Official 11.16.07

Exxon Valdez Oil Spill Trustee Council

Teleconference September 21, 2005 Agenda

Exxon Valdez Oil Spill Trustee Council

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

AGENDA EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL Teleconference September 21, 2005 10:00 a.m. Anchorage, Alaska

DRAFT 9/20/05 2:35 PM

Trustee Council Members:

SCOTT NORDSTRAND Deputy Attorney General State of Alaska

KURT FREDRIKSSON Commissioner Alaska Department of Environmental Conservation

MCKIE CAMPBELL Commissioner Alaska Department of Fish and Game JAMES BALSIGER Administrator, Alaska Region National Marine Fisheries Service

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

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

Teleconference meeting in Anchorage, Trustee Council Office, 441 West 5th Avenue, Suite 500 State Chair

- 1. Call to Order 10:00 a.m.
- 2. Public comment 10:15 a.m.
- 3. Public Advisory Committee dialogue 10:30 a.m.
- 4. Cooperative effort between Arctic Yukon Kuskokwim Sustainable Salmon Initiative (AYK SSI) and EVOS* Rob Bochenek
- 5. Integral's revised proposal* Richard Dworsky
- 6. FY 2006 Admin DPD & Budget*

Executive Session if necessary.



DRAFT

Adjourn * Indicates action items

FY 06 Admin DPD/Budget

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EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL: ADMINISTRATION PROJECT PLAN 060100

A. Need for the Project

1. Introduction

I.

The project provides for the activities necessary to efficiently implement TC programs. These programs, as directed by the Trustee Council (TC) and guided by the Restoration Plan, require meaningful public involvement and robust information and science management.

The six-member Trustee Council, established under the terms of a court-approved eivil settlement in 1991, is comprised of the Commissioner of the Alaska Department of Environmental Conservation; the Commissioner of the Alaska Department of Fish and Game; the Attorney General of the State of Alaska; the Secretary of the U.S. Department of the Interior; the Secretary of the U.S. Department of Agriculture; and the Administrator of the National Oceanic and Atmospheric Administration, U.S. Department of Commerce.

Components of the 060100 EVOSTC Administration project include:

EVOSTC Office and Administration – The EVOSTC office component (060100) includes funding for the Executive Director, science management, data management, administrative staff and project management. The EVOSTC office provides for program planning and implementation, interagency coordination, investment fund management, public outreach and management of EVOSTC data and information.

Data Management –Evidence of EVOSTC activities becomes accessible and useful via effective data management. EVOSTC operations that depend on data management are peer review of proposals, organization of project information and work products and development and maintenance of office systems.

Project Management - Project management provides administrative support for projects at the level of the funding agency beyond that provided by GA (general administrative) fees. Examples include serving as the point of first contact for Principal Investigators with questions regarding fiscal information, process, policy and procedural issues, project timelines and budget variances. Project management:

• oversees scope of work, schedule and proposal implementation,

- tracks the progress of each project and prepares quarterly project progress and financial reports for EVOSTC staff,
- receives invoices and compares them to budget categories, referring discrepancies to the attention of EVOSTC staff and
- receives and tracks inventories of project equipment.

Program Support - Program support constitutes other Liaison activities that contribute to the information exchange between staff and Trustees, publication content, and general programmatic direction of the EVOS Trustee Council and its science and restoration programs. Program support:

- assists EVOSTC staff with the Small Parcel Habitat program, Science program, Invitation process, proposal review and final work plan review,
- assists with editing of EVOSTC publications and
- facilitates communication between the TC and EVOSTC staff.

Science Management - This section of Project 060100 provides direction and management for all aspects of the EVOSTC science program including management of 29 prior year projects (19 ongoing projects from FY 2004 and 10 from FY 2005), updating the status of injured species report, development and management of the FY 2007 Invitation and implementation of the FY06 Work Plan.

In addition, the Trustee Council has determined that during the next year the Council will focus on:

1. updating the status of resources and services injured by the spill (identified in the 1994 Restoration Plan),

2. addressing questions regarding status of lingering oil and potential restorative actions, and

3. developing a catalog of the results of the habitat protection program.

EVOSTC staff will play an important role in coordinating, contracting, and documenting decisions related to these efforts and that, because of their complex nature, will involve credible scientists in a variety of disciplines, contractors, and a variety of agency staff and representatives. This effort will require considerable staff resources during the FY06 fiscal year.

2. Relevance to 1994 Restoration Plan Goals

This project administers the Exxon Valdez Oil Spill TC (EVOSTC) Restoration Program to ensure that the EVOSTC Restoration Plan goals are achieved. The project also provides for meaningful public involvement in EVOSTC programs.

3. Management Objectives

The objective of Project 060100 is to implement a comprehensive restoration program consistent with the 1994 Restoration Plan and TC actions. Using existing TC agency structures to minimize administrative costs, this project provides essential support to implement the Restoration Program as directed by the TC.. Specific objectives for the four components of Project 060100 appear below:

EVOSTC office and Administration

Objective 1. Implement the authorized FY06 Work Plan.

Objective 2. Compile and disseminate information about TC programs, including: (1) publishing the Annual Status Report, (2) updating the EVOSTC website and (3) developing additional informational materials as needed. Facilitate the Habitat Protection Program.

Objective 3.

Objective 4.

Conduct regular meetings of the Public Advisory Committee (PAC) as a means of obtaining public input into the TC process.

Objective 5. Conduct public outreach on behalf of the TC.

Develop the FY07 Work Plan, including publication of the Invitation to Objective 6. Submit Proposals, preparation of a Draft Work Plan for public comment, review by the PAC and the Scientific and Technical Advisory Committee (STAC) and development of final recommendations.

Objective 7. Objective 8. Objective 9.

Oversee all projects funded by the TC, including production of final reports. Provide oversight for and implementation of the FY04 and FY05 audit. Manage Project 060550 (ARLIS) and Project 060630-A (NOS-Science Management grant).

Data Manage	ement	
Objective 1.	Design and manage a data and information system consistent with the provisions of the 1994 Restoration Plan and GEM Program Document that provides data, information products (maps, tables, summary reports) as well as documentation for scientific researchers, resource managers, policy makers and the public.	
Objective 2.	Determine how best to incorporate existing and future data sets identified by the Science Director and other scientists into the data and information system.	
Objective 3.	Develop data management plans and work with Principal Investigators for all data gathering projects funded by the GEM program.	
Objective 4. Objective 5.	Provide for computer and network needs of office staff, including website. Function as External Liaison: Work with and serve on regional and national coordinating committees for AOOS, Ocean.US (IOOS) and others; serve as liaison to federal/state agencies, other research entities, principal investigators, other technical support personnel, stakeholders and the general public.	
Objective 6.	Assist EVOSTC staff in the utilization of technology to more efficiently perform their duties and to expedite the creation of the various products and assist in the administration of the events associated with the annual EVOSTC business cycle.	
Objective 7.	Participate in workshops with other organizations collecting marine data to coordinate in the consistent management of analogous information and data.	
Project Mana	lgement	
Objective 1.	Administer contracts that implement approved projects, including reviewing and approving invoices.	
Objective 2.	Address issues regarding NEPA compliance.	
Objective 3.	Submit quarterly reports from each project to the EVOSTC staff with Program Manager's comments that highlight for EVOSTC staff	
·	circumstances where: 1) where contract deliverables are not being produced or are behind schedule: 2) deviations from the TC's policies and procedures	

and/or state and federal procedures exist; or 3) deviations from authorized budget allocations exist.

Objective 4. Facilitate the printing/distribution of project reports to ARLIS. Objective 5. Report to the EVOSTC staff the inventory of equipment (with an original per unit cost of at least \$5,000) purchased with Joint Trust Funds.

Program Support/Liaisons

Objective 1.	Participate in and provide support to the EVOSTC staff relative to efforts associated with the Injured Resources and Services Update and Lingering Oil as needed.
Objective 2.	Assist with the Small Parcel program and development of a habitat acquisition catalog, as needed.
Objective 3.	Assist with the development of policies and other products created by EVOSTC staff, as needed.
Science Mana	gement
Objective 1.	Facilitate work on the fate and effects of lingering oil in the spill area (as
	identified in the Interim Guidance Document adopted by the Trustee Council on 8/10/05).
Objective 2.	Coordinate creation of a catalog of EVOSTC-funded habitat acquisitions.
Objective 3.	Develop the FY 2007 Invitation.
Objective 4.	Develop the FY 2006-07 Work Plan.
Objective 5.	Manage ongoing projects and peer review of proposals and work products for proposals received in response to the FY07 Invitation. This process includes compiling comments from the STAC, PAC, staff and Executive Director.
Objective 6.	Enhance and maintain the peer reviewer database.
Objective 7.	Hold a series of workshops to assess the status of affected and injured species.
Objective 8.	Work with the Steering Group on Injured Resources to update the Restoration Status Report.
Objective 9.	Work with EVOSTC staff to facilitate the 2006 Annual Marine Science Symposium, described in "Coordination and Collaboration with other Efforts" below.

Details about these objectives can be found in Appendix 1: EVOSTC staff Task Matrix.

II. METHODS

The Restoration Program is implemented by EVOSTC staff under the general direction of the Executive Director. The staff consists of ten full-time staff, including a Science Director, Science Coordinator, Research Analyst, Data Manager, Analyst/Programmer, Administrative Officer, Administrative Assistant, Administrative Manager, Librarian (ARLIS) and one temporary position, a student intern. The organizational structure appears below. (*Résumés attached*)

Comment: We don't actually have all of these staff—should we say that we do?



A. Data Management Methods

The EVOSTC data management system organizes archives and disseminates EVOSTC-related data and information. It serves those collecting and producing data by summarizing (using metadata), archiving and allowing access to that information. The system will also provide portals for users to aggregate data for advanced visualization and analysis. System components include application architecture, an intranet/extranet, metadata production and a data processing model.

1. Application Architecture

- a) Centralized Web Service Model Centralization allows to standardization of metadata and protocols. We envision that all EVOSTC project information will eventually be compiled in a centralized data store. Resources will include data products, data sets, reports and other project-related documents. Contributors to the system will use a customizable web-accessible interface for submitting and managing their data, information and metadata. This interface will allow users to access, visualize, query, synthesize and download data and project-related documents
- b) Metadata Metadata requirements will be established consistent with Federal Geographic Data Committee (FGDC) specifications to facilitate discovery. Additional metadata will document datasets in terms of the ways in which they can be correctly interpreted, synthesized and aggregated with other datasets. Requiring specific metadata and storing the dataset locally ensures that the information will not be lost or fall into obscurity.
- c) Security Every piece of information will be associated with access rights, e.g., read/write/delete privileges that can be associated with groups. Contributors can provide access to specific users via combinations of privileges.

2. Intranet/Extranet

The intranet and extranet allow EVOSTC information to be shared, monitored and utilized by relevant parties. The intranet assists staff in monitoring and tracking EVOSTC project deliverables and budgetary information. The extranet allows outside authorized parties access to this information.

The intranet has three tiers. Tier I is a relational database that records project and peer review information. Tier II includes server-side analysis services for comparing the proposal database with the peer review database to produce possible matching lists between the two. Tier III comprises report generation services and web visualizations to produce on-the-fly statistics, summations and documents detailing the status of various administrative processes.

The extranet is a series of applications that allow outside peer reviewers to submit reviews online It also allows authorized parties to access documents and budgetary information.

3. Metadata

The EVOSTC metadata documentation effort is driven by needs for data discovery, synthesis and trend analysis. Proper documentation of data allows users to choose multiple pathways for locating potential data resources that satisfy their queries. Data synthesis and trend analysis capabilities are essential for allowing users to combine data sets, format them to a common structure and aggregated. This "data amalgamation" provides a "higher level" data set for synthesis of information and advanced analyses of physical and biological changes on larger spatial and temporal scales. To expedite this amalgamation, metadata describing datasets must exist in order for computers to parse, reformat and aggregate the data.

EML has been chosen as a structure for the storage and transfer of metadata. EML provides distinct markup language entity/attribute tags for metadata deemed pertinent to the GEM Data Management metadata documentation effort. EML is an extension of XML and can be parsed and manipulated with the various utilities and programming packages used with XML. EML, which provides a distinct recording mechanism for these fields, will suffice as a metadata container that isolates all the descriptors for this automated formatting/aggregation process. The EML specification can be downloaded at http://knb.ecoinformatics.org/software/eml/.

Metadata will initially be stored in EML until sufficient EML documents are produced to model a metadata storage system using entity relational (Relational Database) methods. Metadata will be stored in a database and transferred via the EML format.

4. Data Processing Model

Three stages are planned for data set acquisition and processing to produce useful manifestations of the data. The data processing model concerns itself only with the data and its corresponding metadata contained in the system. Other digital information (reports, maps, etc.), although useful for contextual information, will not play a part in this model.

Stage I - Data and Metadata Harvest

Correctly documenting data harvested from researchers and agencies with descriptive metadata will ensure that the data can be found and understood.

Stage II - Autonomous Reformatting of Data and Aggregation

Metadata will be analyzed for measurements contained in spatial and temporal data that have *semantic equivalence* (measurements of the same type that may not be in the same units or data type). Semantically equivalent data will be Extracted, Homogenized and Loaded into a relational database (ETL).

Stage III - Creation of OLAP analysis structures

Once information has been homogenized, Online Analytical Processing (OLAP) will expedite statistical analysis and data mining. OLAP structures will be stored in a relational database.

B. Project Management/Program Support Methods (Liaison Activities)

1. Project Management

As specific project managers, state and federal liaisons assist with project coordination and workshops and facilitate communication between Principal Investigators and EVOSTC staff. Responsibilities include:

- Contract administration Receive and review invoices, and notify Principal. Investigator and EVOSTC staff of discrepancies.
- **NEPA compliance** Work with NEPA and the EVOSTC staff to address issues regarding NEPA compliance of funded projects.
- Quarterly reporting Compile quarterly project progress and financial reports from each project, compare quarterly reports with contract objectives, schedule and budget and note discrepancies. Forward quarterly reports to EVOSTC staff with comments that highlight:
 - circumstances where contract deliverables are not being produced, or are behind schedule,
 - ✓ deviations from the TC's policies and procedures and/or state and federal procedures and
 - ✓ deviations from authorized budget allocations.
- Receive equipment inventories (with an original per unit cost of at least \$5,000) purchased with Joint Trust Funds from Principal Investigators, compare to the budget, note discrepancies. Transmit inventory reports and discrepancies to EVOSTC staff.

2. Program Support

Liaisons facilitate information transfer between EVOSTC staff and the Trustees. Liaisons represent their respective agencies in the framing of EVOSTC policies and procedures in addition to assisting with the overall direction of the EVOSTC restoration and science programs. Liaisons need to contribute significant amounts of work and input to ensure that cyclical products such as the Annual Invitation, annual Work Plan, and Science Plan reflect the policies advocated by the various Trustees and their corresponding agencies. Liaison duties include:

- assisting EVOSTC staff as needed,
- providing input as needed on the annual Invitation, Work Plan and proposal review process,
- Support EVOSTC staff as needed in efforts associated with the Injured Resources and Services Update and Lingering Oil and
- Support the TC and EVOSTC staff as needed in the development of policies and other products.

C. Science Management Methods

The Trustee Council, through the adoption of the Interim Guidance Document (IGD), has expressed its desire to focus on three priorities during the coming year. The following methods section describes the steps required to implement this direction. The IGD is available at www.evostc.state.ak.us/pdf/admin/08.05%20EVOSTC_IGD.pdf.

1. Fate and Effect of Lingering Oil

- Based upon currently funded lingering-oil projects, review the relationship between oil persisting in the environment and the resources and services injured by the spill.
 - The Subcommittee on Lingering Oil (chaired by D. Robert Spies) will review the body of recent work and explore remediation options based on current work¹. This may provide the basis for pursuing additional remediation or restoration upon anticipated project completion in spring 2006.
 - Two one-day workshops (one workshop held during the Annual Symposium)will bring together experts from TC agencies and elsewhere to consider and validate criteria regarding the fate and effect of lingering oil and identify potential, cost effective remedial actions if possible..
 - The work on lingering oil and its possible remediation will be reviewed by the Steering Group on Injured Resources and Services and taken into account in the development of recommendations to the Council regarding the update of the injured resources and services list. Specifically, the 2004 Assessment of Lingering Oil and resource injuries project, expected to be complete by the fall of 2005, are to be considered with the results of the new broader injured species synthesis effort solicited under the 2006 Invitation. Findings of the Lingering Oil Synthesis project will be incorporated into injured resources and services status recommendations as appropriate.
 - The science coordinator will coordinate and facilitate the review by the Steering Group on Injured Resources and Services.
 - ✓ The EVOSTC staff will prepare the initial draft reports for review
- Final draft reports will be developed by the EVOSTC staff and agency representatives and forwarded to the Executive Director for distribution and review by the public, PAC and others..

2. Injured Resources and Services Update

- Lingering-oil synthesis reports will be put on an expedited peer review schedule finalized as soon as possible. Synthesis findings will be reviewed in the context of the Injured Resources and Services list and considered in recommendations to the Council for update of the list.
- Review will be held after receipt of the contractor reports (Integral is preparing 2 reports)
- A Steering Group (comprised of the Trustee Council Executive Director and Trustee representatives) on Injured Resources and Services will assist the EVOSTC Science Staff with the process of the 2006 update to the injured resources and services list.

¹ Michel J. In progress. Identify and evaluate oil remediation technologies. Project 050778.

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- A series of Science Management workshops will bring together other experts from TC agencies and elsewhere (not included in the contractor experts) for the purposes of considering and validating criteria as part of an assessment of the resources and services not recovered from the spill. Results of these workshops will be considered by the Steering Group on Injured Resources and Services.
- Trustee representatives will identify specific validating criteria to be used in the assessment

To accomplish its work, the Steering Group will confer with the Subcommittee on Lingering Oil and involve additional agency staff, other experts, and EVOS principal investigators as appropriate to access additional specific expertise and to garner diverse perspectives as needed to meet specific objectives. Ad-hoc working groups may be established by the Steering Group as necessary to facilitate the Committee's work.

The Steering Group should address:

- Reviewing the policy implications of current goals, objectives, strategies and endpoints for restoration.
- Reviewing synthesis information from the various sources.
- Providing recommendations to meet additional informational needs pertaining to injured resources.
- Compiling the information pertaining to the cost benefit of additional restoration based on expenditures to date and proposed expenditures needed to restore injured resources or services.
- Formulating and forwarding recommendations for amending recovery goals, objectives and restoration strategies.
- Formulating and forwarding recommendations for updating the Injured Resources and Services list.
- Draft recommendations will be forwarded to the Executive Director for distribution.

3. Habitat Protection and Acquisition

A catalog of habitat acquisitions will be created that will identify purchases, categories of purchases, acreage, costs, species and services associated with each parcel and other information pertinent to the acquisition decision. The catalog will reflect the current status of the small- and large-parcel acquisition programs and provide a tool useful for determining future program direction. It is expected that this will be a contracted review and report.

D. Methods for Coordination and Collaboration

At the direction of the TC, the Executive Director implements Project 060100 to coordinate and integrate TC programs. As part of the adaptive management process, EVOSTC sponsors a yearly symposium that assembles scientists, resource agency representatives and the public to review the status of post-spill restoration. In addition, all project proposals are peer reviewed with regard to their coordination and integration aspects.

The Executive Director also works with agency liaisons to implement TC programs and coordinate with other research programs such as the North Pacific Research Board, the Alaska Ocean Observing System, the Prince William Sound and Cook Inlet Regional Citizens' Advisory Councils, the Prince William Sound Science Center and the Prince William Sound Oil Spill Recovery Institute.

Multiple agencies work to implement Project 060100. The Alaska Department of Fish and Game is the administering agency for the operation functions, although the Department of Interior and the U.S. Geological Survey fund the lease costs for EVOSTC's Anchorage office. The U.S.

Department of the Interior receives funding for support for the Federal Budget Officer as well as funding for participation of the federal officer associated with the public advisory committee.

III. SCHEDULE

A. Project Milestones

TC action on final FY06 Work Plan	August
Publish FY06 Work Plan	August-September
Update and redesign EVOSTC website	September-July
2006 Annual Marine Science Symposium	January
Complete FY04 and FY05 Audit	January
Publish FY07 Invitation	February
Receive FY07 Project Proposals	April
Results of Subcommittee on Lingering Oil	April
Scientific/Technical/Policy/Legal Review of Proposals	May-June
Results of committee work on Injured Resources and Services	June
Completion of habitat acquisition catalog	June
Publish FY07 Draft Work Plan	July
TC action on FY07 Work Plan	August-October
Publish FY07 Final Work Plan	September-October
Executive Director authorizations to proceed	September-October

Additional milestones can be found in Appendix 1: EVOSTC staff Task Matrix.

1. Project Management/Liaisons Milestones

October 15-31	Meet with auditors regarding final prior year end closeout
October 31	Submit prior year fourth quarter expenditures
December 31	Submit updated inventory of equipment purchased with Joint Trust
	Funds
January 31	Submit 1 st quarter expenditure and project status information
April 30	Submit 2 nd quarter expenditure and project status information
July 31	Submit 3 rd quarter expenditure and project status information

B. Measurable Project Tasks

Measurable project tasks include:

- Implementing the FY06 Work Plan
- Developing the FY07 Invitation and Work Plan
- Meeting with the TC, STAC and PAC
- Producing quarterly financial reports and quarterly project status reports
- Producing monthly Investment Fund reports
- Creating a habitat acquisition catalog
- Completing the FY04 and FY05 audits
- Publishing the "Annual Restoration Program Status Report"
- Developing a data management structure for projects producing scientific data. EVOSTC staff will participate in a series of workshops focused on improving Peer Review documentation project and information management

- Hosting workshops to develop criteria for designating species, resources and services as "recovered", "not recovered", "recovering" and "recovery unknown" in order to reach consensus on the status of injured resources and services
- Synthesizing results from the meeting of the Subcommittee on Lingering Oil

Additional measurable project tasks can be found in greater detail in Appendix 1: EVOSTC staff Task Matrix.

IV. RESPONSIVENESS TO KEY TRUSTEE COUNCIL STRATEGIES

A. Community Involvement and Traditional Ecological Knowledge (TEK)

Project 060100 supports various aspects of community involvement. This includes public information efforts to assist the public and spill community residents in learning about and effectively participating in the restoration program.

B. Resource Management

Project 060100 supports public outreach and administrative functions required to implement EVOSTC programs. The EVOSTC office and the functions included in the Project 060100 budget are budgeted for the sole purpose of supporting EVOSTC program activities.

C. Interim Guidance Document

Funding in Project 060100 supports the implementation of the Interim Guidance Document adopted by the Council on August 10, 2005.

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RESOLUTION 06-03 OF THE *EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL REGARDING THE FY 06 WORK PLAN PROJECT 060100 - INTERIM EVOS ADMINISTRATIVE BUDGET PROJECT 060783 - JACOBS

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 <u>United States of America v.</u> <u>State of Alaska</u>, No. A91-081 Civil, U.S. District Court for the District of Alaska, and after public meetings, unanimous agreement has been reached to expend funds received in settlement of <u>State of Alaska v. Exxon Corporation, et al.</u>, No. A91-083 CIV, and <u>United</u> <u>States of America v. Exxon Corporation, et al.</u>, No. A91-083 CIV, and <u>United</u> <u>States of America v. Exxon Corporation, et al.</u>, No. A91-082 CIV, U.S. District Court for the District of Alaska, for necessary natural resource damage assessment and restoration activities for fiscal year 2006, including administrative expenses for October and November 2005 only, as described in Attachment A and B. The Fiscal Year 2006 Work Plan is funded at \$788,778.62. The monies are to be distributed according to the following schedule:

Alaska Department of Fish & Game Alaska Department of Natural Resource	\$206,862.19 \$ 17,257.97
SUBTOTAL TO STATE OF ALASKA	\$224,120.16
U.S. Department of the Interior National Oceanic & Atmospheric Administration	\$ 52,756.00 \$511,902.46
SUBTOTAL TO UNITED STATES OF AMERICA	\$564,658.46
TOTAL APPROVED	\$788,778.62

Funds must be spent in accordance with Attachments A, 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 2006 Work Plan, the amount of \$788,778.62 from the appropriate account designated by the Executive Director.

Approved by the Council at its meeting of September 21, 2005 held in Anchorage, Alaska as affirmed by our signatures affixed below.

3

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

McKIE CAMPBELL Commissioner Alaska Department of Fish and Game KURT FREDRIKSSON Commissioner Alaska Department of Environmental Conservation

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Court Notice #14			
Resolution 0603			
September 21, 2005 Trustee Council	Approvals		
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Project			Allocation FY	Allocation	T	Date
Number	Project	Allocation FY 2005	2006	FY 2007	agency	Approved
60100	EVOS -Administrative		\$ 17,257.97		ADNR	21-Sep-05
10 V	Total to ADNR for the FY 2006 Work Plan		\$ 17,257.97	\$ -	ADNR	
60100	EVOS -Administrative		\$ 180,048.19		ADFG	9/21/2005
60783	Jacobs - Information Synthesis Recovery		\$ 26,814.00		ADFG	
•	Total to ADFG for the FY 2006 Work Plan		\$ 206,862.19	\$ -	ADFG	
60100	EVOS -Administrative		\$ 26,160.00		DOI/USGS	21-Sep-05
60783	Jacobs - Information Synthesis Recovery	\$ -	\$ 15,783.20		DOI/USGS	21-Sep-05
9	Sub Total DOI (USGS)	\$ -	\$ 41,943.20	\$-	DOI/USGS	
60783	Jacobs - Information Synthesis Recovery		\$ 10,812.80		DOI/USFWS	21-Sep-05
	Sub Total DOI (USFWS)	\$ -	\$ 10,812.80	\$ -	DOI /USFWS	
	Total to DOI for the FY 2006 Work Plan	\$ -	\$ 52,756.00	\$ -	DOI /USFWS	
60100	Jacobs - Information Synthesis Recovery	<u>n na shekara na shekar</u>	\$ 511.902.46	<u></u>	ΝΟΑΑ	21-Sen-05
	Total to NOAA for the FY 2006 Work Plan	\$ -	\$ 511,902.46	\$ ~	NOAA	
RES 0603	Total Work Plan as of September 21, 2005	\$ -	\$ 788,778.62	\$ -	- 	
÷.	TOTAL COURT NOTICE #14	FY 2005	FY 2006	FY 2007	1	
			· · ·			

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Attachment B

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9/20/2005 4:17 PM

Interim EVOS Administrative Budget FY 2006–October 1, 2005 through November 30, 2005

PERSONNEL: INTERNAL:

EXTERNAL:

\$ 147,698.83

\$147,698.83 \$0

TRAVEL:

Administrative Science Management Data Management Community Involvement Trustee Council Member PAC STAC

CONTRACTUAL:

Administrative\$41,483Science Management\$15,833

\$0

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\$ 57,316.00

GENERAL ADMINISTRATION:

\$ 18,451.33

TOTAL REQUESTED:

\$ 223,466.16

SUMMARY OF EXPENSES

PERSONNEL:

INTERNAL -EVOS PERSONNEL COSTS (2 MONTHS):

\$147,698.83

JOB Title	Merit Ann. Date	R & S Prior to MAD Date	Range	Step	Mo	onthly Salary	Mon Emp Cos	thly bloyer t/Benefits	2 N	Ionths Salary
Executive Director	8/16/05	28L	28	М	\$	9,702.00	\$	3,961.67	\$	27,327.33
Administrative Officer	8/1/05	18D	18	E	\$	4,518.00	\$	2,344.08	\$	13,724.17
Administrative Assistant	6/1/06		16	E	\$	3,956.00	\$	2,154.67	\$	12,221.33
Science Coordinator	8/16/05	22L	22	М	\$	7,087.00	\$	3,209.83	\$	20,593.67
Analyst/Programmer III	10/16/05		. 18	В	\$	4,095.00	\$	2,201.50	\$	12,593.00
Research Analyst	6/1/06		18	А	\$	3,956.00	\$	2,154.67	\$	12,221.33
Data Systems Manager	8/1/05	22D	22	E	\$	5,904.00	\$	2,811.17	\$	17,430.33
Librarian III	8/1/05	20L	20	М	\$	6,203.00	\$	2,911.92	\$	18,229.83
Administrative Manager	6/1/06		18	D	\$	4,381.00	\$	2,297.92	\$	13,357.83
				Total	\$	49,802.00	\$	24,047.42	\$	147,698.83

(Science Director Position is anticipated to begin December 1, 2005 –Positions costs detailed below)

		R&S		· · · · · · · · · · · · · · · · · · ·	
	Merit Ann.	Prior to	Monthly	Monthly Employer	
JOB Title	Date	MAD Date	Salary	Cost/Benefits	2 Months Salary
Science Director*	12/1/06	26C	\$ 7,003.00	\$ 3,181.50	\$ 20,369.00

TRAVEL: \$0

No travel expenses anticipated for the months of October and November.

9/20/2005 4:17 PM

Attachment B

CONTRACTUAL: \$ 57,316.00

Administrative:

\$ 41,483.00

Office Space Lease 2 months @ \$12,000 =	\$2	24,000
(\$144,000.00 annually)		
Parking (12 months)	\$	4,300
(EVOS receives a 10% discount on parking if paid a year in advan	сe,)
Utilities (Phone, long distance, cable, phone charge)	\$	4.400
Postage (2 months)	\$	500
Courier Service (2 months)	.\$	200
Equipment Maintenance (2 months)	.\$	1,300
Transcription (2 months)	.\$	1,000
Computer Service lan/wan ETS/EPR (2 months)	.\$	2,700
TC meeting food (2 months)	\$	250
Office Supplies (2 months	\$	2,833

Science Management:

\$ 15,833

Applied Marine Science (2 months).....\$ 15,833 (Estimate is base on the FY 05 figure of \$95.0K)

GENERAL ADMINISTRTION: \$18,451.33

ADFG:

Personnel	\$147,698.83
Contractual	\$ 17,483.00
GA	\$ 14,866.36
TOTAL	\$180,048.19

DOI/USGS (office Lease)

Contractual		\$ 24,000.00
GA	.: 	\$ 2,160.00
TOTAL	•	\$26,160.00

ADNR (AMS Contract)

\$15,833.00
\$ 1,424.97
\$17,257.97

Changes to the

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resolution 0603

attachments A & B

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	DR	A		The second second
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Project	Broject	Allocation EY 2005		Allo 200	cation FY	Allocation	agency	Date
60100	EVOS -Administrative			\$	17.257.97		ADNR	21-Sep-05
2	Total to ADNR for the FY 2006 Work Plan			\$	17,257.97	\$ -	ADNR	
60100 60783	EVOS -Administrative Jacobs - Information Synthesis Recovery	na je na produkana u postani p	000000-1. 00197	\$ \$	180,048.19 26,814.00	. wyże szeregy w 1972 w 2012 w 2017 w 201	ADFG ADFG	9/21/2005
	Total to ADFG for the FY 2006 Work Plan			\$	206,862.19	\$ -	ADFG	
60100 60783	EVOS -Administrative Jacobs - Information Synthesis Recovery	\$	-	\$ \$	26,160.00 15, 7 83.20		DOI/USGS DOI/USGS	21-Sep-05 21-Sep-05
	Sub Total DOI (USGS)	\$	-	\$	41,943.20	\$ -	DOI/USGS	法法律法
60783	Jacobs - Information Synthesis Recovery	· · · · · · · · · · · · · · · · · · ·	-	\$	10,812.80		DOI/USFWS	21-Sep-05
	Sub Total DOI (USFWS)	\$	-	\$	10,812.80	\$ -	DOI /USFWS	
	Total to DOI for the FY 2006 Work Plan	\$	-	\$	52,756.00	\$ -	DOI /USFWS	
6078	acobs - Information Synthesis Recovery	na, ⁿ e prez Landelejn - 4 u filos (niko - dependinante) ⁿ iko - de Lang de Lane e constante inser-	and the second second	\$	511,902.46	. Nev die zur stade geschlunge en stadig 🔒 Gewee	NOAA	21-Sep-05
,	Total to NOAA for the FY 2006 Work Plan	\$	• •	\$	511,902.46	\$ -	NOAA	
RES 0603	Total Work Plan as of September 21, 2005	\$	-	\$	788,778.62	\$ -		

Court Notice #14 Resolution 0603 September 21, 2005 Trustee Council Approvals

Changed from 060100 to 060783

DRAFT

Attachment B

9/21/2005 1:00 PM

Interim EVOS Administrative Budget FY 2006–October 1, 2005 through November 30, 2005

PERSONNEL:		\$ 147,698.83
INTERNAL:	\$147,698.83	
EXTERNAL:	\$0	
•		

TRAVEL:

Administrative Science Management Data Management Community Involvement Trustee Council Member PAC STAC

CONTRACTUAL:

Administrative	\$41,483
Science Management	\$15,833

\$ 57,316.00

\$0

GENERAL ADMINISTRATION:

\$ 18,451.33

TOTAL REQUESTED:

\$ 223,466.16

SUMMARY OF EXPENSES

PERSONNEL: INTERNAL -

EVOS PERSONNEL COSTS (2 MONTHS):

\$147,698.83

JOB Title	Merit Ann. Date	R & S Prior to MAD Date	Range	Step	Mc	onthly Salary	Mon Emp Cos	thly bloyer t/Benefits	2 N	Ionths Salary
Executive Director	8/16/05	28L	28	M	\$	9,702.00	\$	3,961.67	\$	27,327.33
Administrative Officer	8/1/05	18D	18	E	\$	4,518.00	\$	2,344.08	\$	13,724.17
Administrative Assistant	6/1/06		16	E	\$	3,956.00	\$	2,154.67	\$	12,221.33
Science Coordinator	8/16/05	22L	22	M	\$	7,087.00	\$	3,209.83	\$	20,593.67
Analyst/Programmer III	10/16/05		18	В	\$	4,095.00	\$	2,201.50	\$	12,593.00
Research Analyst	6/1/06		18	A	\$	3,956.00_	\$	2,154.67	\$	12,221.33
Data Systems Manager	8/1/05	22D	22	E	\$	5,904.00	\$	2,811.17	\$	17,430.33
Librarian III	8/1/05	20L	20	M	\$	6,203.00	\$	2,911.92	\$	18,229.83
Administrative Manager	6/1/06		18	D	\$	4,381.00	\$	2,297.92	\$	13,357.83
		s		Total	\$	49,802.00	\$	24,047.42	\$	147,698.83

(Science Director Position is anticipated to begin December 1, 2005 –Positions costs detailed below)

		R&S	ç		
	Merit Ann.	Prior to	Monthly	Monthly Employer	
JOB Title	Date	MAD Date	Salary	Cost/Benefits	2 Months Salary
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TRAVEL: \$0

No travel expenses anticipated for the months of October and November.

Attachment B

CONTRACTUAL: \$ 57,316.00

Administrative:

\$ 41,483.00

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(\$144,000.00 annually)			
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(EVOS receives a 10% a	liscount on parking if paid a year in advan	ce,)
Utilities (Phone, long dis	stance, cable, phone charge)	\$	4.400
Postage (2 months)	••••••••••••	\$	500
Courier Service (2 mont	hs)	\$	200
Equipment Maintenance	(2 months)	.\$	1,300
Transcription (2 months))	.\$	1,000
Computer Service lan/w	an ETS/EPR (2 months)	.\$	2,700
TC meeting food (2 mor	uths)	\$	250
Office Supplies (2 month	1S	\$	2,833

Science Management:

\$ 15,833

Applied Marine Science (2 months).....\$ 15,833 (Estimate is base on the FY 05 figure of \$95.0K)

GENERAL ADMINISTRATION: \$18,451.33

ADFG:

Personnel	\$147,698.83
Contractual	\$ 17,483.00
GA	\$ 14,866.36
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DOI/USGS (office Lease)

Contractual	\$ 24,000.00
GA	\$ 2,160.00
TOTAL	\$26,160.00

ADNR (AMS Contract)

Contractual	\$15,833.00
GA	<u>\$ 1,424.97</u>
TOTAL	\$17,257.97

AYK Peer Review Database

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Motion to approve request to create a cooperative agreement between EVOS Data Management and the Arctic Yukon Kuskokwim Sustainable Salmon Initiative (AYK SSI) over the utilization of the peer review data system located at the EVOS office. EVOS Data Management will provide in kind support to AYK staff in the utilization of the system and AYK will in turn provide funds up to \$25,000 for the costs of the peer review database redevelopment effort that is scheduled to take place between October 1st and December 30th of FY06.

Arctic-Yukon-Kuskokwim Sustainable Salmon

nitiative

705 Christensen Drive Anchorage, AK *995*01 907-222-5088 866-927-2732

www.aykssi.org

September 19, 2005

Gail Phillips Executive Director EVOS Trustee Council 441 West Fifth Avenue, Suite 500 Anchorage, AK 99501

Re: Proposed Cooperative Effort between AYK SSI and EVOS Regarding Peer Review Database

Dear Ms. Phillips;

I am writing in regards to the proposed cooperative effort between the Arctic-Yukon-Kuskokwim Sustainable Salmon Initiative (AYK SSI) and EVOS regarding use of the EVOS peer review database.

As background, the AYK SSI is a cooperative partnership among a set of agencies and organizations working to develop and implement a research program aimed at understanding the causes of the declines and recoveries of AYK Salmon. The AYK SSI is governed by an eight-member Steering Committee (SC) composed of representative from the following organizations: Association of Village Council Presidents, Tanana Chiefs Conference, Kawerak, Inc., Bering Sea Fishermen's Association, Alaska Department of Fish and Game, National Marine Fisheries Service, US Fish & Wildlife Service (USFWS). The initiative is advised by a six-member Scientific Technical Committee (STC) composed of members representing relevant scientific disciplines. To date, Congress has appropriated \$17.5 million to support this interagency, multi-disciplinary research effort to determine the cause of the declines and recoveries of salmon in the region.

To date, discussions between the staffs of our respective organizations have resulted in the development of a full Peer Review Database proposal which was presented to the AYK SSI Steering Committee at their September 9, 2005 meeting. This proposal provided an overview of design and operation of the current EVOS peer review system, and outlined a draft scope of work and funding level required to extend the use of your system to the AYK SSI. Presentation of this document to our Steering Committee was accompanied by an excellent presentation by your data manager, Rob Bochenek.

I am please to report to you that, at the same meeting, the AYK SSI Steering Committee unanimously supported this cooperative peer review database proposal and allocated funds to implement this cooperative initiative (\$25,000), contingent on final approval by the EVOS Trustee Council. As discussed in the Peer Review Database proposal, the AYK SSI funding cycle necessitates our initiating scientific peer review of our 2006-07 research proposals by early December 2005.

We believe that such collaboration and cost-sharing can effectively further the goals of both of our organizations. We look forward to Trustee Council review of this proposal and hope that this initial collaboration for scientific peer review may open doors to future partnerships.

Sincerely,

Dr. John White Chairman AYK SSI Steering Committee



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<u></u>	· · · · · · · · · · · · · · · · · · ·
Re:	Cooperation between AYK and EVOS regarding Peer Review Database
Date:	September 16, 2005
From:	Rob Bochenek, EVOS Data Manager
Thru:	Gail Phillips, EVOS Executive Director
То:	EVOS Trustee Council

The EVOS Data Management section seeks authorization from the Trustee Council for a cooperative effort between the Arctic Yukon Kuskokwim Sustainable Salmon Initiative (AYK SSI) and EVOS. In exchange for utilization of the automated peer review database system located at EVOS, AYK is willing to pay up to \$25,000 of costs associated with holding a series of peer review database redevelopment workshops and the expenditures required for the implementation of the redesign. These workshops and other related costs are described in the draft EVOS DPD and Budget Justification. This cooperative agreement will provide a much-needed service to the AYK and—more importantly—will reduce the FY06 operational costs of the EVOS Data Management section by \$25,000.

STC Data Managemen

Attached you will find a proposal, *A Collaborative Peer Review Database*, which discusses the details and benefits of this proposed cooperative effort. This proposal was presented to the AYK Steering Committee on September 8th, 2005, and met with a warm reception. The EVOSTC Executive Director will be receiving a letter from the AYK steering committee supporting this collaboration.

If this coordinated effort is to begin as scheduled in October, immediate action is required from the Council for permission to move forward. We thank you for your consideration and look forward to your opinions concerning the future of this effort.

A COLLABORATIVE PEER REVIEW DATA BASE:

Proposal to AYK SSI to Utilize EVOS Computer-based Peer Review System

DESCRIPTION:

Establish a one year cooperative agreement providing computer access, software modifications and technical support necessary for utilizing EVOS's existing peer review database, to expedite scientific peer review of AYK SSI research proposals and to reduce STC/ staff workload.

WHY:

- The AYK SSI currently has no peer review database in place to manage and expedite external peer review of AYK research proposals.
- The AYK SSI is committed to providing independent external scientific peer review of research proposals responsive to its RFP.
- The AYK SSI will be soliciting and reviewing several million dollars in research projects in the coming months. The Initiative needs to take immediate steps to identify and implement a means of effectively managing the extensive workload associated with obtaining a minimum of three independent peer reviews for a sizable number of research proposals.
- The AYK SSI proposal process could greatly benefit from a database system that efficiently expedites external scientific review of AYK research proposals and reduces STC/staff workload.
- The cost of developing our independent AYK SSI external peer review database from the ground up (including programmer costs and costs of recruiting reviewers possessing a broad range of expertise) would be very high and would not be cost effective for a smaller research fund. A system build from scratch would not be operational for a year or more.

EVOS System Overview:

The EVOS peer review system provides a fully operational computer database for automating and managing the process for scientific peer review of proposals responding to a solicitation. Currently the database includes contact information and areas of expertise for over 600 peer reviewers in a broad range of fisheries and marine science fields. Nearly one hundred of these scientists list salmon research as their areas of research. EVOS Data Management staff has set a goal of expanding this pool to a target of 2000 peer reviewers within two years. Information is processed and archived at a centralized database and gathered through a series of web applications which harvest information from principal investigators, peer reviewers and management staff at the funding agency. Operation of this database includes the following components and steps:

- An automated peer review system, part of a larger relational database, stores and analyzes a set of standardized keywords which describe both the proposals and peer reviewers contained in the system. Based on these keyword descriptors, the data management system is used to link proposals with qualified peer reviewers.
- Once peer reviewers have been assigned, system-generated emails are sent out to reviewers providing instructions, access to proposal materials and secure web-access to the system to submit their reviews.
- The database is then used to track accepted and declined reviews, archive and organize reviews and finally, produce proposal review reports for use by relevant groups (STC, SC, and other staff). The system also provides web interfaces enabling staff to access and monitor the peer reviews as they are submitted online.

Over the past three years, EVOS and NPRB has used this system to efficiently track and manage over 1200 scientific reviews of ~300 research proposals, significantly reducing staff time spent contacting reviewers, manually tracking reviews, entering data and reformatting reviews and other tasks.

Description of Proposed Work

Though the necessary hardware and software is operational for EVOS's use of the peer review system, some modifications will need to be performed in order for the AYK to utilize it. As a part of this proposed cooperative agreement, EVOS Data Management staff would complete the following tasks and provide the following services:

- Expansion of keywords for salmon research: The current EVOS Peer Review Database Scheme contains only one keyword specific to salmonid related research. An expanded set of descriptive keywords which apply to salmon fisheries science and any related sub-fields will need to be identified. This will be accomplished as part of a series of 2005 autumn workshops planned by EVOS staff to expand the current keyword descriptive scheme to increase the usefulness of the system.
- Modifications to database and web portals: Modifications will need to be made to existing computer systems in order for AYK to utilize the automated peer reviewer system at EVOS. These modifications will include the creation of the various interfaces specific to AYK SSI's proposal format and review criteria, data structure, etc.
- Survey re-development/ expansion of reviewer pool: EVOS Data Management staff will design and implement new survey web application for harvesting the data from peer reviewers and PI's.

Collaborative Peer Review Database Proposal
- **Provision of training and technical support**: EVOS Data Management staff will provide AYK SSI staff with necessary training and will provide technical support for trouble shooting during the implementation phase as needed
- Access to servers / Storage and back-up services: During modification and implementation phases, EVOS Data Management staff will provide computer access and storage space as appropriate and will perform routine backups of all data.

Costs and Timeline:

EVOS Data Management staff currently consists of two full time programmers. Over the past three years EVOS has invested considerable resources in the developing their peer review database.

EVOS is requesting \$25K from AYK SSI to provide for: 1) direct cost-recovery for Data Management staff to complete the database modifications described above; 2) sharing of costs associated with maintaining, improving and utilizing this data management system.

AYK SSI will provide all information and data necessary for system modifications to Data Management staff in a timely way. EVOS Data Management staff would complete software modifications necessary to make the system operative by December 5, 2005.

Benefits of Collaboration:

This collaborative effort will provide a number of benefits for participating organizations.

- AYK SSI will be provided access during their 2006 funding cycle to an operational peer review data management system at a fraction of the cost associated with developing a new system with this level of functionality. This database already includes a large pool of potential peer reviewers with salmon-related expertise.
- AYK SSI will be able to realize a workload reduction for STC and staff during a very busy period resulting from proposal review and Symposium preparation.
- This collaboration will provide EVOS with funding to help offset costs of maintaining and enhancing the database, in addition to cost recovery for completing AYK-specific modifications to the system.
- This collaborative effort will result in an improved database by creating an expanded set of metadata keywords describing salmon fishery science. These expanded database features could benefit other research entities in the future.

A Look to the Future

In addition to automating peer reviews for proposals EVOS Data Management has developed systems which store and manage project information including final reports and their associated datasets and metadata, as well as administrative data (contact information, budgets, project extensions/ modifications, etc.). Discussions of future collaboration between these organizations may include consideration of AYK SSI use of EVOS's relational database for archiving and managing a full range of research project information and datasets. It is hoped that this initial collaboration for scientific peer review may open doors to future partnerships.

Integral revised proposal

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Exxon Valdez Oil Spill Trustee Council

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



August 24, 2005

Dr. Lucinda Jacobs INTEGRAL CONSULTING 7900 se 28TH Street, Suite 300 Mercer Island, Washington 98040

RE: EVOS proposal 060783 Information Synthesis and Recovery Recommendations for Resources and Services Injured by the *Exxon Valdez* Oil Spill

Dear Dr. Jacobs: Lucinda -

Thank you for your proposed submission in response to our 2006 Invitation. I am pleased to tell you that the Trustee Council has recommended funding a modified version of the *Integral* proposal for funding at the level of \$501,400.44. The Council and reviewers appreciated several strengths in your proposal; specifically, the development of the synthesis which was laid out in a reasonable order, the series of workshops in Alaska that included local experts and the inclusion of Dr. Robert Spies, who has many years of experience with EVOS research.

The funding for this project is contingent upon receipt and acceptance of a revised proposal that:

(1) satisfactorily addresses the concerns of the Trustee Council and the STAC (provided separately);

(2) provides a more detailed plan to engage contributing scientists who have expertise and experience with the EVOS-affected resources and locations;

(3) identifies appropriate experts and includes adequate compensation for them within *Integral's* budget;

(4) plans coordination among experts;

(5) includes costs associated with the incorporation of scientific experts; i.e., meetings, travel and salary, within the *Integral* budget;

(6) defines and details how *Integral* will organize and conduct proposed meetings, both with the experts and the public;

(7) includes the costs associated with the proposed experts and public meetings within the Integral budget.

All levels of reviewers acknowledged the need for and advantage that the outside expertise provided by Integral can bring to a multi-species, true damage assessment synthesis.

We look forward to receiving a revised proposal from you. Because of the short time frame, we would like to receive the revised proposal no later than September 16, 2005 and if possible, earlier. I will plan for the Trustee Council to review your revised proposal during a teleconference meeting on September 21st at 9:00am. Please let me know who from your company will be available either in person or via teleconference to go through the revisions you are submitting and respond to any questions or concerns the Council may have.

Congratulations on this project. We are anxious to see progress and the results of your synthesis. We anticipate funding to begin on 1 October 2005 and my staff will assist in working out the financial details concerning this contract. Please note that you are obligated to complete brief quarterly reports and that your final report must be submitted by the deadline. Also, as you progress on this work, please work with the scientists who are currently funded to compile the Herring Synthesis (Jeep Rice, PI). You have listed most of these scientists in your proposal.

My staff and I stand by ready to assist you in any way you may need.

Sincerely. Gall Phillips

Executive Director

Thanks for meeting with us yesterday.

There is an uncomfortable level casualness in this proposal and a lack of rigor on the part of these scientists. The methods are almost non-existent. The only place that methods can be found is under "Data Management" and is apparently taken from another document as it cites figures that are not included here. The budget seems excessive and does not state who is doing what for all the person months that are requested. The proposal states that a TEK survey will be done, but there is no example of how the survey will be designed and conducted or by whom. The budget requests 12 trips to oil-spill affected communities, yet there are no methods as to what would be done there and where the communities are. The details are insufficient to adequately evaluate this proposal and recommend funding. While we agree that the Pis are very competent scientists, we cannot recommend funding of the proposal in its present form on that basis alone.

These scientists are experts in their fields for birds (lrons) and sea otters (Bodkin) in PWS. STAC suggests that these are two of the experts who should be invited to submit proposals or who should be given limited contracts to produce a synthesis for the species in their areas of expertise. This is separate from and different from the proposal that was submitted, although it could be resubmitted as a modification of this proposal for purposes of contract negotiation.

PAC Recommendation: Modify

PAC Recommendation Justification: Concur with STAC. Suggest modification of this proposal to incorporate these PIs, as experts on sea birds (Irons) and sea otters (Bodkin) into a larger overall synthesis. PAC supports and agrees with STAC recommendation.

Science Coordinator's Recommendation: Modify

Science Coordinator's Justification: Suggest modification of this proposal to incorporate these PIs, as experts on sea birds (Irons) and sea otters (Bodkin) into a larger overall synthesis. Agree with STAC.

Executive Director's Recommendation: Modify

Executive Director's Justification: I concur with the recommendations of the PAC and the STAC.

Jacobs-060783-Information Synthesis and Recovery(Click to Download Proposal)

Abstract: The periodic reassessment of the resources and services injured by the Exxon Valdez oil spill (EVOS) is essential to understanding effects of the original spill and lingering oil, documenting recovery of resources, and identifying new areas where additional restoration action or research may be needed. The proposed work is designed to synthesize restoration work performed to date; develop a scientifically sound process for objectively assessing the status of resources and services classified as injured, recovering, or unknown; distinguish (where possible) the contribution of other stressors to the condition of the resource; identify appropriate restoration actions for resources that are not recovering; and definitively identify resources that are unlikely to be suffering any residual injury from the 1989 spill. This proposal addresses all resources and services currently classified as Not Recovered, Recovering, or Recovery Unknown.

http://www.gem.state.ak.us/FY06workplan/FY06workplan.cfm?nav=Complete

7/26/2005

FY06 Funds Requested: \$501,400.44

STAC Recommendation: Do Not Fund in Current Form

STAC Recommendation Justification: Do not fund in current form. The PI could be invited to submit an amended and much reduced proposal that incorporates and coordinates syntheses produced by the experts on the species and services in PWS.

Responsiveness (10%) Integral Consulting proposes to provide a review of the status of unrecovered and recovering species and the status of lingering oil and its effects in PWS. They propose to meet the time line.

Project design/conceptual soundness (40%) The proposal outlines five tasks that are reasonable and that they may be able to accomplish in the required time frame. Development of the synthesis is laid out in a reasonable order. It is good that they begin with an early identification of the necessary scientists. The idea of a series of workshops in Alaska is very good. They have provided a detailed outline for the resource recovery assessments. They have included a statement for limited application of statistical analyses for the determination of resource assessments.

This group is currently being funded to provide an independent evaluation of the recovery status of injured resources. This proposal adds injured services and recovery recommendations. However, the focus is on design matrix and recovery terminology, not on species and ecosystems.

An outline of an appropriate approach is seen in Table 2 and Figure 3, but there is no evidence of methods to explain how the "metrics" will be determined. For example when they ask "are metapopulations (table 2 – spatial/temp)...", approaches to answering such questions are unspecified.

As stated above, the intention for early identification of necessary scientists not employed by Integral is good. However, the proposal depends on volunteer, outside, unnamed resource experts to come to meetings/workshops, to inform Integral's consultants of needed information. However, there is no list of who these people are, or whether anyone has agreed to participate and meet the proposed schedule.

Defined milestones distributed across duration of project allow course correction and program oversight.

Project management (25%) There is no obvious project leader dedicating full time to the project over a sufficiently long period to demonstrate that the project can be completed in a comprehensive manner.

The majority of personnel are employed by Integral and physically located in the same place, which is good. The specific identification of personnel responsible for tasks is critical to this project, but this identification is not detailed in this proposal. The distributed nature of the effort of the individuals, as seen in the budget, does not suggest effective organization. No evidence of past corporate performance by Integral Consulting has been presented.

Skills in population status and ecology are needed to address the questions in Table 2. The resumes of the personnel are strong in ecotoxicology, but among fifteen personnel none appear qualified to address the population questions nor does any have PWS experience. Again, the input of "volunteer" scientists in the field (called "Trustee Scientists" in the proposal) is required, but it is unclear what incentives there are for these volunteers to participate.

Project cost effectiveness (15%) Lack of detailed breakdown of duties and associated costs makes cost

http://www.gem.state.ak.us/FY06worknlan/FY06worknlan.cfm?nav=Complete

effectiveness very difficult to evaluate. Individual remuneration is at extremely high rates for Ph.D.level personnel nationally.

It is irresponsible on the part of the proposers to assume that the EVOS staff will deal with support of Trustee Scientists, other outside people, etc., providing additional costs of \$99K for this purpose. The mechanics for working with outside experts are unspecified, and associated costs are not detailed. Given the level of Integrals' budget request, they should have money to organize and pay for the consultative meetings they propose.

The proposal does not make clear how much of the product will be new work or how much has already been accomplished under the proposer's project funded currently by the Alaska Department of Law. EVOS needs assurance that new work is intended in return for new funding, and we think this new proposal should be more cost-effective given work already completed. The proposers themselves raise this issue on page 13: "It is anticipated that a portion of the required work effort for those resources classified as recovering and not recovered will have been addressed by the ongoing work of Jacobs et al. (2005)."

Project Collaboration and Coordination Efforts (10%) Here we reiterate our concern that mechanisms for obtaining cooperation with Trustee Scientists and other appropriate experts are unspecified. The list of outside scientists (no specific names, just agencies) expected to contribute (page 4) does not include university personnel who have been major contributors to EVOS-supported PWS research.

Proposed (see budget explanation) meetings to be conducted by Integral Consultants in Anchorage do not present an opportunity for its analysts to interact with the EVOS-affected communities. Inclusion of traditional ecological knowledge would be appropriate but has been relegated to future planning.

Overall Recommendation

The project should not be funded as proposed. We think a different process to obtain the review of EVOS recovery status would be more productive, one with direct and specific access to the experts who know the ecosystem and the history of events following the oil spill. Major modification to address proposal deficiencies should be required before EVOSTC considers a contract with Integral Consultants for review of EVOS damage to PWS populations and environment.

PAC Recommendation: Modify

PAC Recommendation Justification: PAC conceptually agrees with STAC's evaluation.

PAC recommends modification of either Jacobs or Rusanowski proposals to include all of the expert PIs for each of the injured species. PAC further recommends that the STAC be asked to assist in writing the modification request. PAC also recommends the immediate employment of a new Science Director to oversee the work on this project. In addition, the PAC encourages the Trustee Council to add a modification that evaluates the economic profile of lost ecosystem services and their effect on communities and businesses impacted by the Exxon Valdez Oil Spill.

PAC conceptually agrees with STAC's evaluation that a different process for synthesis is needed. A modified synthesis should have direct and specific access to the experts who know the ecosystem and the history of events following the oil spill.

http://www.gem.state.ak.us/FY06workplan/FY06workplan.cfm?nav=Complete

7/26/2005.

Science Coordinator's Recommendation: Do Not Fund

Science Coordinator's Justification: The PI could be invited to submit an amended and much reduced proposal that incorporates and coordinates syntheses produced by the experts on the species and services in PWS. The invitation asks for a species by species determination and this seems precisely what the ongoing integral project is doing. Therefore, this proposal seems to be paying for ongoing work. This project also assumes that the staff of the TC will manage a meeting process and invite specific reviewers. This is generally inconsistent with the one point of contact idea in these proposals.

By and large agree with STAC, however, the focus of this project is synthesis and status of resources and we need to ensure focus on completeness and comprehensiveness rather than a highly structured and detailed evaluation.

Executive Director's Recommendation: Modify

Executive Director's Justification: Neither of these two proposals (Jacobs or Rusanowski) appear to provide the information the Council is seeking as far as a comprehensive synthesis regarding the issue of lingering oil and closure to the injured species list. Neither of the PIs is utilizing the current experts in the various fields who are familiar with Prince William Sound, which should have been a priority. The PIs should not be counting on utilization of EVOS staff for any of their workshops, meetings, etc.

We have time to ask the PIs to modify their proposals, taking into consideration the concerns of the STAC, the PAC and the Science Coordinator, and still meet the schedule for the August 10th meeting. I would recommend seeking a modification to both of these proposals and reevaluating them.

Kiefer-060792-GIS System for EVOS(Click to Download Proposal)

Abstract: We propose to develop a Geographic Information System (GIS) that will come to be an archive of the marine, ecological information that has been gathered with the support of the EVOSTC. The GIS will provide users with easy and rapid assess to time series information that is spatially referenced (lat, lon, depth). The EVOS GIS prototype will be installed on a EVOSTC server and will be designed to interface with the database that is currently under development by EVOSTC technicians. The data that will be imported into the prototype will come largely from the SEA and APEX projects of Prince Williams Sound. This data will include satellite imagery, raster and vector maps, and gridded data found in spreadsheets, ASCII files, and relational databases, as well as audio, video, photographs, and textual information. Such a system will be most helpful to those writing synthesis papers on PWS's recovering resources as well as future researchers in the region.

FY06 Funds Requested: \$120,301.12

STAC Recommendation: Do Not Fund

STAC Recommendation Justification: Do not fund.

This proposal is not really a synthesis. The objective of the proposal is to only use some data to

STAC review – 19 Sept 05

1

DRAFT

Jacobs – Integral Consulting – synthesis 060783

STAC Recommendation: Fund with the following contingencies:

- The expert scientists must be involved in the synthesis process and do more than just attending meetings.
- The synthesis written *Integral* by scientists will be reviewed and validated by the experts.
- *Integral* needs to exhibit adequate funding for and commitment by the experts.
- *Integral* needs experts in addition to those listed to review the intertidal/subtidal communities and fish parts of the synthesis.
- Comments written by expert reviewers will become property of the EVOSTC.
- EVOSTC will own the bibliography compiled by *Integral*.
- *Integral* will put bibliography on a searchable EVOSTC website.

STAC Recommendation justification:

This is a revised proposal in response to a request by the Trustee Council and Executive Director. The proposal is not significantly changed from its original form and the proposers have not changed their approach. They have made minimal changes to address the requirements for funding.

The funding for this project is contingent upon the inclusion and financial compensation of expert scientists who have experience with the EVOS-affected resources and locations. We are pleased that in their response to comments from the Executive Director and STAC, they have identified the expert scientists (Task 1 to be completed prior to 1 October 2005) as opposed to doing that after the project is funded as in the original proposal. There is now a schedule of meetings, starting with Technical Review Panel on 1 November 2005, and the Resources/Services Workshop in December. Also as requested, the budget now includes some travel money for selected scientists to workshops.

Unfortunately, there is little substantial difference in this revised proposal; it still lacks a stated method of writing a true synthesis. The word "synthesis" appears in the proposal title and in the Task 4 title but does not seem to be a critical component of the projected work. The product from Task 4.1 is to be a (annotated?) bibliography "compiled and organized" in ProCite. This bibliography will be a significant, albeit not a synthesis, product. There needs to be an expressly written agreement that states that EVOSTC owns the bibliography and that *Integral* is required to put it on the EVOSTC website in a format that will be searchable by all site visitors.

The product of Task 4.2 is to be a summary of each study to be included as an appendix. Again, this is missing the true concept of synthesis. A synthesis should bring concepts of all studies together, not present each separately. We recognize that this will be the basis of the technical

analysis for restoration and agree. However, we still believe that true synthesis would provide an even better foundation.

Integral has listed metrics to be used to measure success of restoration (pp. 8-9), but failed to address the availability, or lack thereof e.g., population characteristics, of these measurements for PWS populations.

STAC had recommended that Jacobs, et al. hire a sequence of expert scientists to produce short, specific reviews that would then be synthesized by *Integral* scientists. It is disappointing that the experts are still in a primarily advisory capacity for things that are written by *Integral* scientists, not contributing the basics as we had envisioned. It is critical that *Integral* clearly state and acknowledge that in the present form of the proposal, the synthesis written by their scientists, will be reviewed and validated by the experts. Procedures for this synthesis might include 1) the acquisition of input from the expert scientists through the initial workshops, 2) the development of the synthesis and its writing by the Integral scientists based on the input of the expert scientists who will prepare a separate report. We expect that as part of the process the expert reviewers would provide written comments and that these comments will become property of the EVOSTC to use as they see fit. We are concerned that the experts listed for intertidal/subtidal communities and fish are not fully qualified or sufficiently familiar with this problem. STAC believes that *Integral* will need additional experts to review for this process.

We see that the approach proposed could be successful if *Integral* specifically contracts with the expert scientists to read and review the syntheses documents prior to the meetings scheduled, i.e., do their homework. Then meaningful dialogue and insightful discussions and debates can take place at the scheduled meetings. Otherwise, the experts will do nothing more than attend meetings, and thus, have no real contribution.

Toward this meaningful integration of the experts into the project, the STAC recommends that the EVOSTC requires *Integral* to exhibit adequate funding and commitment by the experts so they can accomplish their tasks as outlined on Page 7 of the revised proposal (e.g., "identify and prioritize relevant research, identify key issues to be addressed in the evaluation and synthesis, and review the work products related to information synthesis, resource recovery status, and restoration recommendations."). To accomplish these tasks, the experts will require more than simply attending meetings.

There is currently some money in the budget for experts, but no details of the level of effort allocated to the experts. We estimate that many of the experts will use most of their allotted funds just attending the meetings. We believe they will require more time than that allotted and we are concerned as to how they will be appropriately compensated.

Science Coordinator comments

The revised proposal accommodates nearly all of the original comments identified by the TC. I suggest that Integral simply add a short piece to address the STAC comments. This does not mean a revision of their current project plan. And, for example, the EVOS staff can assist in finding other experts, putting bibliography on EVOSTC website and assist in meetings.

Recommendation Fund with STAC comments explained, addresses and/or integrated into the project plan.

Executive Director comments

"I agree with the remarks of the Science Director. I am particularly concerned about the STAC recommendation that the scientific experts hired by Integral to review the synthesis include more than just a cursory review, as identified by the STAC. I feel that the expert's evaluations must be incorporated into the final report before it goes to the Trustee Council.

Recommendation I recommend funding this proposal, with the incorporation of the STAC's recommendations."

Decision Document

9/20/2005

Background

At the last TC meeting, preliminary approval was given to fund the Integral synthesis project. The Executive director, acting Science Director and Science Coordinator conducted a phone conversation with Lucinda Jacobs (Principal at Integral) and discussed the TC resolution and required changes.

Integral submitted a second version that was reviewed by the STAC, PAC, and liaisons. The STAC had several comments and suggested clarifications and these were forwarded for review and comment.

The comments by the STAC, Science Coordinator and Executive Director all are in agreement as to approval with some further explanations. We would expect Integral to address these additional comments simply in a letter to be attached to their proposal.

Recommended Decision

The Trustee Council approves for funding the Integral proposal at the new recommended level of \$565,312.46 dollars.

The project will be completed by July 1, 2006.

Integral needs to provide a letter to respond to the STAC comments as applicable.

Approved

Modified

Disapproved_____

Date_____

Draft Scope of Work—Technical Review Panel

Technical experts on the technical review panel (TRP) will participate in the refinement of the technical approach contained in the Jacobs et al. FY06 proposal, with focus on recovery objectives, the decision framework, and the final recommendations to the Steering Committee.

It is anticipated that TRP experts will participate in the following activities:

- 1. Review the approach for refining recovery objectives and the framework for evaluating resource recovery status.
- 2. Participate in the TRP meeting on November 1, 2005 (1-day meeting). This meeting will focus on refinements to the recovery objectives and approach.
- 3. Review and comment on the revised recovery objectives and approach.
- 4. Participate in Expert Workshop (EW) meetings on December 8 and 9, 2005 (2 days of meetings). The purpose of these meetings will be to communicate the approach to experts, provide the literature compiled to date, identify data gaps, prioritize studies or investigations, and identify key resource-specific issues.
- 5. Review synthesis of EVOS Trustee Council-funded projects.
- 6. Participate in EW and TRP meetings the week of January 23rd, 2005 (timed to coincide with AK Marine Science Symposium) (two days of meetings).
- 7. Review and comment on overall recommendations on recovery objectives, resources recovery status, and restoration actions.
- 8. February 25: TRP Meeting (one day meeting).

The following individuals have agreed to serve on the Technical Review Panel:

- Jeff Short; National Oceanic and Atmospheric Administration (NOAA)
- Dan Rosenberg; Alaska Department of Fish and Game (ADFG)
- Jim Bodkin; U.S. Geologic Survey (USGS)
- Al Springer, University of Alaska.

Lucinda Jacobs (Integral) will serve as meeting facilitator and Robert Spies, Les Williams, Robert Pastorok (Integral team) will serve as technical experts.

Estimated level of effort: 132 hours

Draft Scope of Work—Resources/Services Workgroup

Resources/Services experts will work with Integral and the Technical Review Panel to provide focused expertise on unrecovered resources and services, and the importance of oil and other stressors or factors that are relevant to the evaluations. The workgroup will help to identify and prioritize relevant research, identify key issues to be addressed in the evaluation and synthesis, and review the work products related to information synthesis, resource recovery status, and restoration recommendations. Specific activities and tasks for the Resources/Services Workgroup are as follows:

- Identify key issues and prioritize relevant research to be addressed in the evaluation and synthesis.
- Participate in Expert Workshop (EW) meetings on December 8 and 9, 2005 (2 days of meetings). The purpose of these meetings will be to communicate the approach to experts, provide the literature compiled to date, identify data gaps, prioritize studies or investigations, and identify key resource-specific issues.
- Participate in EW and TRP meetings the week of January 23rd, 2005 (timed to coincide with AK Marine Science Symposium) (two days of meetings).
- Review and comment on recommendations on recovery objectives, resources recovery status, and restoration actions that are specific to area of expertise.

In addition to the individuals identified on the Technical Review Panel, the following individuals have agreed to participate in the Resource/Services Workgroup:

- Dan Esler, Simon Frasier University (SFU)
- David Irons, US Fish and Wildlife
- Kathy Kuletz, US Fish and Wildlife
- Brenda Ballachey, USGS
- Stanley Rice, NOAA
- Bob Small, ADF&G
- Craig Matkin, North Gulf Oceanic Society
- Jim Fall, ADF&G

We are in the process of contacting the following individuals:

- Jim Harvey, Moss Landing Marine Laboratory
- Kelly Hepler, ADF&G

Estimated level of effort: 76 hours

Draft Scope

SIGNATURE FORM

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

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

PROJECT TITLE: Information Synthesis and Recovery Recommendations for Resources and Services Injured by the Exxon Valdez Oil Spill

FILLED NAME OF FI.	$\Delta = \Delta$	
Signature of PI:	hlat	Date <u>09/14/05</u>
Printed Name of co-PI:	Leslie G. Williams, Ph.D.	· · ·
Signature of co-PI:	· · · · · · · · · · · · · · · · · · ·	_ Date
Printed Name of co-PI:	Robert A. Pastorok, Ph.D.	· · · · · · · · · · · · · · · · · · ·
Signature of co-PI:		_ Date
Printed Name of co-PI:	Damian V. Preziosi	
Signature of co-PI:		Date

** Available at http://www.evostc.state.ak.us/pdf/admin/reportguidelines.pdf

Available at <u>http://www.cvose.state.ak.us/pub/admin/reportguidennes.pe</u>

PROPOSAL SUMMARY PAGE

Date Received	1:
Dute Received	
	PROPOSAL SUMMARY PAGE
	(To be filled in by proposer)
Project Title:	Information Synthesis and Recovery Recommendations for Resources and Services Injured by the Exxon Valdez Oil Spill
Project Period:	October 1 2005 through July 1 2006 (FY06)
Proposer(s):	Lucinda Jacobs, Les Williams, Rob Pastorok, and Damian Preziosi
Study Location	: Prince William Sound
-	
s s I i c i c	where additional restoration action or research may be needed. The proposed work is designed to synthesize restoration work performed to date; develop a scientifically sound process for objectively assessing the status of resources and services classified as injured, recovering, or unknown; distinguish (where possible) the contribution of other stressors to the condition of the resource identify appropriate restoration actions for resources that are not recovering; and definitively identify resources that are unlikely to be suffering any residua injury from the 1989 spill. This proposal addresses all resources and services currently classified as Not Recovered, Recovering, or Recovery Unknown.
Funding:	EVOS Funding Requested: FY 06
	518,635.28
	(must include 9%GA) GA 46,677.18 TOTAL \$565,312.46
	Non-EVOS Funds to be Used: FY 06 \$ None
	TOTAL: \$565,312.46
Date: April 13	2005; revised September 14, 2005

PROJECT PLAN

I. Need for Project

A. Statement of Problem

The periodic reassessment of the resources and services injured by the *Exxon Valdez* oil spill (EVOS) is essential to understanding effects of the original spill and lingering oil, documenting recovery of resources, and identifying new areas where additional restoration action or research may be needed. Communication to the Trustee Council and the public is a major part of this reassessment. Evaluation of the recovery status of injured resources has posed a challenge to scientists since 1994, when the Trustee Council first adopted an official list of injured species. As acknowledged in the original 1994 Restoration Plan and subsequent updates in 1999 and 2002 (Trustee Council 1999, 2002), objective evaluation of resource recovery is complicated by uncertainties in population estimates, lack of pre-spill data, interaction of spill and natural factors, and the potential emergence of new and previously unidentified effects.

The proposed work is designed to synthesize restoration work performed to date; develop a scientifically sound process for objectively assessing the status of resources classified as injured, recovering, or unknown; distinguish (where possible) the contribution of other stressors to the condition of the resource; identify appropriate restoration actions for resources that are not recovering; and definitively identify resources that are unlikely to be suffering any residual injury from the 1989 spill.

Unique challenges associated with this project include:

- Focused engagement of individuals and entities that possess pertinent expertise in specific resource species and EVOS research
- Efficient prioritization, review, management, and synthesis of the large body of information related to currently unrecovered resources and services in Prince William Sound (PWS) and other affected areas that has been generated over the past 16 years
- Effective integration of related work, minimizing redundancy with ongoing studies (Jacobs *et al.* 2005, and Spies 2005)
- Refinement of recovery objectives to ensure that the condition of the resources and services is objectively evaluated using practical assessment criteria
- Development and application of a decision framework to systematically and objectively evaluate the status of injured resources.

Our proposed approach to each of these challenges is presented under the objectives and the procedural and scientific methods descriptions provided in Section II, Project Design.

B. Relevance to 1994 Restoration Plan Goals and Scientific Priorities

The project will 1) fully evaluate the status of unrecovered¹ resources and services identified in the 1994 *Exxon Valdez* Restoration Plan, and 2) identify options for achieving recovery and/or potential additional restoration projects. In reviewing the iterative development and evolution of the restoration plan goals and scientific priorities described in the 1994 Restoration Plan and updates, several things are clear:

- Periodic updates to the Restoration Plan have not included a comprehensive assessment and ongoing synthesis of previous restoration activities.
- The restoration strategies implemented for the different injured resources are no longer explicitly identified in the restoration updates. This is of concern because the specific link between injury and restoration action has been diminished or lost.
- Resource-specific recovery objectives have evolved, but some remain broad and are difficult to assess. Therefore, it is important to refine recovery objectives to accommodate new scientific information and incorporate meaningful and practical recovery metrics.
- The absence of a systematic and objective method for evaluating the status of injured resources has made it difficult to come to closure on several resources and related services.

In addition, Trust-funded projects supporting evaluations of resource recovery have transitioned over the past several years towards efforts and projects that address the broader stewardship principals embodied in the Gulf Ecosystem Monitoring Study (GEMS) program.

The proposed project will address these issues by first reassessing recovery objectives to ensure that they are practical, that they clearly identify measurable variables for assessing recovery, and that they are consistent with the broader goal of achieving a self-sustaining and productive ecosystem. In consultation with a team of experts, a decision framework will be developed to objectively and systematically evaluate the recovery status of injured resources and services. Restoration studies and related information will then be reviewed and synthesized to ensure that all relevant information has been considered in the reassessment. Scientists with expertise in key resources and issues both within and outside Trustee agencies will be accessed to more efficiently prioritize, compile and synthesize information; to review and refine the recovery objectives and decision framework developed by the project team; and to participate in resource-specific evaluations.

An important part of the assessment will be to clearly establish the link between specific resources/services and the restoration strategy. This effort will include both the careful documentation of past restoration strategies for injured resources and a clear statement of the path forward for resources that may not have recovered. This work effort will be grounded in the 1994 Restoration Plan, which describes the goal of restoration as recovery of all resources and services injured by the Exxon Valdez oil spill, and states that all restoration actions must be directed toward this goal.

¹ Unrecovered includes recovering, not recovered, and recovery unknown categories.

This general framework laid out in the 1994 Plan will be incorporated into the evaluation and synthesis of the recovery status of resources as described below in Section II (Project Design).

II. Project Design

A. Objectives

The goals of the Synthesis Project are to 1) fully assess the status of unrecoverd resources and services identified in the 1994 *Exxon Valdez* Restoration Plan and 2) identify options for reaching recovery and/or potential additional restoration projects. These goals will be achieved through the systematic realization of the following objectives:

- Objective 1 (Task 1, below)—Identify scientists with appropriate experience and expertise who can facilitate a synthesis and evaluation of major issues associated with resource injury status, recovery objectives, and restoration strategies
- Objective 2 (Task 2)—Assess 2002 recovery objectives and develop refinements to improve their functionality in a practical decision framework
- Objective 3 (Task 3)—Develop a decision framework to objectively and systematically evaluate the recovery status of unrecoverd resource populations
- Objective 4 (Task 4)—Compile and synthesize research and information relevant to resource injury classification and recovery status that can be used effectively in the decision framework
- Objective 5 (Task 5)—Characterize the recovery condition of each evaluated resource and recommend restoration activities as needed.

B. Procedural and Scientific Methods

B.1—Task 1: Establish Technical Panel and Workgroup and Conduct Meetings

Technical workgroups are proposed as the forum for the focused engagement of individuals and entities that posses pertinent expertise in specific species and EVOS research. Two types of workgroups are proposed:

- Technical Review Panel
- Resource/Services Workgroup

It will be important to maintain the focus of the Technical Review Panel and Resource/Services Workgroup to meet the deadline for the April 1, 2006 draft report. The Integral team will draft decision frameworks, propose refinements to recovery objectives, and prepare the draft and final technical reports. The Technical Review Panel will provide key input on evaluation criteria and the decision process. The Resource/Services Workgroup will provide focused expertise on unrecovered resources and services, potential restoration options, the importance of oil and other stressors, and key issues and technical resources that are relevant to the evaluations.

The following sections provide additional information on participants in the technical review panel, participants in the resource/services workgroup, and projected meeting dates.

B.1.1 Technical Review Panel

It is proposed that the Technical Review Panel be comprised of the following individuals:

- Lucinda Jacobs (Integral), meeting facilitator
- Robert Spies, Les Williams, Robert Pastorok (Integral team technical experts)
- Jeff Short; National Oceanic and Atmospheric Administration (NOAA)
- Dan Rosenberg; Alaska Department of Fish and Game (ADFG)
- Jim Bodkin; U.S. Geologic Survey (USGS)
- Al Springer, University of Alaska.

This group will participate in the refinement of the technical approach proposed here, with focus on recovery objectives, the decision framework, and the final recommendations to the Steering Committee. All members of the technical review panel have agreed to serve on the Technical Review Panel. The budget for their participation is described in Section II.

B.1.2 Resource/Services Workgroup

The Resources/Services Workgroup is comprised of resource agency scientists and outside experts² who have conducted research on or who otherwise possess pertinent expertise in specific species and EVOS research. The following individuals have been asked to participate in the Resource/Services Workgroup:³

- Seabirds and Seaducks
 - o Dan Rosenberg, ADF&G (also on Technical Review Panel)
 - o Dan Esler, Simon Frasier University (SFU)
 - o David Irons, US Fish and Wildlife
 - Al Springer, UAK (also on Technical Review Panel)
- Sea Mammals
 - o Jim Bodkin, USGS (also on Technical Review Panel)
 - o Brenda Ballachey, USGS
 - o Jim Harvey, Moss Landing Marine Laboratory
 - o Bob Small, ADF&G
 - o Craig Matkin, North Gulf Oceanic Society
- Fish
 - o Stanley Rice, NOAA
 - Kelly Hepler, ADF&G
 - o Robert Pastorok, Integral
 - Intertidal and Shallow Subtidal Communities
 - o Robert Spies, Applied Marine Sciences (AMS)
 - o Les Williams, Integral
- Biomarkers
 - o Brenda Ballachey, USGS

² Experts would have expertise in Marine mammals; Fish; Birds; Ecosystems, Benthic resources; Services; and Fate and transport of *Exxon Valdez* oil (EVO).

³ All have agreed to participate except Kelley Hepler and Jim Harvey, who have not yet responded.

- o Jim Bodkin, USGS
- o Dan Esler, SFU
- Ecosystems Connectivity
 - o Al Springer, UAK
 - o Jim Harvey, UCSC
 - o Robert Pastorok, Integral
 - o Robert Spies, AMS
- Lingering Oil
 - o Jeff Short, NOAA
 - o Stanley Rice, NOAA
 - o Damian Preziosi, Integral
- Services—Commercial Fishing, passive use, recreation and tourism
 - Kelly Hepler, ADF&G
 - Services—Subsistence Use
 - o Jim Fall (ADF&G)

The workgroup will help to identify and prioritize relevant research, identify key issues to be addressed in the evaluation and synthesis, and review the work products related to information synthesis, resource recovery status, and restoration recommendations. It is anticipated that there will be a high degree of communication across resources when common issues (e.g., biomarker measurement and interpretation) or inter-related resources (e.g., herring and intertidal community) are being addressed.

B.1.3 Meetings

To facilitate the planning process, the following meeting dates have been identified and cleared with most participants:

November 1, 2005: Kickoff Meeting; Technical Review Panel (Anchorage) December 8 and 9, 2005: Expert Workgroup Meetings (Anchorage) January 26-28, 2006 (the week of the Alaska Marine Science Symposium): Technical Review Panel and Workgroup meetings February 25, 2006; Technical Review Panel Meeting

February 25, 2006: Technical Review Panel Meeting

B.2—Task 2: Conduct Critical Review of 2002 Recovery Objectives and Recommend Alternatives

Restoration plans of 1994, 1999, and 2002 are based on recovery objectives and recovery strategies set within an adaptive management approach. In Task 2, we will critically review the recovery objectives and restoration strategies for each of the unrecovered resources, incorporate supplemental environmental and biological information to facilitate assessment of injured populations, and recommend revised recovery objectives that can be used in a structured decision framework.

Task 2.1: Historical recovery objectives and restoration strategies

In the early post-spill era the Trustee Council (1994) established a restoration plan for 30 injured resources and services that were affected by the EVOS. The plan is based on a broad restoration goal that is applicable to all injured resources and states that recovery is to be sustained by healthy, productive ecosystems that maintain naturally occurring biodiversity. For each resource, the plan then identified:

- Injury and recovery The nature of the injury to the resource and its current recovery status
- Recovery objectives An explicit statement of desired endpoints that would be achieved via implementation of a restoration strategy
- Restoration strategy A resource-specific plan of action to achieve recovery.

The restoration strategies developed under the 1994 restoration plan were tailored to each injured resource and its recovery status at that time (Table 1). For biological resources and sediments, the recovery objectives were typically expressed as either a return to pre-spill conditions or, in the absence of knowledge of pre-spill conditions, a return to levels in oiled areas that are comparable to those unoiled areas.



Source: Exxon Valdez Oil Spill Trustee Council (1994).

The 1994 recovery plan also provided for an adaptive management approach. Under this approach, information gathered during implementation of a restoration strategy is used to judge progress towards the recovery objective(s) and to facilitate modifications of the recovery strategy to better meet its recovery objectives. Consequently, recovery objectives were modified for some of the resources in subsequent iterations of the restoration plan in 1999 and again in 2002.

This adaptive management approach will be further extended and used in the work proposed for the 2006 Synthesis. For each resource, the historical sequence of recovery objectives and restoration strategies will be summarized, critically reviewed, and evaluated in the context of their ability to resolve and distinguish real changes in populations that can be attributed to the EVO during the initial spill or to lingering oil. We anticipate that this evaluation will identify additional environmental and biological dimensions for each injured resource (see Task 2.2 below) that can then be used in a practical way to refine recovery objectives and strategies (see Task 2.3) and facilitate their use in a structured decision framework (Task 3).

Task 2.2: Supplemental Recovery Metrics

The recovery objectives established in the Restoration Plans of 1994, 1999, and 2002 are most often expressed as assessment goals based on higher-level scientific principles of population and community ecology and environmental health. Restoration strategies are intended to generate the actual measurements that can be used to directly support progress towards these higher-level goals and facilitate judgments concerning recovery from injury caused by EVO. However, such judgments have proved difficult or inconclusive in many cases because the relationship between the injury of a resource and its recovery is often obscured or overwhelmed by inherent ecological variability. Consequently, we propose four recovery categories each with quantitative measures or metrics that can provide additional perspective in describing the status of resource injury and framing progress towards higher level recovery objectives or milestones. The supplemental recovery metric categories are:

- Population characteristics—The functional and structural characteristics of injured populations or communities comprise those characteristics that can be used to understand their growth, natural variability, and expected role in the PWS ecosystem. Important functional components include birth and survivorship rates, which determine growth rates of populations. For example, whales are long-lived and slowly reproducing species that will respond slowly to population disturbance over several decades. Structural population characteristics concern the extent and form of populations, whether they are continuous or divided, how they are connected through migrations, and their age structures.
- Physical and chemical factors—The physical nature and extent of EVO and lingering oil in relation to affected populations and important life history traits will be important in evaluating continuing injury and recovery. Evaluation of physical and chemical factors will focus on the exposure pathways and habitat conditions that are important to resource populations and communities and which can be practically used to determine whether they remain altered as a direct or indirect consequence of EVO or lingering oil.
- Temporal factors-Approximately 16 years have passed since the original spill. At the time of the 1994 Restoration Plan, it was expected that some resources would take several decades to recover. This expectation is within the time frame established for other major spills over the past 40 years. Consequently, the time frame for population growth or community succession following disturbance by EVO is important in scaling expectations for recovery.
- Spatial factors—The area over which lingering oil continues to affect injured resources will be expressed in relation to the distribution of resource populations in PWS and affected areas outside of the sound. For lingering oil, this will likely entail a determination its predicted extent in relation to the presence of important habitat and corresponding injured populations. For sediments, an assessment of both the physical habitat provided and the extent to which injured resource populations are dependent on this habitat will be required. Where possible, the potentially patchy distribution of both lingering oil and injured populations will be identified and expressed using probabilities to provide perspective on co-occurrence of widely dispersed but discrete patches of EVO and exposed populations.

In summary, a variety of metrics will be identified within four supplemental recovery categories and used to assess injury status and recovery. These metrics will principally focus on population or habitat viability and will provide a practical foundation for developing refined recovery

objectives and strategies (Task 2.3) and a structured decision framework to evaluate recovery status (Task 3).

Task 2.3: Refine recovery objectives and restoration strategy

The results of Task 2.1 and Task 2.2 will be used to restructure recovery objectives in a way that is practically related to resource-specific restoration strategies. The refined recovery objectives will be expressed in two parts:

- Higher-level recovery objectives that are resource-specific and compatible with the overall restoration goal stated for the program
- Practical recovery metrics associated with specific attributes of affected populations and expressed in the context of the information developed by the historical restoration strategy (see Task 4 Review and Synthesis) and the supplemental recovery categories described above in Task 2.2.

These refined recovery objectives will be used in a structured decision framework to judge the current injury and recovery status of the resource and, if needed, will be used to guide recommendations for a revised restoration strategy pursuant to the adaptive management framework established for the program.

Task 2.4: The interplay between biological resources and services

Recovery objectives and restoration strategies for services categories have historically been dependent upon their respective biological resources. We do not expect these dependencies to change during the 2006 Synthesis. However, we do expect that judgments concerning the recovery status of services will be affected by any refinements to the recovery objectives and restoration strategies developed for their supporting resources. For example, in 2002 subsistence use was classified as a recovering service because the natural resources upon which it depends were not recovered. However, if the supplemental recovery categories proposed above indicate that a natural resource (e.g., harbor seals) has recovered, then it is likely that services provided by that resource would also be classified as recovered.

B.3-Task 3: Establish Framework for Evaluation of Resource Recovery Status

A key challenge and a chief objective of the proposed work is the critical evaluation of the recovery status of unrecovered resources. As described in detail under Task 2 above, the evaluation of current recovery status is complicated because the relationship between injury and recovery is often obscured or overwhelmed by inherent ecological variability. Drawing upon supplemental recovery categories identified in Task 2.2, we propose to establish a structured framework in Task 3 for assessing the recovery status of resource populations within the construct of recommended recovery objective alternatives.⁴

⁴ The proposed framework described under Task 3 addresses biological resources and the population-level characteristics that may be integrated into the critical evaluation of recovery status. As indicated in Task 2, the evaluation of recovery for sediments and designated wilderness will be addressed based in part upon habitat considerations for resource populations. Services will be evaluated based upon the recovery status evaluations for biological resources.

The recovery status of a resource population is determined by the magnitude of the initial impact of the EVOS, the population's intrinsic recovery potential, time since the spill, the magnitude of any continuing effects, and effects of other natural and anthropogenic stresses. Because the status of a population at any given time depends on a variety of life history traits, a simple measure of population abundance at any one time may not be a reliable indicator of future population viability. Population viability is a key measure of recovery status because it indicates the ability of the population to persist within a range of acceptable abundance levels in the future. Therefore, the evaluation of recovery status should be based on those life history traits, spatial-temporal factors, physical-chemical characteristics, and other outside stresses which most heavily influence population viability.

Task 3.1: Select Recovery Metrics

The evaluation of the recovery status of resource populations will draw upon qualitative and quantitative information about intrinsic population variables (e.g., abundance and reproductive measures) as well as extrinsic factors (e.g., habitat, harvesting) that determine population viability and attendant recovery status (Figure 1). Collectively, these variables will be referred to as *recovery metrics*.





Task 3.2: Develop Decision Framework

A decision framework is required to ensure that a consistent and systematic evaluation process is applied to all resources. Under this subtask, such a decision framework will be developed to integrate both qualitative and quantitative information on multiple recovery metrics that pertain to population status. Figure 2 shows the process for evaluating recovery status of resources and an example of how the decision framework will be used.



Figure 2. Process for Evaluating Resource Recovery Status

The decision framework will be resource-specific and will likely incorporate recovery metrics from the following categories:

- Abundance and Population Growth The viability of a population, or conversely its risk of decline to undesirably low levels, depends on its abundance and productivity. Life history characteristics and food web interactions combine to determine the potential viability of a population in a given habitat.
- Genetic and Phenotypic Diversity Small populations may be at risk for loss of genetic diversity (Nelson and Soule1987). High genetic diversity maximizes population persistence and productivity by allowing the population to use a wide range of habitats and environmental conditions (NRC 1996, and McElhany *et al.* 2000). Genetic diversity also protects populations against climatic disturbances.
- Spatial-Temporal Structure of Populations The evaluation of population spatial structure will include consideration of the amount of habitat available, the spatial organization and connectivity of habitat patches, and the overlap of the original spill and lingering oil with the population distribution. Temporal issues mainly relate to the amount of time since the spill in relation to generation time of a population, as well as seasonal migration behavior relative to the potential for release of lingering oil.
- Habitat: Physical-Chemical Factors Habitat quality and extent clearly affect the recovery status of populations. In addition to spatial-temporal issues considered earlier from the standpoint of basic population ecology, the potential effects of lingering oil must be considered.
- Confounding Environmental Factors Non-EVO related stressors or natural disturbances may affect population recovery status.

Examples of the kinds of questions and issues addressed by these recovery metrics are provided in Table 2. The final decision framework will be developed in consultation with the Technical Review Panel as part of the project. The decision framework will then be tailored to each species to allow consideration of appropriate spatial-temporal scales and recovery evaluation designs according to available data (e.g., Parker and Wiens 2005).

B.4—Task 4: Synthesis of Information

The synthesis of information relevant to the determination of the current status of unrecovered resources and services is the centerpiece of this project. Under this task, Integral's information synthesis will be defined as a systematic analysis consisting of 1) the identification and compilation of research and data pertinent to understanding unrecovered resources and services; and 2) the subsequent review and prioritization of this research and data pursuant to objectives described in Tasks 2 and 3 above. Each of these subtasks is described under Tasks 4.1 and 4.2.

Task 4.1: Identification and compilation of research and data

Extensive research has been performed or is ongoing involving the characterization of the health and degree of recovery of resources and services adversely affected by the EVOS. Most of this research has been conducted through the EVOS Trustee Council. This would include the extensive body of research listed in the Summary of Restoration Strategies and Projects – FFY 92-02, as well as other research, monitoring and restoration projects generated through the Trustee Council.⁵ Additional information is available, including results of Exxon-sponsored research activities and the Natural Resource Damage Assessment reports generated following the

Table 2. Examples of Questions and IssuesThat Will be Used to Structure a DecisionFramework for Injured Resources

	· · · · · · · · · · · · · · · · · · ·
Recovery Metrics	Example Questions and Issues
Abundance and Productivity	Are populations significantly reduced in oiled areas relative to reference areas or relative to pre-spill levels? Are population parameters (e.g., growth, reproduction, mortality) similar to those expected in a natural population? Is inter- annual variability of each key population measure (e.g., average abundance; average fecundity) within the expected range of variation for natural populations? Is the population exhibiting a trend of
Spatial- Temporal Structures	increasing (or decreasing) abundance? Are metapopulation structure and habitat connectivity suitable for enhancing the stability of populations and fostering recovery of perturbed populations? Is there evidence of habitat fragmentation related to EVOS? Has sufficient time (and number of generations) elapsed since the EVOS to allow full recovery of the population?
Genetic and Phenotypic Diversity	What percentage of the population was killed in the original EVOS? Did the population reach a critical small size that would potentially lead to decreased genetic or phenotypic diversity? Is there evidence of decreased genetic heterogeneity since the EVOS?
Habitat: Physical Chemical Factors	What percentage of the population's habitat has lingering oil? Is lingering oil bioaccessible? Is the oil in a form that is bioavailable or capable of causing physical effects? Is there evidence of ongoing exposure (e.g., visual observations; bioaccumulation; biomarkers)?
Other stressors	Are natural or invasive predators threatening the viability of the population? Are climatic or other natural disturbances potentially inhibiting recovery of the resource species? Are other factors (e.g, harvesting or contaminants other than EVO) potentially inhibiting recovery of the resource species?

⁵ This would additionally include the ongoing studies being performed by Integral Consulting (available at <u>http://www.evostc.state.ak.us/pdf/04_DPD_Budgets/Jacobs_DPD_FINAL.pdf</u>) and the project being completed by Dr. Robert Spies (available at http://www.evostc.state.ak.us/pdf/04_DPD_Budgets/Jacobs_DPD_FINAL.pdf).

EVOS.6

The proposed synthesis will largely draw upon this collective, existing body of research. The new search engine developed by Trustee Council staff is expected to facilitate this compilation effort (<u>www.gem.state.ak.us/projects/searchstart.cfm</u>). Additional information will be identified through engaging researchers with expertise in specific species and EVOS research. This will occur primarily through meetings of the Technical Review Panel and the Resource/Services Workgroup described above under Task 1. Additional dialogue with experts outside of these meetings is also envisioned to augment identification of research and data.

The collective information identified throughout this process will be compiled and organized in a format compatible with ProCite. Approximately 500 references relevant to unrecovered resources and services are currently contained within Integral's existing electronic EVOS library. The existing library will be augmented with additional references and data identified throughout this subtask.

Task 4.2: Review and prioritization of pertinent research and data

As indicated, an extensive body of research and data currently exists related to the EVOS. However, not all of this information is pertinent to understanding the current status of resources or services. For example, research available for recovered resources is obviously not pertinent. For unrecovered resources and services, a number of completed projects may be of limited utility for the current work. Examples would include projects associated with curation techniques for animal carcasses, development of trawl survey techniques, and miscellaneous tasks associated with project management. Nevertheless, a large amount of potentially pertinent information remains, necessitating a process for prioritization of this information.

The primary mechanism for prioritizing pertinent research and data is the engagement of those experts who have conducted research and generated data and reports for unrecovered resources and services. During Technical Review Panel and Resource/Services Workgroup meetings and through separate discussions, experts will be relied upon to help focus and direct the review of research and data most pertinent to understanding injury classification and current recovery status. This would include research and data associated with the following:

- Natural history and ecology of unrecovered resources, with particular emphasis on current population status or other endpoints associated with current recovery objectives
- Ongoing effects (both direct and indirect) associated with the original spill and lingering oil
- Other factors potentially influencing continuing injury and rates of recovery (e.g., cyclical changes in the marine environment, other threats and effects of anthropogenic factors)
- Identified or hypothesized relationships between current population status and the EVOS.

Additional consideration for prioritization will be given to the pertinence of research and data within the context of the supplemental recovery categories described under Task 2 and the decision framework described under Task 3.

⁶ See for example http://www.evostc.state.ak.us/restoration/projects_NRDA.html.

The product of Task 4 will be a document that compiles and synthesizes the Trustee-funded research related to EVOS. This document will summarize key features of each study, with emphasis on those feature that directly relate to research objectives, restoration objectives, monitoring tools, and information that can be applied to future oil spills. This document will be included in the final report as an appendix. The prioritized list of research projects and technical papers identified during this task will be the foundation for the technical analysis and recommendations related to resource condition and restoration activities (Task 5).

B.5—Task 5: Characterize Resource Condition and Recommend Restoration Activities

Resources and services classified as recovering, not recovered, and unknown will be evaluated using the Task 3 decision framework and the supporting Task 4 synthesis of information. The use of the single decision framework will help to ensure that a consistent evaluation process is applied to all resources. The report format for each resource or service will be consistent with Table 2 of the 2006 invitation for proposals, which is reproduced below in abbreviated form as Table 3.

Та	ble 3. Statu	s Update of an Injured Species or Service	
1	. Introducti	on	
2	Backgrou	nd	
	2.1	Natural history and ecology	
	2.2	Summary on initial impact (1989-1994)	
	2.3	Summary of follow-up impact if spill (1995 – 2005)	
3	. History at	nd current status of recovery classification	
	3.1	Status in the 1994 Restoration Plan	
	3.2	Summary of changes in status over time	
	3.3	Current status (2002 Restoration Plan with 2003	
		additions)	
4	. Summary	of monitoring, research, and restoration projects	
	conducted	l to date	
	1.1	Summary of EVOS funded projects	
	1.2	Summary of non-EVOS funded projects	
	1.3	Relationship of projects to recovery objectives an	
		restoration strategy	
5	. Synthesis	of EVOS effects	
	5.1	Direct effects of initial spill	
	5.2	Indirect and cascade effects of initial spill	
	5.3	Ongoing effects of spill	
6	. Other fact	ors influencing injury, recovery rate, and population	
	6.1	Long-term population trends within and outside spill	
		area	
	6.2	Ecosystem change, regime shifts, and cyclical changes	
		in the marine environment	
	6.3	Other threats and anthropogenic factors	
7	. Summary	of current population status and relationship to EVOS	
	7.1	Relationship to past and current recovery objectives	
	7.2	Supplemental endpoints for interpretation of	
		population status (physical, temporal, spatial)	
8	. Recomme	Recommendations for revised EVOS recovery objectives and	
	restoration	istrategy	
	8.1	Populations	
	8.2	Physical factors	
	8.3	l'emporal factors	
0	8.4	Spatial Factors	
9	. Recomme	ndation for future actions	
	9.1	Research, monitoring, or restoration costs	
	9.2	Direct and indirect costs	
	9.3	Primary and secondary benefits of action	

It is anticipated that a portion of the required work effort (i.e., portions of Sections 1 - 7 and Section 9, above) for those resources classified as recovering and not recovered will have been addressed by the ongoing work of Jacobs et al. (2005). Resources and services that have not been addressed by Jacobs et al. (2005) include wilderness areas, archeological resources, all resources currently classified as unknown (i.e., Dolly Varden, Cutthroat trout, Rockfish, Kittlitz's Murrelet, and subtidal communities) and all services classified as recovering (i.e., commercial fishing, passive use, recreation and tourism, and subsistence use).

Critical steps in the process proposed for characterizing resources and developing recommendations have been captured in Tasks 1, 2, and 3. The early identification of refinements to recovery objectives, the development and use of a

consistent evaluation framework, and the timely inclusion of key decision-makers and experts

will collectively provide for consistency across resources (and resource-dependent services) and ensure a scientifically sound and objective approach.

C. Data Analysis and Statistical Methods

A significant portion of this work will entail the review and synthesis of a large body of research and data associated with various scientific reports and other literature. Of critical importance will be the implementation of an electronic library database to efficiently manage and facilitate the review of this information. As described under Task 4, a large number of pertinent references currently exist within Integral's electronic EVOS library. We envision that additional references will be identified under Tasks 1 and 4 to augment this existing library. The new search engine developed by Trustee Council staff is expected to facilitate this compilation effort (www.gem.state.ak.us/projects/searchstart.cfm).

Integral's electronic library is built upon commercially available, innovative and specialized bibliographic software known as Biblioscape.⁷ Biblioscape offers a number of distinct advantages for the review and synthesis of information required under the proposed work. These include the storage of electronic references,⁸ full text and keyword searching, secure web accessibility, the ability to generate formatted bibliographies within reports, and the ability to transfer a Biblioscape database to a ProCite database.⁹

Data analysis other than that associated with the management of the electronic library is anticipated to be limited. The proposed work represents a synthesis project, and as such, it is anticipated that limited new data will be generated that will require conventional quantitative analysis. In instances where such analyses are required, Integral will utilize a number of general analytical software products, such as Microsoft Excel. Specialized statistical software may also be utilized, including Systat v.10.0 and Statistica v.7.0. Throughout Tasks 1 and 4, Integral's statistical experts will also actively engage statisticians associated with research considered under this synthesis. This will facilitate the assessment of the statistical soundness underlying research data and its interpretation. For example, under Integral's current lingering oil evaluation, we engaged the statistical experts who developed the study design for the 2001 lingering oil survey performed by NOAA's Auke Bay Laboratory.

D. Description of Study Area

This project will focus upon pertinent research and data compiled throughout PWS on unrecovered resources and services. Pertinent information for other areas throughout the Gulf of Alaska impacted by the EVOS will additionally be considered.

⁷ See <u>http://biblioscape.com/index.html</u>.

⁸ Electronic files can be entered and stored in Biblioscape in a number of formats, including but not limited to portable document format files (.pdf) Microsoft Word, PowerPoint, and Excel files (.doc, .ppt, .xls), standard text files (.txt), hyper-text markup language files (.html), and various picture formats (e.g., .gif. tif, .bmp, .jpg, .wmf).

⁹ Reviewers are invited to go to the following ftp site to download a Word document that provides screen captures of various features of Integral's electronic EVOS library. ftp:// ftp.integral-corp.com User name: c113 Password: evos123

E. Coordination and Collaboration with Other Efforts

We envision a closely coordinated and highly collaborative effort with Trustee Scientists and other scientists as described in Section II.A.1, Task 1.

III. Schedule

A. Project Milestone

Based on the FY2006 Invitation for Proposals, the duration of the project will be nine months commencing with funding on October 1, 2006 with ending with submission of final reports due July 1, 2006. Project milestones for the objectives identified in Section II.A are:

Objective 1. Task 1 - Identify scientists with appropriate experience and expertise who can contribute to an evaluation and a synthesis of major issues associated with resource injury status, recovery objectives, and restoration strategies. To be met prior to project initiation (by October 1, 2005). Task 2 - Assess 2002 recovery objectives and develop refinements to improve Objective 2. their functionality in a practical decision framework. To be met by January 1, 2006 Task 3 - Develop a decision framework to objectively and systematically evaluate Objective 3. the recovery status of injured resource populations. To be met by January 1, 2006 Objective 4. Task 4 - Compile and synthesize research and information relevant to resource injury classification and recovery status that can be used effectively in the decision framework. To be met by February 15, 2006 Objective 5. Task 5 - Characterize the recovery condition of resources classified as recovered, not recovered, and recovery unknown and recommend restoration activities as needed. To be met by April 1, 2006

B. Measurable Project Tasks

Measurable tasks will consist of the meetings, presentations, and draft and final reports anticipated over the duration of the project as follows:

FY06, 1 st quarter (O	ctober 1 – December 31, 2005)
November 1	Technical Review Panel Meeting to discuss refinements to approach
	(Anchorage)
December 1	Prepare draft technical memo describing approach
December 8 and 9	Expert Workshop to communicate approach, comment, and prioritize resource issues and studies for synthesis effort (Anchorage)

FY06, 2nd quarter (January 1 – March 31, 2006)

January	Quarter 1 progress report
January 22-25	Alaska Marine Science Symposium (Anchorage)
January 25 and 26	Technical Review Panel Meeting-Planning for workshops (Anchorage)
January 23-26	Expert Workshops-Discuss status of resource synthesis, recovery
	objectives, recovery status (Anchorage)
February 25	Technical Review Panel-Discuss outcome, initial conclusions, planning
	for public meeting (Anchorage)

FY06, 3rd quarter (April 1 – June 30, 2006)

April 1	Draft Report
April 15	Presentation to the Trustee Council
April 16	Presentation to the public
June	Quarter 2 progress report

FY06, 4rd quarter (July 1 – September 30, 2006)

	1
July	Final report
July	Presentation to the Trustee Council

IV. Responsiveness to Key Trustee Council Strategies

A. Community Involvement and Traditional Ecological Knowledge (TEK)

Community involvement and incorporation of traditional ecological knowledge are most relevant to the development of restoration alternatives for resources and services that have not yet recovered. Public communication is also anticipated at project milestones, for example when the recovery objectives and decision framework have been developed or when the draft recommendations regarding injury classification and restoration alternatives are developed.

The specific methods for incorporating traditional ecological knowledge and involving the community will be determined during the initial meeting of the Technical Review Panel and from feedback from the Trustee Council.

B. Resource Management Applications

Distinguishing the impacts of the various factors that can influence resource populations is a major challenge to resource managers. The refinement of recovery objectives and the development of a decision framework to evaluate resource populations are anticipated to have much broader application than the resources injured by the Exxon Valdez oil spill. The evaluation of the recovery status of resource populations will draw upon qualitative and quantitative information about intrinsic population variables (e.g., abundance and reproductive measures) as well as extrinsic factors (e.g., habitat, harvesting) that determine population viability and attendant recovery status. The decision framework developed for this project is not resource-specific, and should be applicable to all resources and resource populations that are vulnerable to these multiple stressors from both human and natural conditions (see Table 2).

V. Publications and Reports

Draft and final reports for the Synthesis Project will be provided April 1, 2006 and July 1, 2006 respectively. Draft and final reports will be prepared according to Trustee Council guidance entitled *Procedures for the Preparation and Distribution of Reports*. A proposed outline of the report for the Synthesis Project is described above in Section II.B of this Project Plan. We anticipate that portions of the Synthesis Report will provide the foundation for several peer reviewed publications. However, the scope of those publications will be determined in consultation with the Technical Review Panel and the Resources/Services Workgroup as the Synthesis Project nears completion in July 2006. Consequently, we are not requesting funding for production of peer-reviewed publications in this funding cycle.

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RESUMES

Jacobs_FY06_Proposal 091405.doc
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Lucinda A. Jacobs, Ph.D. Principal

Professional Profile

Dr. Lucinda Jacobs is an environmental scientist who specializes in aquatic and sediment geochemistry, processes that mitigate exposure to toxic chemicals, and processes that control chemical transport and fate. During her 25 years of experience, she has designed, directed, and contributed to a variety of multidisciplinary environmental studies, including global studies of metal behavior in anoxic marine systems; remedial investigation/feasibility study (RI/FS) and ecological risk assessment projects in wetlands, river systems, urban lakes, and bays; and natural resource damage assessments (NRDAs). Dr. Jacobs has developed and directed investigations that integrated source control and chemical fate processes (*e.g.*, bioavailability, natural recovery) with effects-based testing to derive site-specific toxicity thresholds, cleanup levels, and benchmark values. She is familiar with a wide variety of field sampling and laboratory analytical methods, including toxicity testing and radionuclide dating techniques, and has designed or contributed to the design of a variety of field studies. She has directed the preparation of two data validation guidance manuals.

Dr. Jacobs has served as an expert witness and expert consultant on chemical fingerprinting, loading analyses, the timing of releases, natural resource injury, and the interpretation and conclusions of environmental investigations. This has included reconstructing historical scenarios for environmental releases and analyzing existing environmental distributions in the context of current and ongoing sources and transport/fate processes.

Professional and Academic Credentials

Ph.D., Chemical Oceanography, University of Washington, 1984M.S., Chemical Oceanography, University of Washington, 1982B.S. Chemistry, University of California, Los Angeles (honors), 1974

Society of Environmental Toxicology and Chemistry American Geophysical Union

Relevant Experience

Exxon Valdez Oil Spill, Prince William Sound—Currently serving as project manager and project executive for the State of Alaska. Project involves evaluation of the current injury and restoration status of resources injured in the 1989 Exxon Valdez Oil spill. Technical activities include document review, information synthesis, communication and coordination with trustee agencies, and public communication.

Clark Fork River, Montana—Managed a natural resource injury assessment for ARCO in anticipation of litigation. Activities included study design, development of key technical arguments, design of data interpretation strategy and injury assessment methods, and preparation of an expert report.

Coeur D'Alene River, Idaho—Served as a consulting expert for ASARCO and HECLA in a natural resource damage litigation related to the mining activities in the Coeur d'Alene basin. Primary focus of assessment was water quality injuries.

General Support to National Oceanic and Atmospheric Administration (NOAA)—Served as project chemist for a NOAA project to investigate the threat posed to natural resources at a variety of uncontrolled hazardous waste sites. This investigation included the assessment of environmental transport and fate processes that influenced the relationship between contaminants and sensitive resources.

Ward Cove Sediment Remediation Project, Alaska—Project manager and technical coordinator of all technical activities related to sediment assessment and remedy design, including facilitating communication with regulators. Project addressed historical pulp mill releases, which consisted largely of wood debris, organic matter, and organic matter degradation products. The absence of unacceptable human and wildlife risks, the nature of chemicals of concern, and the type of sediment toxicity were the basis for developing an innovative remedy for the 80-acre problem area that consisted of thin capping/sediment amendment (27 acres) and natural recovery (53 acres).

Alaska Pulp Company Investigation, Sitka, Alaska—Served as an independent reviewer and technical resource for a fast-track RI/FS at a former pulp mill site. Participated in the development of technical strategies for interpreting sediment data, assessing exposure and risk, and developing appropriate remedial approaches.

Selected Publications

Klein, S.M., and L.A. Jacobs. 1995. Distribution of mercury in the sediments of Onondaga Lake, N.Y. *Water Air Soil Pollut*. 80:1035–1038.

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Robert A. Pastorok, Ph.D.

Senior Science Advisor

Professional Profile

Dr. Robert Pastorok is an ecologist specializing in ecological risk assessment and restoration ecology. He has over 30 years of experience, with expertise in study design, ecological modeling, and analysis of the effects of toxic chemicals in aquatic and terrestrial ecosystems. Dr. Pastorok was co-investigator to assess the ecological effects of oil spills and cleanup techniques in coastal habitats, leading to the first field guidance manual for oil spill cleanup developed by the American Petroleum Institute. His experience includes impact assessments in Cook Inlet, Alaska and offshore waters, as well as investigation of oil spill effects on California sea otter and development of rehabilitation techniques. Dr. Pastorok managed an expert panel to develop guidance on restoration of aquatic habitats for the U.S. Army Corps of Engineers. He also led major multidisciplinary investigations in Puget Sound (WA), the Willamette River (OR), the Hudson River (NY), and the Clark Fork River (MT).

Professional and Academic Credentials

Ph.D., Zoology, University of Washington, 1978 B.S., Biology, University of Notre Dame (honors), 1971

Senior editor, *Human and Ecological Risk Assessment* (Senior 2000–2005; Associate 1997-2000) Society of Environmental Toxicology and Chemistry Ecological Society of America

Relevant Experience

Exxon Valdez Oil Spill, Prince William Sound—Evaluating population modeling for harlequin duck and sea otter to assess recovery status after the Exxon Valdez oil spill.

Restoration of River Habitats, Hudson River—Analyzed ecological structure and function relationships to guide the selection of indicators for monitoring the success of habitat restoration.

Ecological Modeling, Worldwide—Evaluated ecological models for population-, ecosystem-, and landscape-level endpoints for use in ecological risk assessment (book published by CRC Press).

Habitat Restoration after Oil Spills, USA—Evaluated relative benefits, ecological impacts, and costs of restoration after oil spills in marine and freshwater habitats.

Aquatic Habitat Restoration Guidance, USA—Led an expert panel to develop guidance for restoration of coastal and freshwater habitats.

Oil Spill and Cleanup Impacts, Worldwide—Evaluated potential ecological impacts and recovery in marine habitats affected by oil spills and cleanup operations.

Drilling Mud Impacts, Alaska—Evaluated potential effects of drilling mud discharges on plankton of the Beaufort, Chukchi, and Bering seas; Cook Inlet; and northeast Gulf of Alaska.

Comparative Risk Expert Panel, California—Member of Corps of Engineers panel of experts to review a comparative risk assessment of dredged material disposal options in Moss Landing Harbor and Monterey Bay, CA.

Bioaccumulation Monitoring Guidance, USA—Served as technical supervisor to develop national guidance manuals on estimating the bioaccumulation potential of toxic pollutants, selecting target species, and selecting sampling strategies for bioaccumulation monitoring.

Selected Publications

Pastorok, R.A., S.M. Bartell, S. Ferson, and L.R. Ginzburg. 2002. Ecological modeling in risk assessment: chemical effects on populations, ecosystems, and landscapes. CRC Press, Lewis Publishers, Boca Raton, FL. 302 pp.

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Ginn, T.C., and R.A. Pastorok. 1992. Assessment and management of contaminated sediments in Puget Sound. pp. 371–401. *In:* Sediment Toxicity Assessment. Lewis Publishers, Ann Arbor, MI.

Booth, P.N., D.S. Becker, R.A. Pastorok, J.R. Sampson, and W.J. Graham. 1991. Evaluation of restoration alternatives for natural resources injured by oil spills. API Publication No. 304. American Petroleum Institute, Washington, DC.

Johnson, T.L., and R.A. Pastorok. 1982. Oil spill cleanup: Options for minimizing adverse ecological impacts. API Publication No. 4435. American Petroleum Institute, Washington, DC.

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Damian V. Preziosi Managing Scientist

Professional Profile

Mr. Damian V. Preziosi is an environmental scientist with specialization in the evaluation of potential ecological and human health risks associated with exposures to physical, chemical, and biological hazards. Mr. Preziosi's areas of expertise include environmental fate, exposure, toxicology, aquatic ecology, statistics, and natural resource damage assessment. He has developed and applied innovative quantitative methods, including probabilistic and other varieties of uncertainty analysis, Geographic Information Systems (GIS) analysis, and a wide variety of environmental fate, transport and food chain models used in the assessment and management of both ecological and human health risks.

Professional and Academic Credentials

M.S., Biology, Department of Biology, Bucknell University, 1994 B.S., Biology and Geology, Juniata College, 1991

American Society of Testing and Materials (E-47) Ecological Society of America

Society of Environmental Toxicology and Chemistry

Society of Toxicology, National Capital Area

Relevant Experience

Exxon Valdez Oil Spill, Prince William Sound—Currently serving as a technical lead and task manager for the State of Alaska. Project involves evaluation of the current injury and restoration status of resources injured in the 1989 Exxon Valdez Oil spill. Technical activities include document review, information synthesis, and communication and coordination with trustee agencies.

Greens Bayou and Houston Ship Channel, Texas—Conducted ecological evaluation and risk assessment of contaminated sediments in Greens Bayou and Houston Ship Channel located in coastal Texas. Work included the designing of a fish sampling study, the development of aquatic-based food web models, and conducting statistical and chemometric (e.g., chemical fingerprinting) analyses of PAHs and organochlorine residues in fish and sediment.

Development and Application of a Habitat Valuation Tool—Developed and applied a quantitative ecosystem model to evaluate competing risks from chemical residuals with those associated with remediation. The model, referred to as the Adaptive Ecosystem Rehabilitation Approach (AERA), assessed the value of an ecosystem's functions and components such that the cost (e.g., alteration of the natural setting during remediation) and benefit (e.g., removal of chemical risk) of a remedial alternative could be assessed.

Marine Groundfish Resource Survey—Under the National Marine Fisheries Service (NMFS), conducted biological surveys of benthic and pelagic fishes of the North Pacific Ocean and Bering Sea. Abundance, life history, and distribution of species were assessed.

McKay Bay Estuary, Florida—Conducted multiple pathway ecological risk assessment a former industrial site located along McKay Bay, Florida. Potential risks to benthic community were assessed utilizing multiple lines of evidence, including sediment bulk chemistry, community metrics, and simultaneous extracted metals and acid- volatile sulfide analyses (SEM/AVS). For migratory birds, both single-point and probabilistic techniques were used to assess exposure and risk.

Selected Publications and Presentations

Preziosi, D.V., and L.G. Williams. 2004. Quantile regression - another tool for examining the predictive ability of sediment quality guidelines. 2004 Society of Environmental Toxicology and Chemistry (SETAC) Annual Meeting, Portland, OR.

Preziosi, D.V., and P.C. Chrostowski. 2003. Foodchain model calibration and post-hoc validation – a risk assessment case study. 2003 Society of Environmental Toxicology and Chemistry (SETAC) Annual Meeting, Austin. TX.

Preziosi, D.V., and J.L. Durda. 2002. The concentration term in ecological risk assessment. Society of Environmental Toxicology and Chemistry (SETAC) Globe 3(6):20-21.

Preziosi, D.V., and P. Woodbury. 2000. Techniques and Tools for Addressing Scales in Ecological Risk Assessment. Interactive Poster Session co-Chairs. 21st Annual Meeting for the Society of Environmental Toxicology and Chemistry (SETAC). November 12-16, Nashville, TN.

Preziosi, D.V. 1999. Probabilistic Ecological Risk Assessment Platform Session. Session Chair. 20th Annual Meeting for the Society of Environmental Toxicology and Chemistry (SETAC). November 14-18, Philadelphia, PA.

Preziosi, D.V., and J.L. Durda. 1998. The adaptive ecosystem rehabilitation approach (AERA), a new habitat valuation approach for remedial alternative selection. Society of Environmental Toxicology and Chemistry (SETAC) News 18(1):24-25.

Buck, E.H., and D.V. Preziosi. 1995. Overcapitalization in the US Marine Commercial Fishing Industry. Congressional Research Service Report for Congress. Library of Congress, Washington, DC: #95-296ENR.

Durda, J.L., P.C. Chrostowski, and D.V. Preziosi. 2004. Chemometrics as a tool for sediment assessment and management: A case study of Greens Bayou, Houston, Texas. 2004 Society of Environmental Toxicology and Chemistry (SETAC) Annual Meeting, Portland, OR.

Durda, J.L., L.G. Williams, and D.V. Preziosi. 2004. Challenges to conventional wisdom regarding biomagnification in aquatic food webs. 2004 Society of Environmental Toxicology and Chemistry (SETAC) Annual Meeting, Portland, OR.

Durda, J.L., and D.V. Preziosi. 2000. Data quality evaluation of toxicological studies used to derive exotoxicological benchmarks. *Human and Ecological Risk Assessment*. Vol. 6, No. 5, pp 747-765.

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Les Williams, Ph.D. Managing Scientist

Professional Profile

Dr. Les Williams is aquatic ecologist specializing in the characterization and quantification of ecological risk and natural resource injury in support of focused management strategies for contaminated aquatic and sediment ecosystems. His consulting practice includes quantitative techniques and modeling applications that can be used in site-specific evaluations of injury to natural resources, management of contaminated sediment and dredged materials, determination of chemical bioaccumulation and toxicity in aquatic organisms, development of site-specific sediment quality and water quality values, and human health and ecological risk assessments.

Professional and Academic Credentials

Ph.D., Marine Studies, University of Delaware, 1978 M.S., Marine Biology, University of the Pacific, 1971 B.A., Biology, Whitman College, 1968

Association of Environmental Health and Sciences Estuarine Research Federation Society for Environmental Toxicology and Chemistry Society for Risk Analysis

Relevant Experience

Exxon Valdez Oil Spill, Prince William Sound Alaska—Currently leading a re-evaluation of natural resource injury and recovery status for unrecovered resources. Project activities include development of a conceptual exposure model and re-evaluation of the status of unrecovered resources (e.g., Pacific herring, sea otter, harlequin duck, intertidal communities) in the context of the original oil spill and possible continuing exposure to lingering oil in intertidal sediments.

Ecological Risk Assessment of Benthic Communities in a Texas Estuary— Conducted an evaluation of risks to the benthic community in an urbanized Texas bayou in the vicinity of a former pesticide manufacturing facility. The benthic community evaluation was based on three lines of evidence: sediment quality values vs. sediment chemistry concentrations; sediment toxicity tests; benthic community analyses. The risk assessment showed the presence of a stressed benthic community that was disturbed by natural estuarine gradients in salinity, temperature, and dissolved oxygen. There was no indication that chemical residues related to the pesticide manufacturing facility had impaired the benthic community in the bayou.

Marine Ecological Risk Assessment, Sitka Mill Site, AK—Managed an ecological risk assessment of chlorinated dibenzodioxins and dibenzofurans, resin acids, and trace metals to marine invertebrates, fish, birds, and mammals in the vicinity of the Sitka Mill. Sediment chemistry, sediment toxicity testing, and sediment profile imaging (SPI) were used to assess potential risks to benthic marine invertebrates. A state-of-the-science physiological-based biokinetic food chain model was used to evaluate exposure and risk to shorebirds, seabirds, sea otter, and harbor seal als in the vicinity of the site. *Ecological Risk Assessment, Adak Island, AK*— Developed ecological risk-based screening concentrations to identify chemicals of potential concern in soils, to prioritize sites for further evaluation, and to set preliminary cleanup goals for soil remediation. Evaluated two stream drainages containing a total of seven hazardous waste sites for possible toxic effects in a subarctic tundra ecosystem. Using a general knowledge of Adak Island flora and fauna, a variety of food-chain models were used to estimate chemical exposure to representatives of freshwater and terrestrial communities. These receptors included fish, aquatic invertebrates, caribou, Norway rat, bald eagle, ptarmigan, and mallard. Chemicals of concern included several volatile organic compounds, PAHs, PCBs, and metals.

Expert Peer Review for Ecological Impacts of Wood Debris in the Marine Environment—On behalf of the Sealaska Corporation, consulted and provided expert commentary on Alaska Department of Fish and Game's proposed plan for assessing marine ecological impacts associated with wood debris in the vicinity of log transfer and storage facilities in Southeast Alaska. Recommended alternative approach to document key processes of ecosystem structure and function that would provide basis for management decisions concerning natural recovery vs. active site remediation. Authored review article on marine ecological impacts of wood waste.

Selected Publications

Williams, L. R.A. Schoof, J.W. Yager, and J.W. Goodrich-Mahoney. 2005. Arsenic bioaccumulation in freshwater fishes. In preparation. *Human and Ecological Risk Assessment*.

Williams, L., R. Schoof, A. Schuler, P. Zieber, J. Yager, and J. Goodrich-Mahoney. 2004. Arsenic Bioaccumulation – Implications of using a power function to estimate bioaccumulation factors. Abstract. Society of Environmental Toxicology and Chemistry, 25th Annual Meeting, Portland, OR.

Williams, L., J. Durda, D. Preziosi, and P. Sparks. 2004. Benthic ecological risk assessment – Balancing environmental and chemical stressors in an estuary. Abstract. Society of Environmental Toxicology and Chemistry, 25th Annual Meeting, Portland, OR.

Preziosi, D. and L. Williams. 2004. Quantile Regression Another Tool for Examining the Predictive Ability of Sediment Quality Guidelines. Abstract. Society of Environmental Toxicology and Chemistry, 25th Annual Meeting, Portland, OR.

Williams, L. and G. Braun. 2001. Costs and benefits of a toxicity testing program to facilitate contaminated sediment cleanup. Abstract. Society for Risk Analysis, 2001 Annual Meeting, Seattle, WA.

Braun, G., J.Q. Word, M. Pinza, and L. Williams. 1997. An assessment framework for interpreting toxicity data in the vicinity of a pulp mill. Poster Abstract. Society of Environmental Toxicology and Chemistry, 18th Annual Meeting, San Francisco, CA.

Suedel, B.C., E.A. McKenna, L.G. Williams, U. Vedagiri, P.A. Clifford, and D.F. Ludwig. 1995. Comparability of Human and Ecological Risk Assessments. *J. Hum. Ecol. Risk Assess.* 1:478-482.

Hummell, R. and L.G. Williams. 1994. Use of allometric relationships to standardize ecological risk models and predict risk-based screening concentrations for soil-borne contaminants. Poster Abstract, Society of Environmental Toxicology and Chemistry, 15th Annual Meeting, Denver, Colorado.

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Lori Anderson, M.S.

Wildlife Biologist

Professional Profile

Ms. Lori Anderson has worked in the fields of natural resource management and environmental compliance for the past 15 years. A wildlife biologist by training, she specializes in vertebrate species and habitats of the Pacific Northwest. Her work, conducted in both the public and private sectors, includes environmental impact assessments, wildlife studies, watershed analysis, and forest resource management. She has helped design projects to avoid significant impacts to wildlife and habitats. Her experience extends to watershed and wetlands issues as well.

Professional and Academic Credentials

M.S., Environmental Science/Terrestrial Ecology, Western Washington University, 1992 B.A., Environmental Studies/Biology, Middlebury College, 1986

Board Member, Nooksack Salmon Enhancement Association, 1999-2002 The Wildlife Society

Relevant Experience

Exxon Valdez Oil Spill Resource Evaluation—Conducted review of injured resources, including sea otters, harlequin ducks, seabirds, harbor seals, and killer whales. Reviewed the recovery status of these species since the injury caused by the Exxon Valdez oil spill. Critically examined results published in restoration study reports. Evaluated present-day status of populations recovering from the oil spill. Evaluated evidence of continued effects to species from lingering oil. Presented findings in a series of technical memoranda.

Donahue Forks Environmental Assessment, Olympic National Forest, Washington—Led a 6person interdisciplinary team in the assessment of alternatives to accelerate development of oldgrowth forest in second-growth forest stands. The project required creative and independent thinking, leading to the design of unique habitat enhancement and silvicultural treatment strategies. Ms. Anderson ensured that all aspects of the project were completed in a timely and professional manner. Ms. Anderson supervised the interdisciplinary team, led the public scoping effort, wrote and edited the environmental assessment, managed the budget, and made formal presentations to the client.

Tollgate Environmental Impact Statement, North Bend, Washington—Conducted an assessment of potential impacts to wildlife and habitats from a proposed development project. The proposal included a 200-acre housing development on farmland adjacent to the city of North Bend, WA. Issues to assess included potential impacts to threatened and endangered species such as the bald eagle and peregrine falcon, and habitat connectivity for riparian-dependent wildlife species. Ms. Anderson conducted the analysis in accordance with both State and National Environmental Policy Acts (SEPA and NEPA) and reviewed the project for compliance with the King County Sensitive Areas Code. Her findings led to mitigation measures to provide habitat along the riparian corridor. Salmon-Neskowin Watershed Analysis, Siuslaw National Forest, Oregon—Led a team of professionals in analyzing ecological conditions within the Salmon and Neskowin watersheds on the Oregon Coast. She managed all aspects of the project for an independent consulting firm, coordinating the effort with Forest Service and Bureau of Land Management personnel. The project included an assessment of wildlife, vegetation, fisheries, human resources, and geology. Recommendations were made for restoring ecosystem functions. Ms. Anderson directed the production of a useful and readable watershed analysis document.

Baker Lake Elk Study, Mt. Baker-Snoqualmie National Forest, Washington—Acted as principal investigator on a 5-year Forest Service administrative study designed to identify seasonal movements and habitat preferences of the Nooksack elk. Ms. Anderson was responsible for study design and on-the-ground implementation, including supervision of field personnel and coordination with cooperating agencies. Her efforts resulted in implementation of key habitat enhancement and protection measures for the declining elk herd. Methodologies included radio-tagging of elk, habitat analysis through the use of GIS technology, and habitat modeling with the aid of specialized spatial database software.

Green/Duwamish Watershed Restoration, King County, Washington—Assessed the potential impacts of watershed restoration projects on wildlife and habitats in the Green River watershed, King County, WA. The restoration plans included projects to restore channel diversity, reduce sedimentation, increase fish passage, and restore riparian, wetland, and estuarine habitat. Ms. Anderson wrote a biological assessment and portions of the environmental impact statement.

Lower Snake River Dredged Material Management Plan, Walla Walla, Washington—Conducted a biological assessment for this project, which included reviewing potential impacts to bald eagles, bull trout, and sensitive plants. Issues centered on potential disturbance to fish and wildlife caused by the proposed river-dredging operation and subsequent in-water disposal of dredged material. Strategies to reduce impacts included the use of manual rather than hydraulic dredging techniques and use of dredged material to create near-shore salmon rearing habitat.

Wildlife Surveys, U.S. Forest Service, Region 6, Washington and Oregon—Managed and conducted numerous wildlife survey and monitoring efforts. Ms. Anderson managed crews of two to ten field biologists in surveying for spotted owls, marbled murrelets, bald eagles, mollusks, amphibians, and elk. Throughout her career she has conducted hundreds of hours of field work. During her tenure with the U.S. Forest Service she trained and supervised crews in monitoring and sampling techniques. Methodologies included use and knowledge of current wildlife inventory and monitoring protocols and radio-telemetry tagging and tracking techniques.

Ecological Risk Assessment, Seattle, Washington—Conducted background research for ecological risk assessments. Her work included development of informational papers describing the transfer of contaminants through terrestrial food chains. She assisted with food chain modeling of contaminated sites and collected information on bioaccumulation of PCBs, heavy metals, and organic compounds within relevant ecosystems.

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Vicki L. Fagerness Senior Scientist

Professional Profile

Ms. Vicki Fagerness has over 14 years experience in the environmental field, with emphasis in the collection, analysis, and evaluation of sediment, water quality, and biological data from marine and estuarine environments. Ms. Fagerness is experienced in contaminated sediment management under CERCLA, Washington State Sediment Management Standards, and the Puget Sound Dredged Disposal Program, and has applied this knowledge to projects ranging from sediment characterization for dredging and disposal to sediment remediation at hazardous waste sites. She identified and evaluated potential chemical sources and pathways to the marine environment for Slip 4 in the Duwamish River and the Hylebos Waterway pre-remedial design program. Ms. Fagerness' work evaluating potential impacts of human activity on biological resources includes preparation of numerous environmental impact statements, biological evaluations/biological assessments, and permit applications for marine construction and dredging projects.

Professional and Academic Credentials

M.S., Biological Oceanography, Oregon State University, 1984 B.A., Biology, Colorado College, 1977

Hazardous Waste Operations and Emergency Response 40-hour Certification Hazardous Waste Operations Supervisor 8-hour Certification Society of Toxicology and Chemistry/Pacific Northwest Chapter

Relevant Experience

Exxon Valdez Oil Spill Impact Assessment, Alaska—Compiled existing data and information to assess potential impacts of lingering oil from the Exxon Valdez Oil Spill on natural resources (e.g., herring, clams, mussels) 15 years after the initial spill.

Slip 4, Duwamish Waterway, Seattle, Washington—Deputy project manager responsible for preparation of numerous reports related to early actions for the cleanup of contaminated sediments in Slip 4 of the Duwamish Waterway. Ms. Fagerness managed the preparation of the report summarizing existing conditions, including sediment quality, water quality, and human and biological resources. She identified and prioritized data gaps to be addressed during site characterization. Following sample collection and analysis to fill data gaps, she prepared the data report presenting results and a technical memorandum describing the proposed cleanup boundary. Currently assisting with preparation of the Engineering Evaluation/Cost Analysis report evaluating cleanup alternatives.

Portland Harbor Upland Site Evaluations, Portland, Oregon—Summarized available information on upland sites for evaluation of contaminant sources to Willamette River sediments and Portland Harbor Superfund Site. For each individual property and facility, information on ownership; current and historical operations; regulatory status; spills; discharges; and soil,

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groundwater, and discharge data were compiled and summarized to evaluate possible contaminant contributions to the river.

Biological Evaluation/Biological Assessment, Olympia, Washington—Prepared BE/BA in support of 404 permitting for a proposed bulkhead replacement and repair project. The BE/BA evaluated potential impacts to endangered and threatened species, including Chinook salmon and bull trout. Forage fish were of particular concern as the project was located in a designated surf smelt spawning area. Ms. Fagerness worked with the property owner to incorporate measures to improve forage fish habitat.

Portland Harbor CERCLA RI/FS, Portland, Oregon—Coordinated preparation of the Round 1 Field Sampling Plan for the Lower Willamette River Superfund Site RI. Data were required for site characterization and ecological and human health risk assessments. This extensive sampling program involved multiple consultants and required collection of several hundred sediment, invertebrate, and fish tissue samples for chemical analysis.

Chemical Source Control Evaluation, Tacoma, Washington—Coordinated task to evaluate the potential for recontamination prior to sediment remediation in Hylebos Waterway, under CERCLA. Ms. Fagerness compiled and evaluated groundwater, soil, and surface water data. She compared upland data to applicable criteria and standards. Other types of data analysis included evaluation of chemical spatial distributions, temporal changes in chemical concentrations, and chemical fingerprinting. Identified and prioritized potential chemical sources requiring investigation.

Hylebos Waterway Sediment Investigation, Tacoma, Washington—Prepared sampling and analysis plan and coordinated field sampling effort for Phase 3 of the Hylebos Waterway Pre-Remedial Design program. This effort included collection and analysis of subtidal and intertidal sediments at 30 stations for chemical analysis, biological toxicity testing, and benthic infauna abundance analysis.

Natural Resources Damage Assessment, Kitsap County, Washington—Managed project to evaluate PCB contamination in intertidal and marine sediments at a CERCLA site and to identify potential biological effects. Responsible for sampling plan design, field sampling, subconsultant oversight, data evaluation, and final report.

Priority Habitats and Species Survey, Ilwaco, Washington—Responsible for marine component of Priority Habitats and Species Survey prepared in support of permit requirements for waterfront expansion at a U.S. Coast Guard Station. Conducted reconnaissance-level survey of marine habitat and biological communities in intertidal and shallow subtidal areas to evaluate the possible presence of priority habitats, threatened or endangered species, or other protected or monitored species.

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Deborah A. Rudnick, Ph.D. Ecologist

Professional Profile

Dr. Deborah Rudnick is an ecologist specializing in the design and execution of complex ecological investigations. In her 8 years of professional experience, Dr. Rudnick has conducted research in population and community ecology, trophic ecology, and processes of biological invasions in aquatic habitats. She has investigated behavioral interactions among aquatic invasive species, conducted stable isotope analyses and designed experimental mesocosms to investigate aquatic food webs, quantified geomorphological processes in Pacific Northwest rivers, and developed monitoring designs for wildlife habitat, water chemistry, and pharmaceutical products in the marine environment. Dr. Rudnick's professional experience includes conducting biological inventories, riparian and wetland restoration, macroinvertebrate sampling, and in-stream improvements for fish and wildlife habitat in a diversity of geographic regions. Dr. Rudnick has provided leadership on research and management teams addressing invasive species and ecosystem health.

Professional and Academic Credentials

Ph.D., Environmental Science, Policy and Management, University of California at Berkeley, 2003

B.A., Ecology and Evolutionary Biology, Brown University, 1994

American Institute of Biological Sciences Ecological Society of America North American Benthological Society Sigma Xi Scientific Honors Society

Relevant Experience

10,000 Years Institute, Hoh River Water Monitoring Program, Washington—Implemented water quality monitoring program for the Hoh River Basin. Conducted fish, amphibian, and stream gradient surveys; measured discrete and long-term water quality parameters using a variety of instrumentation; conducted substrate classification surveys. Developed and reviewed Quality Assurance Program Plan for water quality monitoring program. Reported data to Hoh Indian Tribe and Olympic National Park scientists and managers.

Jefferson County Open Space, Colorado—Conducted timber management to improve foothills wildlife habitat. Conducted wetland mitigation to offset county development projects, including site selection, excavation and re-vegetation.

United States Department of Agriculture Public Lands and Environment Program, Vermont—Conducted timber management, prescribed burning, and salmonid stocking to restore wildlife habitat and supplement important fish populations on US Forest lands.

University of California at Berkeley, California—Designed and executed independent research on the population and community ecology of aquatic invasive species. Employed multiple

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experimental techniques, including stable isotope analysis with laboratory calibration, experimental mesocosms, and behavioral observations. Quantified invasive species impacts to riparian geomorphology and commercial fisheries. Chaired a multi-agency, multi-institution statewide workgroup to coordinate research and provide management recommendations for the control of Chinese mitten crabs at state and national levels.

Ventana Wilderness Sanctuary, Big Sur, California—Conducted point-count and mist-netting censuses to examine riparian passerine diversity and habitat use. Conducted steelhead trout population monitoring. Oversaw and trained volunteers in avian research techniques.

Kent Island Research Station, New Brunswick, Canada—Conducted research on avian parental care and offspring success in the Savannah sparrow (*Passerculus sandwichensis*). Conducted mist-netting, banding, blood sample collection, and nest-finding and observation.

Selected Publications

Hui^a, Clifford A., Deborah Rudnick^b,¹ and Erin Williams^c. 2005. Mercury burdens in Chinese mitten crabs (Eriocheir sinensis) in three tributaries of southern San Francisco Bay, California, USA. *Environ. Pollut. 2005* 133(3):481-487.

Rudnick, D., C. Culver, K. Hieb, D. Tullis, T. Veldhuizen, and B. Tsukimura. 2005. A life history model for the San Francisco Bay population of the Chinese mitten crab, *Eriocheir sinensis. Biological Invasions* 7:333-350.

Rudnick, D., K. Hieb, K. Grimmer, and V.H. Resh. 2003. Patterns and processes of biological invasion: The Chinese mitten crab in San Francisco Bay. J. Basic Applied Ecology 4: 249-262.

Rudnick, D., and V.H. Resh. 2002. A survey to examine the effects of the Chinese mitten crab on commercial fisheries in Northern California. *Interagency Ecological Project Newsletter* 15(1): 19-21.

Rudnick, D., V.H. Resh, and K.H. Halat. 2000. Ecology, distribution and potential impacts of the Chinese mitten crab (*Eriocheir sinensis*) in San Francisco Bay. Center for Wildlands and Water Resources Report UCAL-WRC-W-881.

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Robert B. Spies, Ph.D.

Managing Scientist

Credentials and Professional Honors

Ph.D., University of Southern California, Los Angeles, California, 1971M.S., University of Pacific, Dillon Beach, California, 1969B.S., St. Mary's College, Moraga, California, 1965

Relevant Experience

Review of Proposals, Papers and Dissertations—Environmental Protection Agency, National Center for Environmental Research; National Oceanographic and Atmospheric Administration; National Science Foundation; National Research Council; Natural Environment Research Council (United Kingdom); European Congress of Limnology and Oceanography; International Joint Commission (Great Lakes); Massachusetts Sea Grant; Georgia Sea Grant; State of Alaska; Estuarine Research Federation; Department of Energy; National Undersea Research Center; University of California, Davis; University of California, Santa Barbara; University of Maryland; CRC Press; American Chemical Society, Petroleum Research Fund; Southern California Coastal Water Research Project; Hudson River Foundation; John Simon Guggenheim Foundation; Aquatic Toxicology; Canadian Journal of Fisheries and Aquatic Sciences; Environmental Toxicology and Chemistry; Journal of Experimental Marine Biology and Ecology; Marine Biology; Marine Ecology Progress Series; Marine Pollution Bulletin Science

Major Research Interests—The fate and effects of contaminants (especially petroleum) in the aquatic environment; alteration of hormone production and balance by receptor-mediated contaminant effects; the effects of oil spills on ecosystems; the detection and quantification of polynuclear aromatic hydrocarbons and chlorinated aromatic hydrocarbons in sediments and organisms; the degradation and utilization of petroleum hydrocarbons in sediments; the utilization of petroleum and sewage carbon in nearshore marine food webs; natural isotopes in food webs as tracers; biological processes in natural petroleum seeps; benthic-pelagic coupling; biogeochemistry of oil-contaminated sediments; chemical tracers of street runoff; detecting community change in deep-water, hard-bottom communities; effects of contaminated sediments on marine organisms; design of programs to detect long-term change in benthic communities; applications of accelerator mass spectrometry in marine ecology.

Positions Held—Instructor, University of California, Los Angeles, 1968; Senior Research Officer, Ministry for Conservation, Melbourne, Australia, 1970-1973: Marine Scientist, Lawrence Livermore National Laboratory, Livermore, California, 1973-1991; President, Applied Marine Sciences, 1990- :Chief Scientist, Exxon Valdez Oil Spill Trustee Council, 1990-2001; Board of Directors of the Romberg Tiburon Center for Environmental Studies, 1993-20021; Board of Directors, Alaska SeaLife Center, 1994- : President, 2003-

Selected Publications

Spies, R.B., and P.H. Davis. 1979. The infaunal benthos of a natural oil seep in the Santa Barbara Channel. *Mar. Biol.* 50, 227-237.

Spies, R.B., J.S. Felton, and L.J. Dillard. 1982. Hepatic mixed-function oxidases in California flatfish are increased in contaminated environments and by oil and PCB ingestion. *Mar. Biol.* 70, 117-127.

Steurmer, D.H., R.B. Spies, P.H. Davis, D.J. Ng, C.J. Morris, and S. Neal. 1982. The hydrocarbon chemistry of the Isla Vista Marine Seep Environment. *Mar. Chem.* 11, 413-426.

Montagna, P.A., J.E. Bauer, M.C. Prieto, D.H. Hardin, and R.B. Spies. 1986. Benthic metabolism in a natural coastal petroleum seep. *Mar. Ecol. Prog. Ser.*, 34, 31-40.

Spies, R.B. 1987. The biological effects of petroleum hydrocarbons in the sea: Assessments from field and microcosms, pp. 411-467 in long-term environmental effects of offshore oil and gas development. D.F. Boesch and N.N. Rabalais, Eds. Elsevier-Applied Sciences, London.

Montagna, P.A., J.E. Bauer, J. Toal, D.H. Hardin and R.B. Spies. 1987. Temporal variability and the relationship between benthic meiofaunal and microbial populations in a natural coastal petroleum seep. J. Mar. Res. 45, 761-789.

Melzian, B.D., C. Zoffman, and R.B. Spies. 1987. Chlorinated hydrocarbons in lower continental shelf fish collected near the Farallon Islands, California. *Marine Pollution Bull.* 18, 388-393.

Spies, R.B., D. Hardin, and J. Toal. 1988. Organic enrichment or toxicity? A comparison of the effects of kelp and crude oil in sediments on the colonization and growth of fauna. *J. Exp. Mar. Biol. Ecol.* 124, 261-282.

Bauer, J.E., P.A. Montagna, R.B. Spies, D.H. Hardin, and M. Prieto. 1988. Microbial biogeochemistry and heterotrophy in sediments of a marine hydrocarbon seep. *Limnol. Oceanogr.* 33, 1493-1513.

Spies, R.B. 1993. So why can't science tell us more about the effects of the Exxon Valdez oil spill? pp. 1-5, In: Exxon Valdez oil spill symposium, EVOS Trustee Council, Anchorage Alaska.

Spies, R. 1995. Restoring Prince William Sound. Science 269, 1328-1329. (letter)

Spies, R.B., J.J. Stegeman, D.E. Hinton, B. Woodin, M. Okihiro, R. Smolowitz, and D. Shea. 1996. Biomarkers of hydrocarbon exposure and sublethal effects in embiotocid fishes from a natural petroleum seep in the Santa Barbara Channel. *Aquatic Toxicol.* 34: 195-219.

Spies, R.B., S.D. Rice, D.A. Wolfe, and B.A. Wright. 1996. The effects of the Exxon Valdez Oil spill on the Alaskan Coastal environment, pp. 1-16, in: S.D. Rice, R.B. Spies, D.A. Wolfe, and B.A. Wright (Eds.) Exxon Valdez Oil Spill Proceedings, Anchorage, Alaska, 2-5 February 1993. American Fisheries Society Symposium No. 18.

BUDGET

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Budget Justification

Personnel

Personnel hours for this project were developed for each of the five tasks discussed in the Proposed Plan. Assumptions for the cost and level-of-effort for each task are discussed below. The total cost for this project is estimated to be \$565,312.46. This total includes \$382,624.28 for personnel [including Integral, NOAA, DOI (USF&W and USGS), and ADF&G]; \$29,200 for travel (Integral and NOAA); \$76,565.00 for contractual costs (experts who are subcontracted to Integral); \$30,246.00 for commodities, and \$46,677.18 for General Administration (GA).

Task 1: Refine Project Scope and Establish Review Panel and Technical Workgroup

The proposed approach will benefit from review comments, discussions with Trustee scientists, and refinements to the proposed approach. The costs for this task include 1) project coordination, 2) meetings, and 3) participation of identified experts in the project. Integral costs for this task (including experts as subcontractors) are estimated at \$178,110. Agency costs reflect the participation of the following agency experts in two to four meetings:

- NOAA—Jeff Short (4 meetings) and Stanley Rice (2 meetings)
- ADF&G—Dan Rosenberg (4 meetings) and Bob Small, Kelly Hepler, and Jim Fall (2 meetings each)
- USGS—Jim Bodkin (4 meetings) and Brenda Ballachey (2 meetings)
- USF&W—David Irons and Kathy Kuletz (2 meetings each).

Costs for the Integral staff are estimated to be 562 hours for senior staff,¹ 24 hours for midlevel staff, and 84 hours for junior or support staff.

Task 2: Review Recovery Objectives and Recommend Alternatives

This task involves review of recovery objectives for all 18 resources and 5 services to be addressed by the project and recommendations for refinements. The costs for this task include: 1) review of objectives, 2) development of proposed refinements, and 3) finalization of changes to recovery objectives. Costs for this task are \$20,000; 96 hours for senior staff and 24 hours for mid- and junior-level staff.

Task 3: Establish Framework for Resource Assessment

This task involves development of a decision framework to consistently and systematically evaluate the recovery status for the resources and services to be addressed by the project. The costs for this task include development of a draft framework and finalization of framework. Costs for this task are \$30,000; 118 hours for senior staff, 44 hours for mid-level staff, and 40 hours for junior and support staff.

¹ Hours for R. Spies of Applied Marine Sciences are included in the total hours for senior staff.

Task 4: Synthesize Information

Activities under this task include review and synthesis of information related to the 18 resources and 5 services currently classified as recovering, not recovered, and recovery unknown. It is assumed that 5 resources and 3 services that were not addressed by Jacobs *et al.* 2005 will require a greater level of effort than the other resources currently classified as recovering, not recovered, and unknown; however, the information synthesis performed by Jacobs *et al.* (2005) will need to be supplemented to ensure that all of Trust-funded work performed over the last 15 years is addressed in the synthesis. Costs for this task are estimated to be \$70,000; 64 hours for senior staff, 344 hours for mid-level staff, and 248 hours for junior and support staff.

Task 5: Characterize Resources and Recommend Restoration Activities

This task includes preparation of draft and final reports. It is assumed that the reports developed by Jacobs *et al.* (2005) will be the starting point for resource classified as recovering and not recovered. Background information for the resource- and service-specific sections of the draft report (Sections 1 - 4 of the report; see Task 5 of the Project Plan) will be developed under Task 4. One meeting in Anchorage to communicate with to the public is also include in this task. Remaining sections of the draft and final report will be prepared under Task 5. Costs for this task are estimated to be \$154,000; 292 hours for senior staff, 420 hours for mid-level staff, and 620 hours for junior and support staff.

Travel

It is assumed that 5 meetings will be held in Anchorage, Alaska throughout the course of this project. When possible, related project meetings (e.g., a Technical Review Panel meeting and a Resource/Service Workshop) will be scheduled closely in time to minimize travel costs. Similarly, meetings are scheduled in coordination with the annual EVOS workshop. A total of 4 trips to Anchorage are included in the budget for technical review panel and expert workshop meetings. L. Jacobs, L. Williams, R. Pastorok and R. Spies will participate in all 4 meetings. D. Preziosi will participate in one meeting. R. Spies, L. Jacobs, and L. Williams will participate in the public meeting.

Contractual

Five subcontractors are included in this cost estimate: Robert Spies (Applied Marine Sciences), Dan Esler (Simon Fraser University), Craig Matkin (North Gulf Oceanic Society), Al Springer (University of Alaska), and Jim Harvey (Moss Landing). Costs for Bob Spies are included in the justification for Integral (above). Al Springer will serve on the Technical Review Panel and will participate in 4 meetings (estimated to require approximately 132 hours). Dan Esler, Craig Matkin, and Jim Harvey² will participate in the expert workgroup (2 meetings; estimate to require 76 hours).

² Jim Harvey has not yet responded to our request for his participation.

Commodities and Equipment

There are no commodities and equipment associated with this project.

DATA MANAGEMENT AND QA/QC STATEMENT

As described under Section C of the Project Plan, the proposed work represents a synthesis project, and limited new data requiring conventional QA/QC is anticipated. If existing data require quantitative analyses, such analyses will be subjected to a formal QA/QC process as specified under Integral's quality assurance review policy. Integral's quality assurance process includes technical and editorial reviews of project deliverables as well as technical review of project data, calculations, and other critical supporting documentation. Depending on the nature and complexity of a task, one or more technical reviewers will be assigned to perform technical reviews.

A significant portion of this work will be dependent on the effective management of information using Integral's electronic EVOS library (see Section C above). Integral has developed an internal procedural guidance for the management of this and other internal electronic libraries. This internal guidance will be implemented in support of the proposed work.

It is also envisioned that the Technical Review Panel and Resource/Services Workgroup will serve to provide a more global QA/QC of existing data, particularly with respect to the collective interpretations and deductions formulated throughout the course of this work. The engagements of experts will additionally serve to direct and focus the use of the most appropriate data in order that the intended objectives of the proposed work are met. Collectively, the Technical Review Panel and Resource/Services Workgroup will serve to ensure further the integrity of the conclusions and recommendations reached during the synthesis.

The specific elements of Integral's data management and QA/QC procedures are as follows:

- 1. Data management. Section C, page 14, paragraph 1 describes the use of Integral's electronic EVOS library.
- 2. Study design. Item does not apply to proposed work.
- 3. Data acceptability. Section C, page 14, paragraph 2 describes the engagement of statisticians to ascertain acceptability of data based on statistical considerations; page 36, paragraph 3 of this statement describes the engagement of experts in the Technical Review Panel and Resource/Services Workgroup to direct and focus the use of the most appropriate data to meet the intended objectives of the proposed work.
- 4. Characteristics of produced data. Item does not apply to proposed work.

- 5. Definitions of algorithms. Item does not apply to proposed work.
- 6. Sample handling and custody. Item does not apply to proposed work.
- 7. Analytical instrumentation calibration and performance evaluation. Item does not apply to proposed work.
- 8. Data reduction and reporting. Section C, page 14, paragraph 2 describes the use of general analytical software products, such as Microsoft Excel, and specialized statistical softwares such as Systat v.10.0 and Statistica v.7.0.

	Authorized	Proposed		PROPOSE	D FY 2006 TRU	JSTEE AGEN	ICIES TOTALS	
Budget Category:	FY 2005	FY 2006	ADEC	ADF&G	ADNR	USFS	DOI	NOAA
				\$ 26,814.00			\$ 26,596.00	511,902.46
Personnel	\$0.0	382,624.28						
Travel	\$0.0	29,200.00						
Contractual	\$0.0	76,565.00						
Commodities	\$0.0	30,246.00		的是这种是一种				ананананананананананананананананананан
Equipment	\$0.0	-		LONG	RANGE FUND	DING REQUIP	REMENTS	
Subtotal	\$0.0	518,635.28				Estimated		
General Administration	\$0.0	46,677.18				FY 2007		
Project Total	\$0.0	565,312.46				\$0.0		
				清晰的 化化学	建制的 1 979	a na serie de la composición de la comp Recenter de la composición de la composi Recenter de la composición de la composi		
Full-time Equivalents (FTE)	0	1.45						
			Dollar amou	ints are shown i	n thousands of	dollars.	<u>.</u>	
Other Resources	\$0.0	-				\$0.0		
Agency staff are included in this Alaska Department of Fish and U.s. Geological Survey: \$12,48 U.S. Fish and Wildlife Service: National Oceanic and Atmosph General Administration 9%: 5,9 Total Agency costs: \$72,075.10	s proposal as fo Game: \$21,60 0 Personnel; \$ \$9,120 Person eric Administra 951.16 6	ollows: 0 Personnel; \$2, 2,000 Travel nel; \$800 Travel tion: \$14,524 Pe	500 Travel rsonnel; \$3,000) Travel				
FY06 Prepared:	Project Numb Project Title: I Services Injun PI: Lucinda Ja Lead Agency:	er: 060783 nformation Synth ed by the EVOS acobs, Integral Co NOAA - ADFG -	esis and Recov onsulting DOI (USFWS)	very Recommer /USGS)	ndations for Re	sources and	F MUL AGENO	ORM 2A FI-TRUSTEE CY SUMMARY

October 1, 2005 - September 30, 2006

	Authorized	Proposed		L'ENER DE LE COMPLEX			
Budget Category:	FY 2005	FY 2006					
Personnel		339,024.28					
Travel		23,800.00					
Contractual		76,565.00				R BARRA	
Commodities		30,246.00				ÇP	
Equipment				LONG	RANGE FUN	IDING REQUIR	REMENTS
Subtotal	\$0.0	469,635.28				Estimated	
General Administration		42,267.18				FY 2007	
Project Total	\$0.0	511,902.46					
Full-time Equivalents (FTE)		1.45					
			Dollar amou	unts are shown	in thousands	of dollars.	· · · · · · · · · · · · · · · · · · ·
Other Resources							
Comments:							
NOAA agnecy costs \$17,524 (plus GA)						
Integral Contract through NOAA	\$452,111.28	(GA to go to NO	AA)				
1							
	Project Num	abor: 060792					
	Project Nun	nber: 060783					FORM 3A
	Project Nun Project Title	nber: 060783 : Information S	Synthesis an	d Recovery I	Recommen	dations for	FORM 3A TRUSTEE
FY06	Project Nun Project Title Resources	hber: 060783 :: Information S and Services I	Synthesis an	d Recovery I e EVOS	Recommen	dations for	FORM 3A TRUSTEE AGENCY
FY06	Project Nun Project Title Resources PI: Lucinda	nber: 060783 :: Information S and Services I Jacobs, Integr	Synthesis an njured by the ral Consultin	d Recovery I e EVOS g	Recommen	dations for	FORM 3A TRUSTEE AGENCY

Prepared:

October 1, 2005 - September 30, 2006

Personnel Costs:	· · · · · · · · · · · · · · · · · · ·	GS/Range/	Months	Monthly	1	Proposed
Name	Position Description	Step	Budgeted	Costs	Overtime	FY 2006
L. Jacobs	Principal	P44-26-26-26-27-27-27-27-27-27-27-27-27-27-27-27-27-	1.663	30400.0		50,555.20
R. Pastorok	Senior Science Advisor		1.075	30400.0		32,680.00
L. Williams	Managing Scientist		2.213	27200.0		60,193.60
D. Preziosi	Managing Scientist		0.900	24000.0		21,600.00
V. Fagerness	Senior Scientist		1.475	16800.0		24,780.00
L. Anderson	Senior Scientist		0.500	16000.0		8,000.00
D. Rudnick	Scientist		2.750	15200.0		41,800.00
K Moshenberg	Scientist		1.500	12800.0		19,200.00
M. Behum	Scientist		1.500	12000.0		18,000.00
G. Cocks	Scientist		0.600	15200.0		9,120.00
M. Perri	Technical Writer		0.825	15200.0		12,540.00
Graphics/Tech. Writer	Tech. Support		0.775	11800.0		9,145.00
Word Process/Clerical	Tech Support		1.6237	10400.0	1	16,886.48
NOAA /NMSFS						
Jeff Short	Scientist					8,643.00
Jeep Rice	Scientist	相同的關係				5,881.00
	Subtotal	的影響。如此有效	17.4	237400.0	0.0	
				Pe	ersonnel Total	339,024.28
Travel Costs:		Ticket	Round	Total	Daily	Proposed
Description	A. M	Price	Trips	Days	Per Diem	FY 2006
L. Jacobs		800.0	.5	14	200.0	6,800.00
L. Williams		800.0	5	14	200.0	6,800.00
R. Pastorok		800.0	4	11	200.0	5,400.00
D. Preziosi		1200.0	1	3	200.0	1,800.00
						-
Jeff Short						2,000.00
Jeep Rice		· ·				1,000.00
						-
						-
				1		· –
						-
					Travel Total	23,800.00
	Project Number: 060783					
	Project Number, 000703			1	F	ORM 3B
	Project The information Synthesis and	I Recovery R	ecommenda	tions for	P	ersonnel
FYU6	Resources and Services Injured by the	EVOS				& Travel
	PI: Lucinda Jacobs, Integral Consulting]				
Jacobs revised budget septemb	Headobgency: NOAA	•				
Prepared:			······	J		2 07 11

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October 1, 2005 - September 30, 2006

Contractual Costs:			Proposed
Description			FY 2006
Robert Spies (Applied	Marine Sciences)		33,800.00
Robert Spies Travel (A	pplied Marine Sciences)		7,500.00
Dan Esler (Simon Fras	er University)		3,800.00
Dan Esler travel			3,000.00
Craig Matkin (North Gu	If Oceanic Society)		2,185.00
Craig Matkin Travel			3,000.00
Al Springer (University	of Alaska)		10,560.00
Al Springer travel			600.00
Jim Harvey (Moss Lan	ding Marine Laboratory)		9,120.00
Jim Harvey travel			3,000.00
	Cor	ntractual Total	76,565.00
Commodities Costs:			Proposed
Description			FY 2006
Large Document Produ Integral Overhead (Dir Subcontractor Burden	uction and Copying and Misc. Project Purchases ect Project Expenses)		5,885.00 16,704.00 7,657.00
	Comr	nodities Total	30,246.00
r			
FY06	Project Number: 060783 Project Title: Information Synthesis and Recovery Recommendations for Resources and Services Injured by the EVOS PI: Lucinda Jacobs, Integral Consulting Lead Agency: NOAA	FC Con Cor E	DRM 3B tractual & nmodities DETAIL

Prepared:

New Equipment Purchases:	Number	Unit	Proposed
Description	of Units	Price	FY 2006
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No equipment will be purchased			-
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I hose purchases associated with replacement equipment should be indicated by placement of an R.	New Eq	uipment Total	
Existing Equipment Usage:		Number	Inventory
Description		of Units	Agency
Project Number: 060783	1	[
Project Title: Information Synthesis and Recovery Recommend	dations for	F0	ORM 3B
FY06 Resources and Services (niured by the EVOS		Ec	uipment
PI: Lucinda Jacobs, Integral Consulting			
Bronared: Lead Agency: NOAA		k	<u></u>
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October 1, 2005 - September 30, 2006

	Authorized	Proposed						
Budget Category:	FY 2005	FY 2006						
Personnel		22 000 00					na sela si che constante Statuto de la constante Statuto de la constante de la constante	
Travel		2.600.00						
Contractual								
Commodities						al an an the state of the state		
Equipment				LONG	RANGE FUND	DING REQUIF	REMENTS	<u> </u>
Subtotal	\$0.0	24,600.00				Estimated		
				1				
General Administration		2,214.00				FY 2007		
Project Total	\$0.0	26,814.00	a historie attraction with the AN 2016 the	~	Surger and the lease of the surger of the surger	<u> </u>		
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Other Descures			Dollar amo	unts are snown	in thousands o	of dollars.		1
Other Resources	<u> </u>	;	L		<u> </u>	l		
Comments:								
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	Project Num	her: 060783]	
	Droject Title	Information	Synthesis or	d Recovery	Recommond	lations for	F	FORM 3A
					Recomment		T	RUSTEE
	Resources	and Services I	njurea by th	e evus				AGENCY
	PI: Lucinda	Jacobs, Integi	ral Consultir	ng			S	UMMARY
Dranaradi	Lead Agence	y: ADFG						

Prepared:

Personnel Costs:		GS/Range/	Months	Monthly		Proposed
Name	Position Description	Step	Budgeted	Costs	Overtime	FY 2006
Dan Rosenberg	Scientist					7,920.00
Bob Small	Scientist					4,560.00
Kelly Hepler	Scientist				×	4,560.00
Jim Fall	Scientist			×		4,960.00
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Travel Costs:		licket	Round	lotal	Daily	Proposed
Description	م. موجد المالية المراجع ال	Price	Trips	Days	Per Diem	FY 2006
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Dan Rosenberg	Scientist		-			800.00
Bob Small	Scientist					1,000.00
Kelly Hepler	Scientist		×			400.00
Jim Fall	Scientist					400.00
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1	Project Number: 060783		·····]	
	Droject Title: Information Synthesis of	nd Pacayany	Pasammana	lations for		ORM 3B
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FIUD	Resources and Services Injured by th	IE EVOS				& Travel
	PI: Lucinda Jacobs, Integral Consultir	ng				
	Lead Agency: ADFG	-				
Prepared:]	

October 1, 2005 - September 30, 2006

Contractual Costs:				Proposed
Description				FY 2006
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When a non-trustee organization	n is used, the form 4A is required.		Contractual Total	-
Commodities Costs: Description				Proposed FY 2006
		C	ommodities Total	-
FY06	Project Number: 060783 Project Title: Information Synthesis and Re Resources and Services Injured by the EV PI: Lucinda Jacobs, Integral Consulting Lead Agency: ADFG	ecovery Recommendations fo	r F(Cor Cor	ORM 3B htractual & mmodities DETAIL

Prepared:

New Equipment Purchases:			Number	Unit	Proposed
Description	·		of Units	Price	FY 2006
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I nose purchases associated with replacement equipment should	be indicated by placement	of an R.	New Ec	uipment Total	
Existing Equipment Usage:				Number	Inventory
Description				of Units	Agency
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Project Number: 060783	na an ann an an ann an ann an ann an ann an a		•		······································
Project Title: Information 9	Synthesis and Recover	Recommend	dations for	F	ORM 3B
FY06 Persources and Services 1	niured by the EVOS	,		E	auipment
Resources and Services I					
PI: Lucinda Jacobs, Integi	rai Consulting				
Prepared: [Lead Agency: ADFG		- 		•	

	Authorized	Proposed		4. 合同語言之言				
Budget Category:	FY 2005	FY 2006			Tala di Kasaran yang di Kasaran Kasaran yang di Kasaran yang di Kasaran yang di Kasaran yang di Kasaran yang di			
Personnel		12,480.00		nesi shiri yaliki basa min Kana mula kasa sejara ka				
Travel	· .	2,000.00						
Contractual								
Commodities			NHAR PARK		GINNE AND			
Equipment		**		LONG	RANGE FUNL	DING REQUIR	EMENIS	· · · · · ·
Subtotal	\$0.0	14,480.00				Estimated		
General Administration		1,303.20			<u>.</u>	FY 2007		
Project Total	\$0.0	15,783.20	·					
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Full-time Equivalents (FTE)		-			计算法 化非常常化			1월 4월 24일 <u>-</u>
			Dollar amou	ints are shown	in thousands o	of dollars.		
Other Resources	<u> </u>					l		
Comments:								
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	Project Num	ber: 060783						
	Project Title	: Information S	Svnthesis an	d Recoverv F	Recommenc	lations for	r 	
EV06	Resources	and Services I	niured by the	FVOS				RUSTEE
	DI Lucindo	Joooba Intog	al Concultin					AGENCY
			ai Consulin	y			S	UMMARY
Prepared	Lead Agenc	y: DOI USGS	5		· ·		L	

Personnel Costs:		GS/Range/	Months	Monthly	·	Proposed
Name	Position Description	Step	Budgeted	Costs	Overtime	FY 2006
Jim Bodkin	USGS Scientist		,			7,920.00
Brenda Ballachey	USGS Scientist					4,560.00
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	Subtotal		0.0	0.0	0.0	
				P	ersonnel Total	12,480.00
Travel Costs:		Ticket	Round	Total	Daily	Proposed
Description	· · · · · · · · · · · · · · · · · · ·	Price	Trips	Days	Per Diem	FY 2006
						-
Jim Bodkin	USGS Scientist					1,000.00
Brenda Ballachey	USGS Scientist					1,000.00
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		L	L	·	Travel Total	2,000.00
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	Project Number: 060783					ORM 3B
	Project Title: Information Synthesis ar	d Recovery I	Recommend	lations for		
FY06	Resources and Services Injured by th	e EVOS				rersonner
	Pl: Lucinda Jacobs Integral Consultin	<u>a</u>				& Iravel
· · ·	Pri Lucinua Jacobs, integral Consultin	9				DETAIL
Prepared:	Lead Agency: DOI - USGS	·			[·.

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Contractual Costs:			Proposed
Description			FY 2006
When a non-trustee organization	is used, the form 4A is required.	actual Total	
Commodities Costs:			Proposed
Description			FY 2006
· · · · · · · · · · · · · · · · · · ·	Commoc	dities Total	
FY06 Prepared:	Project Number: 060783 Project Title: Information Synthesis and Recovery Recommendations for Resources and Services Injured by the EVOS PI: Lucinda Jacobs, Integral Consulting Lead Agency: DOI - USGS	FOI Contr Com DI	RM 3B ractual & modities ETAIL

New Equipment Purchases:	Number	Unit	Proposed
Description	of Units	Price	FY 2006
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Those purchases associated with replacement equipment should be indicated by placement of an R.	New Ec	uipment Total	
Existing Equipment Usage:		Number	Inventory
Description		of Units	Agency
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Project Number: 060783	,		-
Project Title: Information Synthesis and Recovery Recommend	ations for	F	ORM 3B
EVA6			quipment
I I UU	•		
PI: Lucinda Jacobs, Integral Consulting	•		
Lead Agency: DOI - USGS		L	
Prepared:		-	

	Authorized	Proposed	A State State					
Budget Category:	FY 2005	FY 2006						
Personnel		9,120.00						
Travel		800.00						
Contractual		-						
Commodities								
Equipment		-	LONG RANGE FUNDING REQUIREMENTS					
Subtotal	\$0.0	9,920.00				Estimated		
General Administration	•	892.80				FY 2007		
Project Total	\$0.0	10,812.80						
Full-time Equivalents (FTE)		-						
			Dollar amounts are shown in thousands of dollars.					
Other Resources	l					l		
Comments:								
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[]	Project Numb	er: 060783						
	Project Title: Information Synthesis and Recovery Recommendations for Resources and Services Injured by the EVOS							
FY06						. I	RUSIEE	
	PI: Lucinda Jacobs, Integral Consulting					AGENCY		
	Lead Agency:	Lead Agency: DOI - USFWS				S	UMMARY	
Prepared:]	

Personnel Costs:		GS/Range/	Months	Monthly		Proposed
Name	Position Description	Step	Budgeted	Costs	Overtime	FY 2006
USFWS David Irons Kathy Kuletz	USFWS Scientist USFWS Scientist			· · ·		4,560.00 4,560.00
						- - -
						-
-	Subtotal		0.0	0.0	0.0	and a second
				P	ersonnel Total	9,120.00
Travel Costs:		Ticket	Round	Total	Daily	Proposed
Description		Price	Trips	Days	Per Diem	FY 2006
David Irons Kathy Kuletz	USFWS Scientist USFWS Scientist	-			-	400.00 400.00
						-
						-
		····			Travel Total	800.00
FY06 Project Number: 060783 Project Title: Information Synthesis and Recovery Recommendations for Resources and Services Injured by the EVOS PI: Lucinda Jacobs, Integral Consulting Lead Agency: DOI - USFWS					F	ORM 3B Personnel & Travel DETAIL
2006 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 2005 - September 30, 2006

Contractual Costs:			· · · · · · · · · · · · · · · · · · ·	Proposed
Description				FY 2006
	is used the form (A) is required			
When a non-trustee organization	Tis used, the form 4A is required.		Contractual Total	-
Commodifies Costs:		·····		Proposed
				FT 2000
			,	
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				,
		Cc	mmodities Total	-
FY06	Project Number: 060783 Project Title: Information Synthesis and F Resources and Services Injured by the E PI: Lucinda Jacobs, Integral Consulting Lead Agency: DOI - USFWS	Recovery Recommendations for VOS	- Fr Cor Cor [ORM 3B htractual & mmodities DETAIL

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2006 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 2005 - September 30, 2006

New Equipment Purchases:	Number	Unit	Proposed
Description	of Units	Price	FY 2006
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			-
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Those purchases associated with replacement equipment should be indicated by placement of an R.	New Ec	uipment Total	
Existing Equipment Usage:		Number	Inventory
Description		of Units	Agency
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Project Number: 060783			
Project Title: Information Synthesis and Recovery Recommend	ations for	F	ORM 3B
FY06 Resources and Services Injured by the EVOS		E	quipment
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Prepared:			

Public Comment

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Whether by intent or poor administrative planning, the public advisory committee is once again being excluded from the most recent aspects of the restoration process.

I did not receive any of the final documents that will be decided on today until 5:00 last night. In the past, there has been ample time for the PAC to review, discuss as a group, and make recommendations on important items concerning the restoration process. Sending all these documents out via email for consideration less than one day before decisions are made is not what I'd call "meaningful public participation." The TC is required to have advice from the PAC as a whole, not on an ad hoc basis from individuals. This does not qualify for public involvement.

Particularly troubling is the Decision Document that will be signed off today by the TC which states that the latest version of the Jacobs's Integral proposal was reviewed by the STAC, PAC and Liaisons. I want to go on public record to say that the PAC has not had time to review this document, discuss it as a group and make group recommendations. Therefore, I request that the PAC be struck from the second paragraph of the document before it is approved to reflect the truth.

Further, on Monday I also requested a teleconference phone number so that I could participate in the meeting today via phone. Myself or any other members of the PAC were not provided with that number until this morning after protest.

The process has gotten to be so seat-of-the-pants and exclusive to only certain people that the public has no way to even minimally participate. The PAC used to meet prior to the TC decision-making meetings on important items of the restoration process, were given briefings by staff, then allowed to discuss and make recommendations. What happened to those protocols established by the previous administration? Why is the public being circumvented time and time again?

The PAC has also been excluded from working on the present version of the budget. A budget was prepared for by EVOS staff and presented at the last AUG 10th TC meeting. That budget was rejected by the TC and sent to an ad-hoc Budget Subcommittee comprised of Trustees, liaisons, and two EVOS staff. No PAC members included.

I am still very concerned about the way the present work Plan (Interim Guidance Document-IGD) was adopted at the Aug. 10th meeting. I believe the action was illegal. As you will recall, the PAC had been sent another document called the Interim Action Plan (IAP) before the meeting. This is the document the public were led to believe the TC was going to adopt. Instead, at the last minute, another version prepared by liaison staff was abruptly and very awkwardly substituted for the IAP and decided on despite protest from members of the PAC in the audience. Even Gail and her staff had not seen the substituted version. TC members assured us that there were no fundamental differences between the two documents and that the new version had just been "tightened up". After reviewing them following the meeting I do not agree. There are BIG differences between the two work plans. The glaring difference is the removal of the PAC from important committees charged to evaluate that state of restoration activities.

• The IGD written by TC staff excludes the PAC and STAC from the evaluation process of lingering oil. Neither the STAC nor PAC is included in The Steering Group, which is to be composed of only the TC ED and Trustee representatives.

- Neither the PAC nor STAC are mentioned as being included in the Working Group on Injured Resources or the Subcommittee on Lingering Oil in the IGD.
- Public Participation is not included in any of the IGD Action points whereas it is included as #5 p. 3 of the IAP and Action Item #5, p4.

The IAP is much more responsive to the EIS as it references the ecosystem approach. It also expresses the need to support services necessary to support local people. The IGD has no reference to the ecosystem at all. Also, the IAP (p.2) states, "The obligation to consider the status of injured resources and services to determine whether or not restoration has been achieved – or even it can be achieved is critical." This is omitted in the IGD.

(P. 3) IAP - #5- Normal Agency Activities- Agency-based projects will only be funded that would not have been conducted had the spill not occurred. This is NOT in the IGD and therefore gives the TC more wiggler room to disperse the funds to marginally related activities or however they want.

As vice-chair of the PAC, I request that you allow the PAC to have meaningful participation in the restoration process or disband it.

Sincerely, Stacy Studebaker Vice-Chair EVOS PAC