assessment of the effectiveness of federally-funded research and development centers and in-house Federal laboratories.

Defined the scientific and technological information needs of relevant issues before the House Committee on Merchant Marine and Fisheries. Interpreted the policy implications of scientific and technological information available to the Committee with respect to various issues.

Provided science and technology information and advice to U.S. Representative Leggett (D-Cal) concerning all issues considered by the House of Representatives, including issues ranging from the capabilities of and need for major weapon systems to alternative approaches to management of human health risk caused by carcinogens in food.

Performed policy analyses of diverse issues pertaining to Northern California, including water use, research funding for local universities, the occurrence of asbestosis in shipyard workers, Federal defense contracting policy issues, and national and state park land acquisition policy.

Performed policy and effectiveness analyses of the U.S. ocean science program in the Antarctic, the effect of the medium-by-medium nature of waste management statutes, and the suitability of the federally-funded research and development center concept for Federal ocean science activities.

Drafted legislation to address policy issues identified by policy and program analyses.

Performed a variety of review and analysis studies of proposed legislation and regulation concerning fisheries, international environmental protection, ocean waste disposal, and other aspects of ocean management.

Represented Congress on the United States Delegation negotiating an international treaty to ensure the conservation of the living marine resources of the Antarctic region. In this role, Dr. Segar was responsible both for oversight of Administration policy in these treaty negotiations, and for ensuring that Congressional policy interests were fully considered by the Administration

Performed analyses and interpretation of the science and technology components of the Federal budget.

Performed policy analyses of Department of Defense procurements and classified programs.

Represented Rep. Leggett and/or the Merchant Marine and Fisheries Committee in a variety of meetings with constituents, interest group representatives, and foreign government representatives when required, especially in matters related to science.

Responded to constituent requests for information or help and provided aid in the resolution of constituent problems with social security agencies, immigration procedures, and military justice procedures.

Aided in the development and conduct of a comprehensive program of design and construction of modular laboratories suitable to reduce operating costs for NOAA and other research vessels.

Developed a program plan for the research, design, and development of new shipboard and in situ sampling and analysis equipment that would advance the quality and quantity of data that could be obtained for pollutant concentrations in sea water and suspended sediments.

Performed science and policy analyses regarding the siting of ocean dumpsites, the scientific data required in ocean disposal environmental impact statements and permit applications, and the research and monitoring programs required by ocean and estuarine discharge or dumping permits.

Provided technical support of regional workshops to establish national needs for marine pollution monitoring and synthesized findings into a program management and policy analysis report which became part of the Federal Ocean Pollution Research, Development and Monitoring Plan.

Developed a protocol for the design of pollution monitoring programs that effectively address management information needs in a statistically valid manner.

Performed comparative assessments of the degree of pollution and the scope of pollution effects in coastal and estuarine areas of the globe.

Developed environmental monitoring and protection sections of a World Bank manual for wastewater engineers and managers in developing nations.

Performed review and analysis of various marine and estuarine pollution research and monitoring programs and developed

recommendations for future program directions. Programs studied include
the NOAA New York Bight program;
EPA ocean dumping research programs;
monitoring programs in the New York Bight required by EPA and state permits;
EPA and State required monitoring programs in California estuaries and oceans;
ocean outfall monitoring and research programs in Southern California;
EPA 301h monitoring programs;
state and local beach and ocean monitoring programs of New Jersey, Connecticut and New York;
impact studies of ocean disposal of dredged material by the Corps of Engineers;
state monitoring programs for diarrhetic shellfish poisoning;
the NOAA Status and Trends program; and
marine monitoring programs throughout the U.S.

Designed and developed programs to monitor the Beaufort Sea and Bering Sea marine environments for effects from oil and gas development.

Reviewed federal agency marine pollution programs and developed a prospectus that cataloged, reviewed, and provided summary descriptions for all Department of Commerce/NOAA programs that were directed or relevant to research and monitoring of marine pollution.

Designed and development of public information documents concerning federal agency marine pollution activities.

Performed critical evaluation and interpretation of synthesis reports of dredged material capping studies.

Performed a comprehensive review of the environmental effects of ocean disposal of wastes for the National Advisory Committee on Oceans and Atmosphere.

Performed conceptual development and testing of a water quality index of degradation induced by marine pollution.

Performed a study of the scientific information concerning mariculture and trade of endangered species and the scientific principles of the Endangered Species Act and the Convention on International Trade in Endangered Species (CITES) to determine their application to maricultured species, including sea turtles.

Performed an analysis of potential economic benefits of ocean waste disposal.

SELECTED RESEARCH ACTIVITIES

Research experience has included diverse activities in marine, atmospheric and environmental science research. Many studies have involved parallel assessment and development of environmental or institutional management practice or policy. Sponsors have included federal, state, and local government agencies; foreign governments; non-profit, industrial, manufacturing, research and consulting organizations. Selected specific research activities include:

Evaluation of database and identification of environmental issues with respect to future oil exploration and development activities in the Arctic National Wildlife Refuge.

Development of a Geographic Information System data base for hazardous waste and other contamination sites in the eastern regions of Russia.

Evaluation of the hydrocarbon and trace metal concentration distributions in Cook Inlet, Alaska and their relationship to oil and gas development activities.

Applications of Geographic Information Systems to environmental assessment and management in the northern regions.

Evaluation of the human health and environmental effects of sewage discharges to Mamala Bay, Hawaii.

Evaluation of monitoring program adequacy. Analysis of violations of Federal and State statutes by discharging authority. Expert witness testimony.

Evaluation of the human health and environmental effects of industrial waste discharges by pulp and paper mills in northern California. Evaluation of monitoring program adequacy. Analysis of violations of Federal and State statutes by discharging authority. Compilation of a list of permit violations. Expert witness testimony.

Design of comprehensive, multidisciplinary research program to identify and understand the effects of pollution on a major estuarine ecosystem and adjacent fresh water and oceanic areas (San Francisco Bay-Delta).

Review and analysis of scientific scope and effectiveness of marine and estuarine pollution research and monitoring programs and development of recommendations for future program directions.

Assessment of the effectiveness of all biological and chemical measurement techniques to marine pollution monitoring.

Development of a protocol for the design of pollution monitoring programs which will effectively address management information needs in a statistically-valid manner.

Development of environmental monitoring and protection sections of a World Bank manual for wastewater engineers and managers in developing nations.

Synthesis and assessment of the impacts of causeways on the physical oceanography and sediment regime of the nearshore Beaufort Sea.

Design and development of programs to monitor for effects on the Beaufort Sea and Bering Sea marine environments from oil and gas development.

Development of strategies for cost-effective coastal pollution monitoring and preliminary design of required shipboard sampling and analysis equipment.

Training of scientists and technicians from nations with developing marine pollution research programs. Training in collection and analysis of marine samples, and design of monitoring programs and evaluation of resulting data.

Development and/or interpretation of the scientific and technical information supporting legislative or regulatory initiatives and/or proposed amendments, including wastewater treatment and ocean waste disposal.

Review and analysis of proposed legislation and regulation concerning fisheries, international environmental protection, and other aspects of ocean management.

Identification of scientific information required to fulfill the intent of proposed legislation or regulation and assessment of the viability of obtaining such information using current capabilities. Assessment of the size, scope and nature of required research initiatives.

Expert testimony before Congressional Committees. Technical support of and participation in government and public relations activities.

Expert witness and policy advisor in ocean dumping permit litigation.

Expert witness and technical advisor in a variety of Clean Water Act permit violation legal actions.

Development of special permit applications for ocean disposal of municipal sewage sludges. Design, development and application of multimedia assessment protocol comparing human health risks, environmental impacts, economic impacts, and public perception of ocean dumping and land-based incineration. Design, develop, and apply comparative human health risk assessment procedures; physical, chemical and microbiological analysis procedures; bioassays; bioaccumulation tests; ocean and atmospheric dispersion models; and public perception assessment procedures to assess and compare impacts of incineration and ocean dumping of sewage sludge. Comprehensive assessment of candidate dumpsites and of the environmental impacts of dumping and other anthropogenic influences at these sites.

Assessment of the economic consequences of policies that approve ocean incineration or alternatively require land-based disposal of hazardous PCB and other organochlorine wastes; approve ocean dumping of sewage sludge by coastal municipalities or require land-based disposal; approve ocean discharge of less than secondary treated municipal wastewaters by coastal cities or require uniform secondary treatment.

Critical evaluation and interpretation of synthesis reports of dredged material capping studies.

Assessment of the potential environmental effects of containerized nerve gases dumped in the ocean.

Investigation of the potential beneficial use of waste organic solids for biological enhancement in the ocean.

Conceptual development and testing of a water quality index of degradation induced by marine pollution.

Review of Federal agency marine pollution programs to assess areas of duplication and opportunities for cooperative research and development of a prospectus.

Design and development of public information documents concerning Federal agency marine pollution activities.

Field testing and evaluation of underwater photography equipment for its use and applicability to biological research.

Field studies of recruitment and spawning of Tridacnid clams, Lizard Island, Australia.

Field studies of the distribution and biology of marine associates of California, Hawaii, Palau, Australia, Philippines, Fiji and the Caribbean.

Development and interpretation of scientific information concerning mariculture and trade of endangered species.

Assessment of the scope and logistical requirements of a United States research and resource assessment program which would provide adequate information for effective participation in the Commission established for the conservation of the living marine resources of the Antarctic region.

Design of a comprehensive study of the New York Bight ecosystem focusing on the sources, fates and effects of trace metal and toxic organic pollutants in the Bight. Conduct and management of chemical and geochemical aspects of this multimillion dollar, multidisciplinary study.

Assessment of mass balances of trace metals in the New York Bight ecosystem. Studies of the inputs of trace metals from dredged material and sewage sludge dumping, river runoff, and other sources and of the effects of these inputs on sediment, water, and biotic concentrations of these metals within the Bight.

Assessment of the nutrient and primary productivity status of the New York Bight. Assessment of the eutrophication and the potential for anoxia in the Bight apex. Identification of river borne nutrient inputs and natural hydrographic features as the principal causes of eutrophication.

Design of comprehensive multidisciplinary studies of the marine and wetlands ecosystems of Biscayne Bay and Card Sound, Florida, focusing on the environmental effects of a conventional and nuclear power plant complex and of the destruction of wetland and shallow subtidal habitat. Conduct and management of hydrographic, chemical, geochemical and other aspects of these multimillion dollar studies.

Studies of the distribution and biological effects of a plume of heated, power-plant cooling water in a shallow sub-tropical estuary.

Studies of the effects of power plant cooling water effluents, marinas, and channel dredging on the trace element and nutrient chemistry of water and sediments in a shallow sub-tropical estuary.

Design, testing and development of contamination-free water sampling systems for trace metals and toxic organics.

Development of sampling and analytical techniques for the determination of traces of rainmaking chemicals in precipitation samples.

Development of analytical techniques for the determination of trace metal concentrations in biomedical samples.

Design and development of analytical instrumentation for characterization and determination of trace metal and metal-organic compounds in environmental samples. Invention of atomic absorption and emission detectors for gas and liquid chromatography.

Analysis of open ocean and coastal seawater and estuarine water samples for dissolved trace metal concentrations.

Investigations of the occurrence of metal-organic compounds in seawater.

Studies of the trace metal chemistry of seawater overlying the sedimentary interface, particularly in areas of high heat flow. Search for water column chemical signatures of hydrothermal vents (before vents were discovered).

Development of sampling and analysis techniques for determination of chlorinated insecticides and petroleum hydrocarbons in seawater.

Development of analysis techniques for trace metals in marine biota.

Studies of the trace metal concentrations in echinoderms, molluscs, crustacea, coelenterates and other marine animal species. Studies of the factors affecting geographical and temporal variations in these concentrations in United Kingdom coastal ecosystems.

Studies of the distribution and temporal variations in the concentrations of combined and free amino acids in seawater from the Irish Sea.

Studies of the concentration distributions of chlorinated insecticides and petroleum hydrocarbons in the English Channel and Eastern North Atlantic.

Taxonomic identification of marine phytoplankton species through analysis of photosynthetic pigment composition. Identification and characterization of unknown xanthophylls of marine flagellates.

INVITED PRESENTATIONS AT PROFESSIONAL MEETINGS

Some Perspectives on Environmental Monitoring in the Arctic, Symposium on Environmental Monitoring and Emergency Response, 1st Northern Forum Conference, Tromso, Norway, September 1993. KEYNOTE ADDRESS.

Global Environmental Challenges and the Role of the Northern Regions· Northern Regions' Environment and Wildlife Symposium, Northern Forum, Sapporo, Japan, July 1993. KEYNOTE ADDRESS.

Radiological Contamination in the Arctic: Assessment and Potential Remedial Measures - A Proposed Study by the University of Alaska, Battelle, Pacific Northwest Laboratories and the Institute of Nuclear Safety, Russia. International Symposium on Problems in Ecoinformatics. Russian Academy of Natural Sciences, Institute of Ecoinformatic Problems, Zwenigorod, Russia, December 1992.

A computer-aided retrieval system for Arctic climate change-related records. International Symposium on Problems in Ecoinformatics. Russian Academy of Natural Sciences, Institute of Ecoinformatic Problems, Zwenigorod, Russia, December 1992.

Store and Forward Microsatellites for Arctic Science. International Symposium on Problems in Ecoinformatics. Russian Academy of Natural Sciences, Institute of Ecoinformatic Problems, Zwenigorod, Russia, December 1992.

Oceanography of Arctic Seas (with D.W. Pollard), Symposium on Fish Ecology in Arctic North America. American Fisheries Society. Fairbanks, Alaska, May 1992, PLENARY ADDRESS

Are we effectively protecting our oceans? Public Lecture Series. University of California, Berkeley, February 1991.

Effects of Dredging on Anadromous Fishes on the Pacific Coast, Technical Workshop, University of Washington/U.S. Army Corps of Engineers, Seattle, Washington, September 1988.

8th Annual Meeting, Society of Environmental Toxicology and Chemistry, Pensacola, Florida, November 1987. KEYNOTE ADDRESS.

"Bridges Over Troubled Waters: Understanding California Water Controversies", University of California, Davis, Leaders Conference, Asilomar, California, September 1986.

American Fisheries Society, 1986 Annual Meeting, Symposium on "Anoxia in Coastal Waters: How are Living Resources Affected?", Providence, Rhode Island, September 1986.

IAWPRC/NERC Specialized Conference, Estuarine and Coastal Pollution: Detection, Research, and Control, Plymouth, England, July 1985. KEYNOTE ADDRESS.

Massachusetts Institute of Technology, Sea Grant Program, Lecture/Seminar, Ocean Disposal of Public Wastes: Technology and Policy for the Future, Cambridge, Massachusetts, April 1985.

Mussel Watch II. Chemical Changes in the Coastal Zone, East-West Center, Honolulu, Hawaii, November 1983.

"Air, Land or Sea: Which is best for the disposal of sewage sludge?" Southern California Coastal Water Research Project Special Symposium, Long Beach, California, July 1983.

American Fisheries Society, 1982 Annual Meeting, Symposium on Rehabilitative Management of Major Aquatic Systems, Hilton Head, South Carolina, September 1982.

Oceans 82, Annual Meeting of the Marine Technology Society, Washington, D.C., October, 1982.

Association of Metropolitan Sewerage Agencies, Special Conference, "The Sludge Management Syndrome: Burn, Barge, Bury or Bust." Orcas Island, Washington, July 1981.

National Research Council, Assembly of Engineering, Symposium on Engineering Aspects of Using the Assimilative Capacity of the Oceans, Lewes, Delaware, June 1981.

178th National meeting, American Chemical Society, Symposium on "Environmental Health Chemistry: The Chemistry of Environmental Agents as Potential Human Hazards." Washington, D.C., September 1979.

8th Materials Research Symposium, National Bureau of Standards, "Methods and Standards for Environmental Measurement." Gaithersburg, Maryland, September 1976.

Biscayne Bay Symposium I, National Oceanic and Atmospheric Administration, Sea Grant, Miami, Florida, April 1976.

10th Middle Atlantic Regional Meeting, American Chemical Society, Symposium on Characterization of Pollution in the Marine Environment, Philadelphia, Pennsylvania, February 1976.

American Society of Limnology and Oceanography, Special Symposium, "The Middle Atlantic Continental Shelf and New York Bight." New York, November 1975. Two papers.

International Conference on Heavy Metals in the Environment, Toronto, Canada, October 1975, PLENARY ADDRESS.

5th International Conference on Atomic Spectroscopy, Melbourne, Australia, August 1975, PLENARY ADDRESS.

168th National meeting, American Chemical Society, Special Symposium "Analytical Methods in Oceanography." Atlantic City, New Jersey, September 1974.

National Oceanic and Atmospheric Administration, National Oceanographic Instrumentation Center, Turbidity Workshop, Washington, D.C., May 1974.

55th Annual meeting, American Geophysical Union, Special Symposium "Chemistry of the Water Environment -- Serving the Nation in the Decade Ahead." Washington, D.C., April 1974.

2nd International Estuarine Conference, Myrtle Beach, South Carolina, October 1973.

4th International Conference on Atomic Spectroscopy, Toronto, Canada, October 1973.

ADDITIONAL PRESENTATIONS:

Numerous seminars, presentations at informal workshops and committee meetings, and testimony at Congressional , State legislature, administrative agency hearings and Federal Court proceedings.

Numerous radio and television appearances and interviews as an expert on environmental sciences and geosciences.

PEER REVIEWED PUBLICATIONS

1969 (with J.D Collins) "Some major and minor elements of certain marine invertebrates." Proc. Challenger Soc., 4(1): 30-31.

1969 (with J.P. Riley) "The pigments of some further marine phytoplankton species." J. Mar. Biol. Assoc. U.K., 49: 1047-1056.

1970 (with J.P. Riley) "The seasonal variation of free and combined amino acids at a station in the Irish Sea." J. Mar. Biol. Assoc. U.K., 50: 713-720.

1970 (with J.P. Riley) "The distribution of the major and some minor elements in marine animals. Part I. Echinoderms and Coelenterates." J. Mar. Biol. Assoc. U.K., 50: 721-730.

1971 (with J.P. Riley and J.D. Collins) "The distribution of the major and some minor elements in marine animals. Part II. Molluscs." J. Mar. Biol. Assoc. U.K., 51: 131-136.

1971 (with J.G. Gonzalez) "Greater flexibility with the Perkin Elmer HGA-70 heated graphite atomizer for use in selective volatilization analysis." Atomic Absorption Newsletter, 10(4): 94-95.

1972 (with J.G. Gonzalez) "Evaluation of heated graphite atomizer atomic absorption for the direct determination of trace transition elements in seawater." Anal. Chim. Acta., 58(1): 7-14.

1973 (with J.G. Gonzalez and R.T. Ross) "The determination of chromium in urine using selective volatilization with atom reservoir atomic absorption." Anal. Chim. Acta, 63: 205-209.

1973 (with S.M. Gerchakov and R.T. Stearns) "Chemical and hydrological investigations in the vicinity of a thermal discharge into a tropical marine estuary." In "Radionuclides in Ecosystems." Proc. Third National Symp. on Radioecology, Oak Ridge, Tennessee, May 1971, Ed., D.J. Nelson, U.S. Atomic Energy Commission Conf. 71051-P1, 1: 603-618.

1973 (with J.L. Gilio) "The determination of trace transition elements in biological tissues using flameless atom reservoir atomic absorption." Intern. J. Environ. Anal. Chem., 2: 291- 301.

1973 (with R.E. Pellenbarg) "Trace metals in carbonate/organic rich sediments. Effects of industrialization and urbanization." Mar. Pollut. Bull., 4(9): 138-142.

1973 (with A. Thorhaug and M.A. Roessler) "Impact of a power plant on a sub-tropical estuarine environment." Mar. Pollut. Bull., 4(11): 166-169.

1973 "Atom reservoir atomic absorption. Application to marine environmental samples." International Symp. on Recent Advances in the Analytical Chemistry of Pollutants, Halifax, Nova Scotia, Canada, August 1972. Also Intern. J. Environ. Anal. Chem., 3: 107-119.

1973 (with S.M. Gerchakov, C. Rooth, and R.D. Stearns) "Rapid delineation of mean plume intensity pattern from the sediment temperatures underlying a thermal discharge." Bull. Mar. Sci., 23(3): 496-509.

1974 "Flameless atomic absorption gas chromatography." Anal. Lett., 7(1): 89-95.

1974 (with D.E. Drake, R.L. Charnell and P.G. Hatcher) "Comparison of optical measurements and suspended solids concentrations in the ocean." Proc. National Oceanic and Atmospheric Administration, National Oceanographic Instrumentation Center, Turbidity Workshop, Washington, D.C., May 1974, 123-141.

1974 (with A.Y. Cantillo) "Direct determination of trace metals in seawater by flameless atomic absorption spectrophotometry." In "Analytical Methods in Oceanography." Ed. T.R.P. Gibb, Amer. Chem. Soc., Advances in Chemistry Series No. 147, 56-81.

1974 (with G.A. Berberian) "Trace metal contamination by oceanographic samplers. A comparison of various Niskin samplers and a pumping system." In "Analytical Methods in Oceanography." Ed. T.R.P. Gibb, Amer. Chem. Soc., Advances in Chemistry Series No. 147, 9-15.

1975 (with P.G. Hatcher) "Chemistry and continental margin sedimentation." In "The new concepts of continental margin sedimentation. II. Sediment transport and its application to environmental management." Eds. D.J. Stanley and D.J.P. Swift, American Geological Institute Short Course Lecture Notes, Miami, Florida, November 1974, 1034-1077. Also, Wiley Interscience, Chap. 19, 461-477.

1976 (with A.Y. Cantillo) "Trace metals in the New York Bight." In "The Middle Atlantic Continental Shelf and New York Bight." Amer. Soc. Limnol. Oceanogr., Special Symp. Series, Vol. 2, 171-198.

1976 (with G.A. Berberian) "Oxygen depletion in the New York Bight Apex. Causes and consequences." In "The Middle Atlantic Continental Shelf and New York Bight." Amer. Soc. Limnol. Oceanogr., Special Symp. Series, Vol. 2, 220-239.

1978 "Congress through a fish eye lens." Optics News 4(3): 15-19.

1980 (with A.Y. Cantillo) "Exchange of comments on determination of iron, manganese, and zinc in seawater by graphite furnace atomic absorption spectrometry." Anal. Chem., 52, 1766.

1981 (with A.Y. Cantillo) "Metal species identification in the environment. The key to rational discharge regulation. Needed new analytical techniques are developing slowly." 178th Annual Meeting, Amer. Chem. Soc., Symp. on Environmental Health Chemistry: The Chemistry of Environmental Agents as Potential Human Hazards., Washington D.C., September 1979, In "Environmental Health Chemistry." Ed. J.D.McKinney, Ann Arbor Science, Mich., p 137-162.

1981 "Atomic Spectroscopy." In "Water Quality Measurements." Eds. H.B. Mark and J.S. Mattson, Marcel Dekker, New York, Chapter 8, 221-269.

1982 (with J.S. O'Connor) "Pollution in the New York Bight: A Case History." In "Impact of Man on the Coastal Environment" Ed. T.W. Duke, U.S. Environmental Protection Agency, Decadal Anniversary Monograph, U.S. Environmental Protection Agency, Wash. D.C., 47-67.

1982 (with A.J. Mearns, E. Haines, G.S. Kleppel, R.A. McGrath, J.J.A. McLaughlin, J.H. Sharp, J.J. Walsh, J.Q. Word, D.K. Young and M.W. Young) "Effects of nutrients and carbon loadings on communities and ecosystems." In "Ecological Stress and the New York Bight: Science and Management." Ed. G.F. Mayer, Estuarine Research Federation, Columbia, South Carolina, 53-65.

1982 (with C.G. Gunnerson, R. Adamski, P.W. Anderson, R.S. Dewling, D.A. Julius, G.S. Kleppel, D.W. Lear, A.J. Mearns, J.T. Miller, E.P. Myers, J.J. Rosewell, S. Schroeder, C.J. Sinderman and C.M. Stern) "Management of Domestic Wastes." In "Ecological Stress and the New York Bight: Science and Management." Ed. G.F. Mayer, Estuarine Research Federation, Columbia, South Carolina, 91-112.

1984 (with P.G. Davis) "Contamination of Populated Estuaries and Adjacent Coastal Ocean -- A Global Review." National Oceanic and Atmospheric Administration Technical Memorandum, NOS OMA 11, 120p.

1984 (with P.G. Davis) "Contamination of the New York Bight and other Populated Coastal Oceans: A Comparison." Coastal Ocean Pollution Assessment News, Marine Science Research Center, Stony Brook, New York, 3(2), 30-31.

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1998 (with K.A. Sverdrup) Instructors Manual for Introduction to Ocean Sciences. Wadsworth, Belmont, California. 218 pp. ISBN 0-314-20786-4.

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ADDITIONAL PUBLICATIONS:

Various statements and speeches for Rep. Robert L. Leggett and Rep. John M. Murphy, many of which have appeared in the Congressional Record. Various bills and reports on bills referred to the Committee on Merchant Marine and Fisheries. Several reports and options analyses related to negotiations within the Antarctic Treaty with respect to the conservation of living marine resources, access to mineral exploitation, and sovereignty (Classified confidential). Testimony for a variety of Congressional and administrative hearings, and affidavits in support of several legal actions. Several popular press articles related to various environmental pollution issues or marine ecology.

SECURITY CLEARANCES

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OCEAN RESEARCH CRUISES

1974 Five weeks, New York Bight, R.V. Researcher and R.V. Advance II, Physical and chemical oceanography.

1974 Five weeks, New York Bight, R.V. Ferrel, Physical, chemical, and geological oceanography.

1973 Four weeks Eastern South Atlantic, R.V. Gillis, Near ocean floor chemistry, marine geology and paleobiology, and physical oceanography.

1972 Four weeks North Atlantic traverse, R.V. Gillis, Near ocean floor water chemistry, marine geology, physical oceanography, and atmospheric chemistry.

1970 Three weeks Caribbean and North Atlantic, R.V. John Elliot Pillsbury, Chemical oceanography.

1969 One week English Channel, R.V. Sarsia, Biological and chemical surveys.

1967 Six weeks Southeast North Atlantic, R.V. Discovery, Physical and chemical oceanography of Mediterranean outflow water.

1965 Three weeks Mediterranean and North Atlantic, R.V. Maria Paolina G, Anti-submarine warfare research.

1964 One Week Irish Sea, Dynamical oceanography.

1964-Present Many weeks of small boat coastal and estuarine experience in United States coastal and estuarine waters especially Cook Inlet, Alaska and Biscayne Bay, Florida. Also in the Caribbean Sea, English Channel, Irish Sea, Scottish Fjords, Red Sea, Central Pacific Ocean, and Northern and Southern Tropical and Subtropical Western Pacific Ocean. Many such studies included diving and underwater photography in support of biological, geological, chemical and archaeological surveys and research.

Brenda Hall

From: Phil Mundy [phil_mundy@evostc.state.ak.us]
Sent: Friday, April 09, 2004 1:12 PM
To: Brenda Hall (brenda_hall@oilspill.state.ak.us)
Subject: FW: Exxon-Valdez Oil Spill Scientific Advisory Board STAC

Brenda - Please keep these replies so they can be made available to the committee.

Phil Mundy
907-278-8012

-----Original Message-----
From: Charlie Miller [mailto:cm@coas.oregonstate.edu]
Sent: Friday, April 09, 2004 2:00 PM
To: phil_mundy@evostc.state.ak.us
Cc: gail_phillips@oilspill.state.ak.us
Subject: RE: Exxon-Valdez Oil Spill Scientific Advisory Board STAC

Phil, Gail,
Well, I've never heard of Dr. Segar, so I haven't a clue. His vita shows that he's certainly gotten around, jobs all over the world map. His coral reef website (done with his wife) is indeed spectacular, with all the images for sale - a cool sideline. He will know his stuff, probably, so the choice depends upon personality, for which you will need to ask somebody who has heard of him before. Probably our Alaska complement (Norcross, Royer,
Seitz) will have heard of him.
Charlie Miller

-----Original Message-----
From: Phil Mundy [mailto:phil_mundy@evostc.state.ak.us]
Sent: Friday, April 09, 2004 10:09 AM
To: Thomas C. Royer; 'Braund, Stephen R (E-mail)'; 'Miller, Charlie (E-mail)'; 'Mundy Phil (E-mail)'; 'Norcross, Brenda L.'; 'O'Dor, Ronald (E-mail)'; 'Seitz, Bill (E-mail)'
Cc: Phillips Gail (GAIL_PHILLIPS@OILSPILL.STATE.AK.US)
Subject: FW: Exxon-Valdez Oil Spill Scientific Advisory Board STAC

Phil Mundy
907-278-8012

-----Original Message-----
From: Dr. John Gerster [mailto:jgerster@alaska.net]
Sent: Thursday, April 08, 2004 7:04 PM
To: Phil Mundy
Cc: Brenda Hall; John Gerster; Gail Phillips
Dear Colleagues - I would welcome your informal comments on Dr. Segar as a possible fellow STAC member. Please share these with Gail as she is heading up the nominating committee process.

Original message from PAC member John Gerster, M.D.

Subject: Re: Exxon-Valdez Oil Spill Scientific Advisory Board STAC

Phil:
I see I've been drafted to the 'Nominating Committee' for a new STAC member. Glad to help out. However:
This is the guy we need on the STAC; he -wrote- the definitive textbook on Oceanography, used to be head of the Institute of the North, world-respected Oceans researcher, with an

incredible resume. (See attached). He is interested, but, I don't want his application to get lost because of tomorrow's deadline. Read his resume; he still loves Alaska, and, would be a world-class star Scientific resource.
-jg-

Merritt College

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Work phone: 510-436-2424
Home phone: 510-237-4227
Cell phone: 510-932-7262

Nominating Committee
EVOS Scientific and Technical Advisory Subcommittee

Dear committee:

I would like to express my interest in serving on the EVOS Scientific and Technical Advisory subcommittee and my gratitude to John Gerster for soliciting my interest in serving.

My resume demonstrates my many years of experience in developing, managing and evaluating the results of large and smaller scale oceanographic studies, starting in the 1970's when I was a principal in the then unprecedented scale NOAA New York Bight Marine Ecosystems Analysis program. My expertise is primarily in the design and integration of such programs to ensure that the various disciplinary components are integrated and that the program as a whole is designed in a scientifically sound manner. I have personally studied and published in areas including systems modeling, resource management, physical, chemical, geochemical and biological oceanography, contaminant and pollution chemistry, and ecology. I have also been a principal investigator or manager of studies, or have participated in policy studies that relate to fisheries, mammology, ornithology and population biology.

My specific experience in Alaska has included: developing programs to monitor for oil and gas exploration and development impacts in the Bering and Beaufort seas; development, conduct and management of a program to monitor for oil and gas related contamination in Cook Inlet; many years of service on the North Slope Borough Science Advisory Committee studying primarily the impact of causeways on the Beaufort Sea coastline; participation in the development of the citizens monitoring program established by the Cook Inlet Keeper; and six years as Director of the University of Alaska Anchorage, Environment and Natural Resources Institute whose programs extended throughout Alaska and its adjacent waters.

The Exxon Valdez accident caused ecological damage and community disruption. However, it has led to an extraordinary opportunity that is afforded by the availability of an unusually large amount of funding that can be used to gain a better scientific understanding of the marine and closely linked terrestrial environment. The research performed should be of great benefit to the future management and protection not only of the natural resources Prince William Sound region but also of those of many similar ecosystems. If I were to be appointed to the EVOS Scientific and Technical Advisory subcommittee I would be honored to be able to help to make sure that these research funds are used in as effective a manner as possible.

Sincerely yours

Dr. Douglas A. Segar
Dean
Business, Math and Sciences

Exxon Valdez Oil Spill Trustee Council

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

Exxon Valdez Oil Spill Trustee Council
Scientific and Technical Advisory Committee (STAC) Members

Anthropologist

ANC

Stephen R. (Steve) Braund is principal of Stephen R. Braund & Associates, a private research and consulting firm in Anchorage established in 1978. He has a master's degree in anthropology from the University of Alaska Fairbanks. Mr. Braund's work has taken him to over 125 communities in Alaska, where he has examined a range of topics from cultural anthropology to subsistence harvests to rural Alaskan socioeconomic and sociocultural systems to fisheries. He has served as a Core Reviewer for the *Exxon Valdez* Oil Spill Restoration Program since 1999, and is thus familiar with the work of the Trustee Council and the planning for GEM. In addition to his professional expertise, Mr. Braund is a commercial salmon fisherman and president of the Northern District Set Netters Association of Cook Inlet.**

Oregon

Charles (Charlie) Miller has an extensive history of conducting science in the subarctic Pacific and a great breadth of knowledge of ocean and coastal processes. He served as co-chairman of the Trans-Atlantic Studies of Calanus project, an international effort that involved many countries on both sides of the North Atlantic. He was the organizer and leader in the 1980s of one of the most successful interdisciplinary oceanographic programs of that period, the Subarctic Pacific Ecosystem Research Program (SUPER). Charlie recently retired after more than 30 years with the College of Oceanic and Atmospheric Sciences at Oregon State University, where he is Professor of Oceanography.**

Fairbanks

Brenda Norcross received her Ph.D. in marine science from the Virginia Institute of Marine Science at the College of William and Mary. She is currently a professor at the Institute of Marine Science at the University of Alaska Fairbanks. She served on the National Research Council committee reviewing the Trustee Council's GEM Program, and thus, has strong familiarity with GEM. In addition, she has more than 14 years experience working in the Gulf of Alaska, including work on herring following the oil spill. She has experience in the nearshore and Alaska Coastal Current environments, as well as committee work for the North Pacific Marine Science Organization (PICES) and the North Pacific Fisheries Management Council on fisheries management issues.*

DL

Upstream Canada

Ron O'Dor is currently serving in a leadership role as the senior scientist for the Census of Marine Life, an international research and monitoring program funded by the Sloan Foundation and affiliated with the Consortium for Oceanographic Research and Education (CORE). Dr. O'Dor has been Professor of Biology at Dalhousie University since 1983 and is internationally recognized for innovative applications of technology to his work. His main research interests are in global-scale biodiversity

and marine invertebrates. He has vast experience internationally and is familiar with numerous large-scale monitoring programs across the world.**

William Seitz received his Ph.D. from Iowa State University. He is currently Director of the Alaska Science Center for the USGS (Department of Interior). He is familiar with the major natural resource management issues of Alaska, having served in a lead administrative role with the USGS since 1989. Dr. Seitz is familiar with the *Exxon Valdez* Oil Spill Trustee Council and has participated in early GEM planning sessions since its inception. He has a leadership role in planning and directing marine and freshwater research in all areas of Alaska, both as head of the Alaska Science Center and as a member of the North Pacific Research Board. He brings to the committee a knowledge of the interface between science and resource management, and a pragmatic view of how to monitor the effects of human activities on Alaska's marine resources.*

USGS
AK

Replaced with Tom Royer on April 23, 2003

Warren Wooster received his Ph.D. in oceanography from the University of California and began his career as a chemical oceanographer. He led many oceanographic expeditions including the Northern Holiday Expedition in the Gulf of Alaska in 1951. His scientific interests have grown much broader than chemical oceanography: he has published over 50 scientific articles on oceanography, fish and mammal production and links to oceanographic conditions. He has also contributed many articles on marine affairs, ranging from law of the sea to marine resources and international marine science institutions, and he has edited five books. Dr. Wooster was the first IOC (Intergovernmental Oceanographic Commission of UNESCO) Secretary, later became SCOR (Scientific Committee on Oceanic Research) Secretary and then President of SCOR and President of ICES (International Council for Exploration of the Sea). Warren was a key player in the formation of the North Pacific Marine Science Organization (PICES) and was its first chairman. He has been a member or chair of numerous committees and boards of the National Research Council. He was Dean of the Rosenstiel School of Marine and Atmospheric Sciences of the University of Miami and later came to the University of Washington's School of Marine Affairs, where he now holds an emeritus professor position.***

* Terms expire May 1, 2004
** Terms expire May 1, 2006
*** Resigned effective December 15, 2002. Seat is currently vacant.

Exxon Valdez Oil Spill Trustee Council

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MEMORANDUM

TO: Trustee Council

FROM: Gail Phillips
Executive Director

DATE: May 4, 2004

RE: Reappointment of two STAC members

In addition to the replacement vacancy on the Science and Technological Advisory Committee (STAC) that is on the agenda today, we also have two other STAC members whose term expired on May 1, 2004. When the STAC was first constructed, three members were appointed for four-year terms and three members were appointed for two-year terms. This was done in order that there would be overlapping members and all seats did not expire at the same time. After this initial rotation, all seats are four-year terms.

The three STAC members who held two-year seats included Brenda Norcross, William Seitz and Warren Wooster. Warren resigned in December 2002 and that vacancy was filled by Tom Royer in April, 2003.

Both Brenda and Tom are eligible for reappointment to the STAC. They have both been contacted and are willing to serve for four more years.

It is my recommendation that you approve the reappointment of Brenda Norcross and Tom Royer to the STAC for four-year terms. Both have been excellent committee members and are an integral part of the success of the STAC.

For your information, attached is a brief resume on each of these candidates.

Cc: Dr. Phil Mundy, STAC Co-Chair
Brenda Norcross, STAC Co-Chair

Attachments: Norcross and Royer resumes

BRIEF RESUMES FOR NORCROSS AND ROYER

REAPPOINTMENTS TO THE STAC

BRENDA NORCROSS

Brenda received her Ph.D. in Marine Science from the Virginia Institute of Marine Science at the College of William and Mary. She is currently a Fisheries Oceanography Professor with the Institute of Marine Science in the School of Fisheries and Ocean Sciences at the University of Alaska, Fairbanks. She served on the National Research Council committee reviewing the Trustee Council's GEM Program, and thus, has strong familiarity with GEM. In addition, she has more than 14 years experience working in the Gulf of Alaska, including work on herring following the oil spill. She has experience in the nearshore and Alaska Coastal Current environments, as well as committee work for the North Pacific Marine Science Organization (PICES) and the North Pacific Fisheries Management Council (NPFMC) on fisheries management issues.

TOM ROYER

Tom received his Ph.D. in Physical Oceanography from Texas A & M University. He currently is a Slover Professor of Oceanography in the Department of Ocean, Earth and Atmospheric Sciences at Old Dominion University and Professor Emeritus at the University of Alaska. His special research interests include mesoscale ocean circulation with emphasis on sub-polar gyres and coastal boundary currents. Tom served as a member of the GEM Plan Review for the National Research Council and also as Vice Chair of the University National Oceanographic Laboratory System (UNOLS). For many years he has participated in organizations such as the Coastal Ocean Processes Program (CoOP) and PICES. He serves on the scientific committees of Oil Spill Recovery Institute (OSRI) and North Pacific Research Board (NPRB). He is serving as the chair of the National Research Council (NRC) Arctic-Yukon-Kuskokwim (AYK) Sustainable Salmon Initiative Committee. .