Prince William Sound

Oil Spill Recovery Institute

Annual Work Plan

Fiscal Year 2002

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1.0 Introduction

This Annual Plan describes the oil pollution research and development (R&D) program for the Oil Spill Recovery Institute (OSRI) during Fiscal Year 2002 covering the period from October first of the year 2001 to the thirtieth of September 2002.

The OSRI R&D Grant Program was established to solicit and administer oil pollution R&D projects in three areas.

- Applied Technology
- Predictive Ecology
- Public Education and Outreach

R&D grants within these program areas will be awarded and administered per the guidelines contained in the OSRI Grant Policy Manual.

2.0 Program Background

2.1 Oil Pollution Research and Development Plans

In 1995, OSRI published an Oil Pollution Research and Technology Plan for the Arctic and Sub-Arctic (Thomas et al. 1995) that provides a review and the guidance for developing and managing the OSRI R&D program. This plan used existing oil pollution R&D programs as a guide, particularly the National Oil Pollution Research and Technology Plan, published by the Interagency Coordinating Committee on Oil

Pollution Research (ICCOPR 1992). This plan describes the scope of oil pollution prevention and response R&D, and OSRI's geographic focus on Alaska's oil transport system.

In 1997, OSRI held a workshop to update Arctic and Sub-Arctic oil pollution issues for the Advisory Board. At this workshop R&D efforts conducted after the Exxon Valdez Oil Spill (EVOS) were reviewed and the revised national plan for oil pollution research and technology was presented (ICCOPR 1997). Based on this workshop, the OSRI Board endorsed three programs:

- Applied Technology - to conduct research and development on new technologies for preventing and responding to oil spills in the Arctic and Sub-Arctic;
- Predictive Ecology - to develop new capability to predict changes in animal populations at risk to spills; and
- Public Education and Outreach - to make the research process interactive with the public so that goals are clearly defined that have public benefit.

2.2 Grant Program Authority

The Oil Pollution Act of 1990 (OPA90) established the Prince William Sound Oil Spill Recovery Institute (OSRI) to conduct R&D programs to develop the best available technology for dealing with oil pollution in Arctic and Sub-Arctic regions and implement long-term environmental monitoring in conjunction with federal and state agencies in the Greater Prince William Sound region (Title V, Section 5001). Under Title V, Section 5006 of OPA90, Congress authorized OSRI $23 million over 10 years from the TAPS Fund but only after outstanding claims were resolved. In FY97, after the outstanding TAPS claims were settled, Congress appropriated $22.4 million of the remaining funds to be held by the U.S. Treasury with the annual interest awarded to OSRI for implementation of the R&D program for the Arctic and Sub-Arctic (Coast Guard Reauthorization Act of 1996).

2.3 R&D Grant Policies and Procedures

OSRI has adopted an R&D grant program based upon policies and procedures that are used by the National Science Foundation (NSF), NOAA's National Undersea Research Program and the EVOS Trustee Council. The basic document that governs the OSRI program is the Grant Policy Manual (GPM). The GPM provides guidance on the various provisions of program management. All OSRI staff, committee members, and board members will follow the guidelines contained in the GPM when processing and managing OSRI grants and projects. The OSRI GPM and other OSRI documents and forms, including application packages, are available on the OSRI web site at www.pwssc-osri.org, or by request.

2.4 Approach

OSRI encourages team science for both technology and ecology projects by rating the proposals on the basis of vertical integration of the research team with regulators, managers and user groups. Also, where it is appropriate, the proposals will be rated on the basis of horizontal integration of the research teams with respect to discipline and organization. Proposals that use a bioregional, public decision-making processes to establish research goals are encouraged.

2.5 Roles and Responsibilities

OSRI will assist in forming R&D teams, and when necessary, take an active part in convening workshops to address important issues, participate in assessments of research issues and planning, and disseminate results. The following roles and responsibilities are assigned:

Advisory Board - Review and approve the bylaws, policies and procedures, resolve grievances, review annual, business and strategic plans and amend budgets, hire and fire the Executive Director.

Director - prepare the annual plan, the revised business and strategic plan, hire and fire staff, direct the activities of the OSRI staff, work with the Science and Technology Committee to review large proposals, assist researchers to build R&D teams and act as the final award authority for small grants.

Science and Technology Committee - review all large grant proposals forwarded by the OSRI staff and make recommendations to the Advisory board for grant awards.

OSRI Staff - provide administrative support to the Executive Director to carry out the R&D Grant Program.

2.6 Types of Funding

OSRI awards will be divided into three main categories:

A. Large Awards ($100,000 or greater):

1. Applied technology grants that include proof of concept (alpha testing) of new technologies and pilot implementation projects for new applications of proven technology (beta testing).
2. Applied predictive ecology grants that develop nowcast/forecasting capability. These usually consist of numerical models and their monitoring programs for animal populations at risk.

B. Small Awards (under $100,000)

1. R & D projects in the area of technology, ecology and education

2. Workshops that have fact-finding or fact-demonstration goals related to technology, ecology and education.

3. Publications of various types that promote the OSRI R&D program to the scientific community and the general public.

C. Fellowships & Internships (under $100,000 per year)

1. Fellowship Grants to support post-doctoral and graduate students in research related to oil pollution prevention and response in the Arctic and Sub-Arctic.

2. Internships to support high school and undergraduate college students to work with qualified researchers on OSRI projects or those relating to oil pollution prevention and response in the Arctic and Sub-Arctic**.**

3. Preference will be given to those proposals that fall within one of OSRI's three program areas.

2.7 Application and Award Process

OSRI staff, committee members, and board members will follow the guidelines and procedures detailed in the Grants Policy Manual (GPM).

3.0 Applied Technology program

The OSRI 10-year business plan targets 40% of program funds for grants, contracts and workshops in the area of applied technology. The applied technology program is the development component of the OSRI R&D program. As such, it is focused on the engineering and application of new products and technologies. OSRI technology products are anticipated to range from new tools for the prevention and remediation of oil pollution to the implementation of systems that provide new information for decision-makers on natural resources at risk to oil spills. By design, applied technology projects will often match funding with predictive ecology and education projects owing to the need for collaborative research and educational efforts for the technology applications to realize their full potential.

For information about individual grants, visit the BAA section of our web site. All costs are approximate and are subject to change. The Applied Technology budget for FY02 is $534K (33% of FY02 projected program spending).

3.1 Applied Technology – New Programs

Regional Atmospheric Modeling

The need for a regional Mesoscale atmospheric model for the PWS area has been identified as a key knowledge gap in the development of predictive abilities for the PWS environment. OSRI's efforts in oil spill simulation and analysis and the Nowcast-Forecast system both rely on windfield data for operation. This project funds the development of a suitable numerical model for integration within the larger OSRI PWSNFIS program.

FY02 funding for this project is $100K.

Dispersion Impact Analysis

This project expands upon OSRI's efforts in oil spill fate and effects modeling and ecosystem resource monitoring and modeling. Utilizing the OSCAR2000 for PWS OSRI will seek to establish an impartial steering committee of recognized experts in the diverse group of science disciplines that touch upon oil spill fate and effects to conduct an analysis of the relative impacts of dispersed and non-dispersed oil releases under varying conditions. Please see item 8.0 (*Proposed Guidelines for the Operation of the OSRI OSCAR2000PWS Model*) for a detailed description of this project.

FY02 funding for this project is $150K.

Oil and Ice "Think Tank"

Oil spills in ice environments were the central focus of a workshop co-sponsored by the OSRI in April of 2000. This project will fund gathering experts within this field for a "think tank" with the purpose of establishing a ten-year plan for oil and ice Research and Development.

FY02 funding for this project is $25K.

3.2 Applied Technology – Continuing Programs

PWS Tide Height Data Collection

This project seeks to establish automated tide gauges in Cordova, Valdez, Whittier, Chenega Bay, and

Tatitlek. These telemetered autonomous instruments will contribute to the understanding of the physical dynamics of PWS and serve as a historical record.

FY02 funding for this project is $15K.

PWS Meteorological Data Collection

This project will establish automated meteorological stations (wind speed, wind direction, temperature, precipitation) at various points within Prince William Sound. Due to the strong geographic influence on meteorological conditions, lack of a systematic reporting system and sparse population these autonomous stations represent the most cost effective method of obtaining the necessary data for determining the movement and weathering of oil spills within PWS. Stations are proposed for Culross Island, Central Knight Island Passage, Applegate Rocks, and Lower Montague Straits.

FY02 funding for this project is $15K.

Nowcast/Forecast Physical Ocean Modeling Project

The Nowcast/Forecast (N/F) project is the primary initiative of the current OSRI research and development programs. For this reason, the funding for N/F development is split 50/50 between the Predictive Ecology and Applied Technology programs. The goal of this project is to assemble new predictive and measurement tools for the specific physical and biological conditions and features of Prince William Sound. By working with the public, government organizations and private industry in the region, OSRI hopes to develop key features that provide valuable information and services to the region long into the future. Within the Applied Technology program area this effort is led by Dr. Christopher Mooers at the University of Miami. Dr. Mooers is implementing a Princeton Ocean Model (POM) for Prince William Sound.

In FY98, OSRI obligated $300K per year for five years with a 50/50 split of program costs between Applied Technology and Predictive Ecology for N/F system development. Spending is targeted for $300K a year on an annualized basis. The FY02 Applied Technology budget for this program is $150K

MORICE Phase 6.1

MORICE Phase 6.1 funds tank testing of the oil and ice skimmer at the OHMSETT facility in New Jersey. Phase 6.0 encountered difficulties which prevented the planned testing in Svalbard, Norway.

Funding for FY02 is $35K.

Technology Coordinator

Funding of this position was established in FY99 to continue through FY06 to provide a Technology Coordinator position.

Funding for FY02 is $44K from Applied Technology.

3.3 Applied Technology - Carryover Projects

Alaska Responseä Resource Database

During their winter 2000 meeting the Alaska Regional Response Team (ARRT) identified the need for establishing a statewide database for spill response resources. This database will link all of the state's oil spill cooperatives, via an Internet connection, to a central database containing comprehensive data on the status and location of response personnel and resources.

No new FY02 funding anticipated. This project received $185K in FY01 funding.

Small Spill Technology

A BAA for this project was issued in the first half of FY00, in reply to which OSRI received a single proposal from Cook Inlet Keepers. The project received favorable evaluations and was funded with $10K in FY00 monies. A second BAA for this project was issued during the second half of FY00 directed at harbormasters of the EVOS region.

No new funding in FY02 anticipated. This project received $50K in FY00 funding.

Scoping Initiative for Cook Inlet Risk Assessment

OSRI is committed to serving those Arctic and sub-Arctic regions at risk to oil spills. In an effort to serve the geographically diverse area of OSRI's concerns these funds have been made available to CIRCAC to perform the initial scoping necessary for executing a Risk Assessment of Cook Inlet.

No new FY02 funding anticipated. This project received $25K in FY00 funding.

Remote Sensing Technology Development

This project is a continuation of the FY99 work plan. The project awarded to Arizona State University is supporting the development of a battery powered reagent-less portable PAH sensor.

No new FY02 funding anticipated. This project received $45K in FY00 funding.

Three Dimensional Oil Dispersal Simulation

Contract Awarded to SINTEF for development of their Oil Spill Contingency and Response (OSCAR) model for Prince William Sound. OSCAR utilizes a Princeton Ocean Model (POM) for ocean current modeling. The OSCAR system consists of an oil weathering model, a fates and effects model and a tactical response model. All three components interact within the same GUI (graphical user interface) based on a Windows NT platform. This project is a continuation of the FY99 work plan. Funding occurred in FY00 and work is scheduled for completion in FY01.

No new FY02 funding anticipated. This project received $171K in FY00 funds.

Ice Detection in PWS

The Prince William Sound risk assessment identified ice within the tanker lanes as representing the highest risk factor for future oil spills within the sound. The ice detection project, spearheaded by PWSRCAC, seeks to mitigate this hazard by providing advanced detection and warning of the presence of ice to tankers transiting the sound. By establishing a radar station on Reef Island the ice detection project will enable radar coverage of Columbia Bay, the predominant source of glacial ice, and critical portions of the upper sound tanker lanes.

No new FY02 funding anticipated. This project utilizes $100K in FY00 funds.

4.0 Predictive Ecology Program

The 10-year OSRI business plan targets 40% of the program funds for grants, contracts and workshops in the area of predictive ecology. Predictive Ecology is the research component of the OSRI R&D program. As such, it focuses on the acquisition of knowledge and the identification of gaps in scientific knowledge that may be limiting the development of practical applications of technology. OSRI research efforts range widely from the collection of missing scientific information that yields new understanding, to new predictive or measurement tools that improve the quality and quantity of information on environmental conditions and living resources.

For information about individual grants, visit the BAA section of our web site. All costs are approximate and are subject to change. The Predictive Ecology budget for FY02 is $724K (45% of FY02 projected program spending).

4.1 Predictive Ecology – New Programs

Coupling of OSRI Dominant Resource Monitoring with Predictive Numerical Models

This project is a continuation of the OSRI sponsored numerical modeling program that initiated coupling of the Sound Ecosystem Assessment (SEA) phytoplankton model with a Prince William Sound Princeton Ocean Model (PWSPOM)by Dr. Wang at the University of Alaska at Fairbanks International Arctic Research Center (UAFIARC). The objective of this phase is to couple the pink salmon fry and juvenile herring survival models developed during SEA by Dr. Vince Patrick with the monitoring program currently underway at PWSSC by Dr. Richard Thorne.

A BAA for this project will be issued in the first quarter of FY02. Funding for this project in FY02 is $90K.

4.2 Predictive Ecology – Continuing Programs

Hinchinbrook Entrance ADCP

The exchange of water and nutrients between PWS and the Gulf of Alaska plays a vital role in the health and vitality of the sound's ecology. Recent research has highlighted the variability and complexity of this exchange and demonstrated the relative accessibility and economy of collecting this data via a telemetered Acoustic Doppler Current Profiler (ADCP). This project will fund the installation of an ADCP and telemetry equipment within Hinchinbrook Entrance for a period of five years.

Funding for this project in FY02 is $15K.

Current Validation Program

This project will utilize CODE and STD to verify currents within PWS. As an adjunct project to PWSNF this project will provide specific oceanographic data for ground-truthing the Princeton Ocean Model and physical NF system.

Funding for this project in FY02 is $15K.

Nowcast/Forecast Observational Oceanography Program

The development of the N/F capability for Prince William Sound is ongoing in FY02. N/F system development is a combined effort encompassing both the Applied Technology and Predictive Ecology programs of OSRI. Recognizing that the numerical models that were developed and/or implemented by the SEA program are relatively new applications, there will be a long-term effort to evaluate and improve their

predictions through a variety of observations and field tests. This effort is lead by Dr. Shari Vaughan, principal investigator of the physical oceanography observational program at the Prince William Sound Science Center.

In FY98, OSRI obligated $300K per year for five years with an equal program cost share between Applied Technology and Predictive Ecology for N/F system development. Observational oceanography is the research component of this project assigned to the Predictive Ecology Program. The FY02 budget for this program is $150K.

Intertidal Resources at Risk to Oil Spill

Continued funding for Dr. Mary Anne Bishop of PWSSC and Dr. Pete Peterson of UNC for their investigation of resources at risk on the Copper River Delta.

Funding for this item in FY02 is $100K.

Zooplankton Monitoring

The SEA program found that Neocalanus copepods and pteropods represent the bulk of forage for planktivorous fishes (herring, walleye pollock, salmon fry, etc.) during the PWS spring bloom. Given the importance of zooplankton as forage for dominant fishes and their risk due to oil spills, OSRI committed funds to initiate long-term monitoring of their population. FY01includes continued funding for Dr. Richard Thorne's acoustical monitoring program through the PWSSC.

Funding for this item in FY02 is $75K.

Herring and Pollock Monitoring

The SEA program found Pacific herring and walleye pollock to represent the bulk of the forage for piscivorus wildlife in the Sound in addition to supporting independent commercial fisheries. Given their importance as a commercial resource, their position as the dominant fish in the ecosystem and their trophic position as forage fishes for piscivorus wildlife, all of which are at risk to oil spills, OSRI will commit funds to the initiation of long-term monitoring of their biomass. Monitoring will be conducted using the advanced acoustic technologies developed during the SEA program.

Funding for this item in FY02 is $75K.

Geographic Information System for Living Resources at Risk to Oil

Funds year three of a five-year agreement with NOAA-HAZMAT for completion of the Alaska coastal GIS effort. NOAA and OSRI meet annually to establish the geographic area for the ensuing work year.

FY02budget for this area is $60K.

Remote Sensing Cooperative Agreement

This cooperative agreement funds collaborative efforts between the OSRI and NOAA to develop new methodologies for ecosystem assessment. As part of this agreement, annual reviews are conducted for determining yearly progress as well as establishing the scope of the following years work.

Funding for FY02 is $100K.

Technology Coordinator

Funding of this position was established in FY99 to continue through FY06 to provide a Technology Coordinator position.

Funding for FY02 is $44K in Predictive Ecology.

4.3 Predictive Ecology – Carryover Programs

Coupling of the SEA Phytoplankton Model with the PWSPOM

This project supported for Dr. J. Wang at the University of Alaska at Fairbanks International Arctic Research Center (UAFIARC) for efforts in coupling the Sound Ecosystem Assessment (SEA) phytoplankton model with the Prince William Sound Princeton Ocean Model (PWSPOM). The objective is to couple the PWSPOM and the SEA phytoplankton model developed by Dr. David Eslinger.

No new FY02 funding.

5.0 Public Education and Outreach Program

The 10-year OSRI business plan authorizes 20% of the program funds for grants, contracts and workshops in the area of public education and outreach. In many cases, the direction of research and development is constrained due to a lack of public and professional awareness. The objective of the OSRI education and outreach program is to minimize this impediment.

For specific information about individual grants, visit the BAA section of our web site. All costs are approximate and are subject to change. The Public Education and Outreach budget for FY02 totals $337K (22% of FY02 projected program spending).

5.2 Public Education and Outreach – Continuing Programs

K-12 Environmental Science Education Programs

Included within this program is ongoing support and expansion the award winning "Science of the Sound" project in Prince William Sound. Twenty-five thousand dollars is dedicated towards this multi-faceted education project incorporating hands-on class-room teaching, outreach trips to regional villages and other remote communities, and a series of summer camps for a variety of age groups. OSRI would like to establish additional working partnerships with other regional organizations to establish and extend similar programs to the greater community affected by the EVOS event.

The FY02 budget for this program is $75K.

Science Planning Workshops

OSRI has maintained an open BAA for proposals to hold science planning workshops that tackle difficult issues in the region by bringing together international groups of scholars, researchers, managers, developers and the public to review, discuss and plan the direction of research and management in the region.

Funding of two to three workshops is anticipated from FY02 funding of $75K.

Graduate Level Fellowships

This is an open BAA for grants supporting one to three graduate fellows working on projects related to the OSRI mission. The fellowships will be available on a yearly basis.

The FY02 budget for this program is $100K.

Student Internships

This is an open BAA for grants supporting high school and college undergraduate students for assisting in research related to pollution in the marine environment. Internships are available on a quarterly basis.

The FY02 budget for this program is $25K.

OSRI Website

Support for the OSRI web site maintenance and continuing development of inter-net and intra-net capabilities.

The FY02 budget for this program area is $15K.

Technology Coordinator

Funding of this position was established in FY99 to continue through FY06 to provide a Technology Coordinator position.

Funding for FY02 is $22K in Public Education and Outreach.

Communication and Extension Services

Funding for public dissemination and projection of OSRI's scientific and educational information. This includes the publication of OSRI's newsletter.

The FY02 budget for this area is $15K.

Annual Report

The OSRI will contract for an Annual Report to be produced that details each of the programs executed by the OSRI in FY01.

*The FY02 budget for this area is $10K***.**

5.1 Public Education and Outreach – Carryover Programs

OSRI Public Policy Educational Forum

This FY01 project funds a public outreach program aimed at increasing the awareness of OSRI's mission and efforts to date. Included within this effort is the production of presentation material for distribution to interested policy makers and legislators. FY01 funds support Phase One of a three-phased plan. Phases Two and Three are contingent upon satisfactory completion of Phase One.

No new FY02 funds required. Project was funded with $25K in FY01 funds.

6.0 Projects of Opportunity

FY02 Projects of Opportunity

As part of the FY00 budget the OSRI board of directors allocated $200K for funding Projects of Opportunity. In FY00 these funds culminated in OSRI's participation in the Ice Detection project. FY01 funds totaling $80K were used for MORICE Phase 6.0. The continuation of Projects of Opportunity enables OSRI to respond to promising new proposals within a limited funding window.

Funding for this item in FY02 is $100K

7.0 Supplemental Operations

National Academy Review of OSRI Program

This project funds the continuation of the OSRI review by the National Academies. OSRI's board of directors approved funding for this item at the February, 2001 board meeting in Anchorage.

Funding for this item in FY02 is $100K.

8.0 Appendix Documents

Proposed Guidelines for the Operation of the OSRI OSCAR 2000PWS Model

Introduction

Oil spill response decisions focus on what response actions result in the least amount of environmental impacts. Mechanical recovery is generally the best option for minimizing impacts. However, it may not always be a viable option. In such situations, alternative response actions may be required. Alternative response actions such as in-situ burning or dispersant application may transfer potential impacts from one area to another. For example, burning oil largely transforms a water pollution issue into an air pollution issue. Dispersion may reduce potential impacts to birds, marine mammals and shoreline environments but at a potential cost to pelagic biological resources. Better defining these trade-offs and thereby making the best management decisions in a spill response is one of the goals of the OSRI (Oil Spill Recovery Institute) efforts.

SINTEF, a Norwegian research foundation, was awarded $171,000 in 2000 to develop and implement a "state of the art" three-dimensional oil spill trajectory, dispersion and weathering model tailored specifically to Prince William Sound. The OSCAR model, upon which the OSRI's OSCAR2000PWS system is based, has been in continuous use and refinement for over a decade with development costs exceeding $5 million. Key components of the OSCAR system are an oil weathering model, a three dimensional trajectory and fates model, and a tactical response model. A Princeton Ocean Model for Prince William Sound has been implemented separately and will serve as the ocean circulation model for water movement within the OSCAR simulations.

Significant new information on the biological resources at risk in PWS has been collected since the Exxon Valdez oil spill. Over 129 million dollars of biological research efforts have been funded since 1992 from EVOS settlement funds alone. Additional research has also been funded by the oil industry and OSRI. Given the right tools, this new information could be applied to improve decision making for the next large oil spill in PWS. With further development OSCAR simulations should be capable of interacting with biological models to examine potential impacts to animal populations at risk such as sea otters, harbor seals, herring, and pink salmon fry. While these biological models have not yet been implemented for Alaska, OSCAR can utilize existing environmental data in a GIS format for assessing impacts to species in an

affected area. Additional GIS data sets constructed for this purpose could include such habitat data as herring spawning areas, marine mammal haulouts, or the general distributions and concentrations of phytoplankton, zooplankton and pelagic species.

For assessing these impacts, OSCAR separates oil into 30 individual components and pseudo-components to represent the oil through its degradation processes. Each component is associated with an array of parameters that govern process rates: solubility, vapor pressure, degradation rates, density, adsorption-desorption partition coefficient, and toxicological parameters. The fractional composition of oil in the water column is key in determining the toxicological effects on plants and animals that come into contact with the oil plume.

Completion of the OSCAR model development for PWS is anticipated in approximately 1-2 years. As noted, additional work is required to link all of the available biological data with the model to achieve precise impact assessments. Even with the aforementioned level of effort, gaps in the biological data will likely remain, which may limit use of the model and/or provide new directions for research.

Dispersion Modeling & OSCAR

Sophisticated environmental models such as OSCAR require extensive data collection, processing and analysis prior to interpretation. To produce valid data, OSCAR must be operated by those familiar with its inherent assumptions and limitations. The interpretation of the resulting data is also subject to potential misapplication, both intentional and accidental. OSCAR's sophistication will allow equally sophisticated simulations, or "gaming", to assess potential impacts from different oil spill response strategies. However, casual use and interpretation of the model will likely be counterproductive and highly controversial.

The suitability of the model for the intended simulation of oil spill impacts and dispersant use should be independently analyzed. The simulation assumptions, and the limits they impose on the results, must be made explicitly clear to the end users. Those users may elect not to run a simulation if the limits on the results are too great.

The Dispersant Impact Analysis project would be conducted in two phases: assessment and operation. The assessment phase provides an evaluation of the model's suitability as an impact assessment tool for oil spill response. The operation phase would consist of actual model runs to define potential impacts from dispersing the oil into the water column versus allowing the oil to remain of the water and impact shorelines. The assessment and operations phases would be sequential. Any deficiencies identified in the assessment phase would require correction prior to initiation of the operations phase.

Implementation Issues

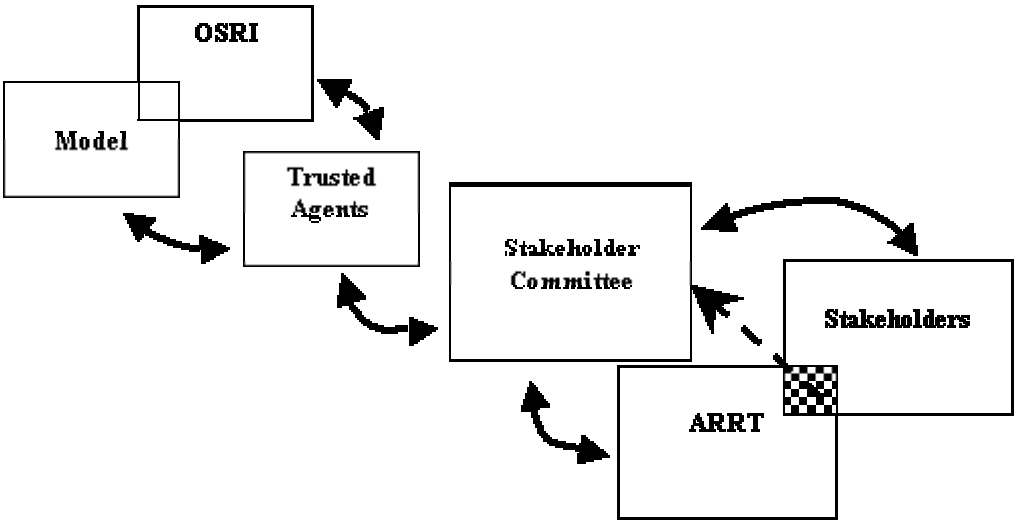
The need for two independent interfaces between the model and the interested parties has been identified. The first is "trusted agents" who would be a team of scientists and technicians drawn from appropriate disciplines and would provide an evaluation of the model's suitability as an impact assessment tool for oil spill response. The second interface could be termed the "stakeholder committee". This committee would be a subset of ARRT members and key public interest group representatives. As illustrated in the Figure 1 below, they would interface with the trusted agents to understand the assumptions and limitations of the model and then relay that information back to their stakeholders. The broad spectrum of intensely interested parties makes the selection of these interface groups critical to the ultimate credibility and therefore acceptance of the model's output results.

The trusted agents will be called upon to evaluate and interpret a complex mathematical model and communicate clearly with the stakeholders in an extremely politicized environment. This requires strong technical credentials and excellent communication skills. The trusted agents will act as the interface between the stakeholders and the model, providing assessment and interpretation of both the initial model parameters and interpretation of data output. Without sufficient acceptance of the trusted agents, the agent selection

process and, by extension, the operation of the model, the project becomes a moot exercise. OSRI would then be in the unfortunate position of having developed a product with tremendous potential for providing valuable input on dispersant decision-making with no ability to productively utilize this knowledge.

Potential interested parties for this project include: citizens' advisory councils; response agencies; oil and fishing industry representatives; resource agencies; environmental organizations; and local and tribal governments. A consensus among these parties should be reached in selecting the trusted agents.

While the model is 1-2 years from initial operation, the process of product definition, selection of the trusted agents, and conduct of the analysis will require extensive networking and considerable time. The model is technically complex and the political complexities are at least its equal. The interested parties need time to interact as well as work on this issue internally.



(Figure 1: Proposed relationship among the parties)

Proposal for the Way Forward

The model's existence and intent should be made known to the stakeholders and ARRT. The potential uses of the model and the need for trusted agents to act as the interface should be conveyed. Agreement on the approach from the ARRT must be reached prior to beginning the assessment and operation.

To prepare for the initial outreach requires the development of a presentation, criteria for the trusted agents and the proposed process for the assessment/operation phases. Prior to approaching the stakeholders, the ARRT, or potential trusted agents the following framework will be developed:

· timeline for the project;

· project budget;

· draft of trusted agent criteria;

· draft list of stakeholders;

· procedures for executing scope of work description of the model in layman's terms. (This could be updated after the assessment phase to include additional capabilities and limitations.)

Once the above framework is in place the project will proceed according to the timeline and under the direction of the appropriate committee(s) (the stakeholder committee and trusted agents during Phase I and the trusted agents during Phase II). OSRI will provide funding for execution of this project through a $150,000 appropriation in the FY02 budget. Additional OSRI funds may be dedicated to this project in subsequent years at the discretion of the OSRI Board of Directors.