

Trustee Council Use Only

Project No: _____

Date Received: _____

GEM PROPOSAL SUMMARY PAGE

(To be filled in by proposer)

Project Title: The Exxon Valdez Trustee Hydrocarbon Database and Interpretation Service

Project Period: FY 04 – FY 06

Proposer(s): Bonita Nelson and Jeffery W. Short
NOAA/NMFS Auke Bay Laboratory

Study Location: The project resides at the Auke Bay Laboratory in Juneau, Alaska , the service provides information about the entire spill area via the internet.

Abstract: This project is an on-going service project providing data and sample archiving services for all samples collected for hydrocarbon analysis in support of *Exxon Valdez* Oil Spill Trustee Council projects. These data represent samples collected since the oil spill in 1989 to the present and include environmental and laboratory Response (National Resource Damage Assessment - NRDA) and Restoration data. Additionally, we provide interpretive services for the hydrocarbon analysis, provide public releases of the database (including FOIA requests) and maintain the hydrocarbon sample archives.

Funding:	EVOS Funding Requested:	FY 04	\$ 22,200	TOTAL: 66,600
		FY 05	\$ 22,200	
		FY 06	\$ 22,2 00	
	Non-EVOS Funds to be Used:	FY 04	\$ 12,000	TOTAL:36,000
		FY 05	\$ 12,000	
		FY 06	\$ 12,000	

Date: 11 June, 2003

Date proposal prepared: 11 June, 2003

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GEM RESEARCH PLAN

I. NEED FOR THE PROJECT

A. Statement of Problem

The Trustee hydrocarbon database which has been is a dynamic structure which requires updating and maintenance. Currently, the database contains an inventory of the 51,000 Trustee hydrocarbon sample collected and 18,000 samples analyzed and provides for retrieval of hydrocarbon analyses by principal investigators and managers. This project is designed to provide easy access to the Trustee hydrocarbon database and ensure the accuracy of the data and interpretive services to insure accuracy of any hydrocarbon data collected. The volume of data contained in the database suggests that other users will benefit from access, particularly as more data is added and long term monitoring projects come on line via the GEM management plan.

B. Introduction

The Auke Bay Laboratory provides data and sample archiving services for all samples collected for hydrocarbon analysis in support of *Exxon Valdez* Trustee Council projects. These data represent samples collected since the oil spill in 1989 to the present and include environmental and laboratory Response and Restoration data. Additionally, we provide interpretive services for the hydrocarbon analyses. Currently, the database contains results of the hydrocarbon analysis of more than 16,000 samples and collection information from more than 51,000 sediments, tissues and water samples. The primary purpose of this project is to maintain the integrity of the database, incorporate new data and continue hydrocarbon data interpretive services. This year we are proposing to continue the this task. The second purpose is to make the results of the hydrocarbon analyses (including pristane analysis) available to principal investigators, resources managers and to the public, including FOIA requests. This service is expected to have activity as long as hydrocarbon data are collected. The third purpose of this project is to maintain the integrity of archived samples in freezers many of which have not yet been analyzed for hydrocarbons.

The Trustee hydrocarbon database not only contains sample collection and hydrocarbon analyses information, but also has data concerning sample shipping and location information as well as lists of other database identifiers (such as species and location codes). A public version of this database containing the sample collection and environmental hydrocarbon sample analyses was released in 1996 (*Exxon Valdez* Oil Spill of 1989: State/Federal Trustee Council Hydrocarbon Database 1989-1995 -EVTHD). Updating the database and the public release is an on-going program..

The hydrocarbon interpretive service is designed specifically for investigators and managers. This includes: (1) identification of the probable sources of the hydrocarbons observed in the

samples, (2) evaluation of new hydrocarbon data for evidence of systematic bias, (3) hydrocarbon data editing according to consistent criteria. Recently interpretation has grown to include identification of potential hydrocarbon sources (e.g. coal) for the background hydrocarbon signal in PWS. This is a continuation of project 01290 and previously funded under TS#1, 93090, 94290, 95290, 96290, 97290, 98290, 99290, 00290, 01290, 02290 and 03290.

C. Relevance to GEM Program Goals and Scientific Priorities

Archiving of the Trustee hydrocarbon sample data ensures that these data are available to principal investigators, government agencies, and other interested public on a timely basis. The database allows direct comparison of restoration and NRDA data, and contains an inventory of hydrocarbon samples and information about their collection, storage and analysis. The continued use of the methods for hydrocarbon data evaluation and interpretation developed for the *Exxon Valdez* NRDA samples will insure direct comparability of future with previous samples. This will substantially increase the probability that temporal trends in these data will be detected when actually present. Principal investigators will be able to get assistance with chemical interpretation of hydrocarbon results from their project or other projects that relate to their project when needed. Since most investigators are not chemists, this type of assistance is usually required for proper interpretation of hydrocarbon results. Application of the petroleum weathering model developed under this project (Short and Heintz, 1997) has been used to compare coal samples and Katalla seep with Prince William Sound background samples, and has identified coal as the a biologically non-available source, in contrast to researchers sponsored by EXXON, who have identified the source as Katalla seep oil. The Trustee Council Data Policy requires that data produced by GEM be made available to other scientists and to the general public and this project continues to facilitate that goal.

II. PROJECT DESIGN

A. Objectives

1. Continue maintenance of the Trustee hydrocarbon database by updating the database with new information and continue the sample archiving procedures developed under NRDA and GEM.

2. Continue interpretation of hydrocarbon data, including new data produced for principal investigators and resources managers and for syntheses products as needed.
3. Provide public release of the data via CD-Rom and on the internet as well as Information for FOIA requests.

B. Procedural and Scientific Methods

Data associated with hydrocarbon samples are added to the existing Trustee hydrocarbon database. The samples and data currently reside at the Auke Bay Laboratory of NMFS. Incoming samples are inventoried and stored in laboratory freezers, and sample collection information is entered into the database. Samples are released for hydrocarbon analysis after ABL receives a written request from the responsible project leader. Hydrocarbon data, reported by the analytical laboratory, are matched to the sample collection information and all the data are checked for errors and electronic copies are sent to principal investigators or other requesters. An updated version of the public release of the database will be developed in Visual Basic software using *Exxon Valdez* Oil Spill of 1989: State/Federal Trustee Council Hydrocarbon Database 1989-1995 (EVTHD) as a template and will include data collected from Trustee funded projects including sampling and analytical quality control procedures. The product is updated annually. This is a continuation of project 01290 and previously funded under TS#1, 93090, 94290, 95290, 96290, 97290, 98290, 99290, 00290, 01290, 20209 and 03290.

The petroleum weathering model developed under this project has been used to reject the hypothesis that the hydrocarbons comprising the background PAH source are derived from the Katalla oil seep. Analysis of sediment and mussel samples collected from locations near the Katalla oil seep as well as coal deposits east of PWS supports the conclusion that PAH derived from coal characterize the background hydrocarbon signal (Short et al., 1999). We will continue to use this information and analyses when necessary to demonstrate the generality of the weathering model with other oil sources and the absence of a similar weathering process in coal.

The Auke Bay Laboratory will continue to keep all environmental samples collected for hydrocarbon analysis under all phases of the oil spill process frozen in locked storage.

C. Data Analysis and Statistical Methods

All data collected for hydrocarbon analysis from 1989 through the present are stored in PWSOIL (the original Trustee Hydrocarbon Database). All analyzed hydrocarbon data from Trustee

funded projects are presented in EVTHD (Exxon Valdez Trustee Hydrocarbon Database) public release which is updated annually.

D. Description of Study Area

This project will take place at the Auke Bay Laboratory in Juneau, Alaska.

E. Coordination and Collaboration with Other Efforts

This project complements any project that is funded by the Trustee council that collects hydrocarbon analyses data.

III. SCHEDULE

A. Project Milestones

For each project objective listed above (II.A.), specify when critical project tasks will be completed. Project reviewers will use this information in conjunction with annual project reports to assess whether projects are meeting their objectives and are suitable for continued funding. Please format your information like the following example.

Objective 3. : Annual report in the form of updated release of hydrocarbon data software.

Objective 1-2 :The primary objective of this project is to provide an ongoing service, consequently there are few set milestone dates or endpoints.

B. Measurable Project Tasks

Specify, by each quarter of each fiscal year, when critical project tasks (for example, sample collection, data analysis, manuscript submittal, etc.) will be completed. This information will be the basis for the quarterly project progress reports which are submitted to the Trustee Council Office. Please format your schedule like the following example.

FY 04, 1st quarter (October 1, 2003-December 31, 2003)

October: Project funding approved by Trustee Council

FY 04, 2nd quarter (January 1, 2004-March 31, 2004)

January 12-16 (tentative): Annual GEM Workshop

FY 04, 3rd quarter (April 1, 2004-June 30, 2004)

April 30: Data Entered as Necessary

FY 04, 4th quarter (July 1, 2004-September 30, 2004)

September 1: Data Summary for FY 04.

Each year funded follows a similar format as a response to amount of data generated.

IV. RESPONSIVENESS TO KEY TRUSTEE COUNCIL STRATEGIES

A. Community Involvement and Traditional Ecological Knowledge (TEK)

This service project does not involve TEK.

B. Resource Management Applications

The data in the hydrocarbon database will be readily available to all resource managers if requested.

V. PUBLICATIONS AND REPORTS

Annual release of updated CD-ROM of EVTHD and manual .

VI. PROFESSIONAL CONFERENCES

The EVOS Trustee meetings will be attended by the principal investigators

One meeting is required, an annual Quality Assurance Control meeting attended by ABL's Senior Analytical Chemist. The results of an international calibration exercise by participant is reviewed for the integrity and credibility of chemical analyses. This meeting usually occurs in the Washington D.C. area, and is sponsored by National Institute of Standards and Technology (NIST).

VII. LITERATURE CITED

Short, J. W., K.A. Kvenvolden, P.R. Carlson, F. D. Hostettler, R. J. Rosenbauer, & B. A. Wright, 1999. Natural Hydrocarbon Background in Benthic Sediments of Prince William Sound, Alaska: Oil vs. Coal. *Environ. Sci. Technol.* 33:34-42.

Short, J. W., and R. A. Heintz. 1997. Identification of *Exxon Valdez* oil in sediments and tissues from Prince William Sound and the Northwestern Gulf of Alaska based on a PAH weathering model. *Environ. Sci. Technol.* 31:2375-2384.

RESUMES

Bonita D. Nelson

Education:

BS 1979, University of Illinois, Urbana (Ecology, Ethology , Evolution)

MS 1986, University of Alaska-Juneau (Fisheries)

Other Experience:

Database manager of the Trustee hydrocarbon data for 8 years. Responsibilities include: supervision of data entry of sample and analytical data; processing and dissemination of data after interpretation by chemist; database management including data retrieval for production of the public versions of the database. Nelson has designed and managed databases as well as analyzed data for the radio telemetry and other projects at the Auke Bay Laboratory for 15 years.

Jeffrey W. Short

Education:

BS, 1972 University of California, Riverside (Biochemistry & Philosophy)

MS, 1982, University of California, Santa Cruz (Physical Chemistry)

PhD, pending University of Alaska- Fairbanks (Fisheries)

Other Experience:

1989 - Present: Established and managed the hydrocarbon analysis facility at ABL to analyze hydrocarbon samples generated by the *Exxon Valdez* NRDA effort (about 20% of these samples were analyzed at ABL).

1989 - 1992 : Principal Investigator, Exxon Valdez project Air/Water #3; Determination of petroleum hydrocarbons in seawater by direct chemical analysis and through the use of caged mussels deployed along the path of the oil spill.

1991 - 1992 : Principal Investigator, Exxon Valdez project Subtitle #8 ; Development of computer-based statistical methods for global examination of sediment and mussel hydrocarbon data produced for the Exxon Valdez NRDA effort for systematic bias, and for identification of probable sources of hydrocarbons. In addition, this project produced both hard-copy and computer display maps of all the sediment and mussel hydrocarbon data.

1994- 2001 Project leader for analysis of Trustee funded project :Pristane Monitoring in Mussels.

2001- Present: Project leader for Trustee funded project: Evaluation of Lingering Oil in the Intertidal.

DETAILED PROJECT BUDGET FORM - Attached

BUDGET JUSTIFICATION:

Fiscal Years: FY 04 – FY06

Project Number: 290 – The Exxon Valdez Trustee Hydrocarbon Database and Interpretation Service

Cost per year: 22.2K

Direct Costs: Compensation of employee time Bonita Nelson to manage the database, the chain of custody sheets, respond to inquires from other researchers and to respond and organize FOIA requests. Additional contract labor will verify data, duplicate information for FOIA requests and will organize a disposal of archival samples as deemed necessary. GEM workshop attendance as well as one trip to the NIST standards meeting for a research chemist are requested to insure quality control of hydrocarbon data.

DATA MANAGEMENT QA/QC STATEMENT INCLUDING MetaLite file

Data are managed according to protocol established by PWSOIL in 1989. MetaLife file is on CD-ROM which accompanies this. The file name is: EVTHD.mdb.

GEM PROPOSAL SIGNATURE FORM

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

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

PROJECT TITLE: _____

Printed Name of PI: _____

Signature of PI: _____ Date _____

Printed Name of co-PI: _____

Signature of co-PI: _____ Date _____

Printed Name of co-PI: _____

Signature of co-PI: _____ Date _____

**GEM CLASSIFICATION FORM:
Invited Proposals- Continuing Projects**

POSSIBLE PEER REVIEWERS FORM

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

Budget Category:	Proposed FY 04	Proposed FY 05	Proposed FY 06		TOTAL PROPOSED	
Personnel	\$10.5	\$10.5	\$10.5		\$31.5	
Travel	\$3.9	\$3.9	\$3.9		\$11.7	
Contractual	\$4.5	\$4.5	\$4.5		\$13.5	
Commodities	\$1.5	\$1.5	\$1.5		\$4.5	
Equipment	\$0.0	\$0.0	\$0.0		\$0.0	
Subtotal	\$20.4	\$20.4	\$20.4		\$61.2	
General Administration (9% of Subtotal)	\$1.8	\$1.8	\$1.8		\$5.5	
Project Total	\$22.2	\$22.2	\$22.2		\$66.7	

Cost-share Funds:

Bonita Nelson's labor for .5 month, Jeff Short's labor for .5 month and Jacek Maselko's labor for .5 month for a total of 13K.
This project is ongoing to support the maintenance of the samples collected for hydrocarbon analyses sorting and archiving of samples and interpretation of chemical data as well as public releases of the data and FOIA requests.

NOAA Contribution: Research Chemist, Jeff Short .5 mo. , Analytical Chemist, Marie Larsen .5 mo and Jacek Maselko .5 mo for a total contribution of 12K.

**FY 04-
06**

Project Number: 040290
Project Title: Hydrocarbon Database
Agency: NOAA - Auke Bay Laboratory

**FORM 3A
TRUSTEE
AGENCY
SUMMARY**

Date Prepared:

6/11/2003

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

Personnel Costs:		GS/Range/ Step	Months Budgeted	Monthly Costs	Overtime	Personnel Sum
Name	Description					
Bonita Nelson	Fisheries Res Biologist	GS-11	1.5	7.0		0.0 10.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
Subtotal			1.5	7.0	0.0	
Personnel Total						\$10.5
Travel Costs:		Ticket Price	Round Trips	Total Days	Daily Per Diem	Travel Sum
Description						
EVOS Workshop - Jan. 2004	JNU-ANC	0.5	1	4	0.3	0.0 1.7 0.0 0.0 0.0 0.0 0.0
NIST Standards Quality Control Meeting	JNU- DC	1.0	1	4	0.3	0.0 2.2 0.0 0.0 0.0 0.0
Travel Total						\$3.9

FY 04

Project Number: 040290
Project Title: Hydrocarbon Database
Agency: NOAA - Auke Bay Laboratory

FORM 3B
Personnel
& Travel
DETAIL

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

Contractual Costs:		Contract
Description		Sum
Temporary labor (NOAA) - Data Verification and duplication		3.0
Disposal of Samples		1.5
If a component of the project will be performed under contract, the 4A and 4B forms are required.		
Contractual Total		\$4.5
Commodities Costs:		Commodity
Description		Sum
Software upgrades		1.5
Commodities Total		\$1.5

FY 04

Project Number: 040290
Project Title: Hydrocarbon Database
Agency: NOAA - Auke Bay Laboratory

FORM 3B
Contractual
&
Commoditie

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

Contractual Costs:		Contract
Description		Sum
Temporary labor (NOAA) - Data Verification and duplication		3.0
Disposal of Samples		1.5
If a component of the project will be performed under contract, the 4A and 4B forms are required.		
Contractual Total		\$4.5
Commodities Costs:		Commodity
Description		Sum
Software upgrades		1.5
Commodities Total		\$1.5

FY 05

Project Number: 05290
Project Title: Hydrocarbon Database
Agency: NOAA-Auke Bay Laboratory

FORM 3B
Contractual
&
Commoditie

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

Personnel Costs:		GS/Range/ Step	Months Budgeted	Monthly Costs	Overtime	Personnel Sum
Name	Description					
Bonita Nelson	Fisheries Res Biologist	GS-11	1.5	7.0		0.0 10.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
Subtotal			1.5	7.0	0.0	
Personnel Total						\$10.5
Travel Costs:		Ticket Price	Round Trips	Total Days	Daily Per Diem	Travel Sum
Description						
EVOS Workshop - Jan. 2005	JNU-ANC	0.5	1	4	0.3	0.0 1.7 0.0 0.0 0.0 0.0 0.0
NIST Standards Quality Control Meeting	JNU- DC	1.0	1	4	0.3	0.0 2.2 0.0 0.0 0.0 0.0
Travel Total						\$3.9

FY 06

Project Number: 06290
Project Title: Hydrocarbon Database
Agency: NOAA-Auke Bay Laboratory

FORM 3B
Personnel
& Travel
DETAIL

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

Contractual Costs:		Contract
Description		Sum
Temporary labor (NOAA) - Data Verification and duplication		3.0
Disposal of Samples		1.5
Contractual Total		\$4.5
Commodities Costs:		Commodity
Description		Sum
Software upgrades		1.5
Commodities Total		\$1.5

FY 06

Project Number: 06290
Project Title: Hydrocarbon Database
Agency: NOAA-Auke Bay Laboratory

FORM 3B
Contractual
&
Commoditie

