

Appendix K – OSRI Grant Policy Manual

Final Report Form - Oil Spill Recovery Institute

An electronic copy of this report shall be submitted by mail, or e-mail to the OSRI Research Program Manager wspgau@pwssc.org and Financial Office poswalt@pwssc.org
Mailing address: P.O. Box 705 - Cordova, AK 99574 -

Deadline for this report: Submittal within 90 days of grant/award expiration. **Also**, note that a summary Financial Statement shall be submitted **within 45 days** of the grant expiration. The final invoice and financial statement is due within 90 days of the grant/award expiration.

Today's date:

Name of awardee/grantee: Prince William Sound Science Center/Kara Johnson

OSRI Contract Number:11-10-10

Project title: Oil Spill Response ROV kit

Dates project began and ended: July 1, 2011 – June 30, 2012

PART I - Outline for Final Program or Technical Report

This report must be submitted by all grantees. However, for those whose project work resulted in a peer reviewed publication (whether in draft or final form), this report may be abbreviated and the publication attached as part of the report.

- A. Non-technical Abstract or summary of project work that does not exceed 2 pages and includes an overview of the project. This abstract should describe the nature and significance of the project. It may be provided to the Advisory Board and could be used by OSRI staff to answer inquiries as to the nature and significance of the project.

The **Oil Spill Response ROV Kit** was designed to be a transportable student activity kit focused on oil spill science and robotic technology. It is a teacher-ready “stand alone” education unit containing the materials needed to deliver lessons on marine oil spills and oil spill response technologies. Teachers can customize the kit by selecting the lessons and activities they was to employ with their students.

Over the past year, PWSSC educators directly engaged 448 students and 495 adults and indirectly engaged another 25 students and 2 adults in lesson plans and activities related to oil spill properties, response, and equipment. These teachers and students were from around Alaska and the United States. PWSSC applied these lesson and labs in our Discovery Room, Outreach Discovery and NOSB programs. We will continue to offer oil spill response in our traditional programs but acknowledge the importance of a solid marketing and outreach plan to achieve significant reach beyond PWS; we will develop a marketing plan over the next fiscal year to guide our outreach efforts. Oil spill response and technology programs are an integral part of our curricula and will continue to provide these lessons post-funding of this project.

- B. Review objectives as described in original proposal and state whether these objectives were achieved.

Appendix K – OSRI Grant Policy Manual

- **Provide teachers with “delivery ready” activities that are easily integrated into their formal science curriculum and that are based on current marine science and environmental issues in Alaska**

We have developed a kit of “delivery ready” lessons and activities based on: understanding how oil and water interact, the impacts of oil spills, oil spill response equipment, and ocean technology. We currently have seven lectures and nine labs and plan to make available additional lessons related to oil spill and response that we compile and develop post funding. The menu of lectures and labs will be available for teachers to select the activities of interest. We will then mail them a customized kit based on their interests.

Our lesson plans have been designed and standardized, though we have not yet been able to map them to state curriculum standards or have them peer-reviewed by content and education experts. These activities will happen during FY13 using other funding sources. We will also continue to refine the lessons as we gather evaluation results and user feedback.

Lectures

Title	Duration	Age Range	Description
Liquid Properties	30 min	grade 6-12	Students learn how properties such as density, buoyancy and pressure affect liquids and marine technology
Marine Technology	45 min	grade 6-12	Students learn about historical and current technologies used to study the ocean
Oil's Wandering Paths	45 min	grade 6-12	Students learn about oil transportation and sources of marine pollution
Oil Spill Response Equipment	30 min	grade 6-12	Students learn about equipment and technologies used to respond to oil spills
<i>Alaska Sea Life Center</i> Wildlife Rescue	30 min	grade 6-12	Students learn about the biological impacts of oil spills
Introduction to Underwater Gliders	30 min	grade 6-12	Students learn design, function, and uses of underwater gliders
<i>ShoreZone</i>	30 min	grade 6-12	Students learn how the ShoreZone website is used in oil spill response

Labs

Title	Duration	Age Range	Description
Liquid Properties	90 min	grade 6-12	Students perform hands-on experiments to learn about liquid properties
Oil Spill Clean Up	90 min	grade 6-12	Students perform hands-on experiments to learn how different sediments react to oil; students work in teams
Flex Your Mussels	90 min	grade 6-12	Students learn about baseline data, how filter feeders can be used as indicator species for water quality monitoring, and learn about

Appendix K – OSRI Grant Policy Manual

			long-term monitoring programs
ROV Construction and Oil Spill Response Challenge	300 minutes (5 hours)	grade 6-12	Students will work in teams to build an underwater remotely operated vehicle to respond to a mock oil spill. Mock spill activity must take in water such as a pool or harbor
<i>BP</i> Oil Spill Simulation	180 min (3 hours)	grade 3-9	Students role play members of an Incident Command System and decide how to respond to a mock oil spill. This activity is designed for younger students and requires donations of protective clothing from BP or another oil spill response organization.
<i>KBRR</i> Mapping 101	60 min	grade 3-9	Students study different kinds of maps, learn standard units and how to read a map. This activity is designed for younger students
Gliders	90 min	grade 6-12	Students learn design, function, and uses of underwater gliders
Biological Impacts of Oil Spills	90 min	grade 6-12	Students understand the impacts of oil spill on biological species such as vegetation, birds, fish and mammals
Incident Command System Scenario	180 min (3 hours)	grade 9-12	Students role play members of an Incident Command System and decide how to respond to a mock oil spill. This activity requires knowledge of air-sea interactions, ocean circulation and Coriolis Effect, and water properties and is best suited for older students

- **Provide students with learning opportunities that increase skills in the application of technology to address environmental problems**

Multiple lectures and labs within the kit focus on technology and its application to address environmental problems.

- **Increase the number of students in Alaska involved in activities that increase understanding of the effects of oil spills on Alaska’s marine environments**

We have successfully increased the number of students in Alaska learning about the effects of oil spills on Alaska’s marine environments. We employ a number of the kit’s activities in our Discovery Room, Discovery Outreach and NOSB programs; Table 1 details kit content use over the past year. We will continue to use kit contents in our programs post funding.

This kit and its contents will be available to any teacher and we will highlight the kit as part of an overall outreach and marketing plan (still in development).

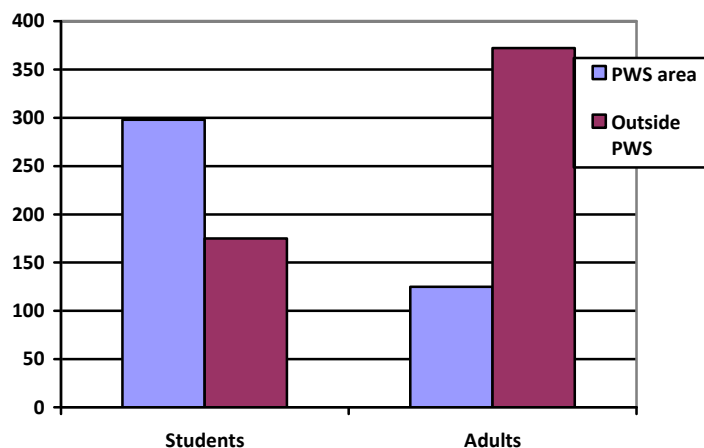
Audience	Audience Location	Description	Duration	Attendance
Cordova 6 th grade	Cordova, AK	oil spill technology	7 months	23 students

Appendix K – OSRI Grant Policy Manual

		and response unit		
Valdez 3 rd -6 th grade	Valdez, AK	water properties	4 hours	100 students
Valdez Science Festival	Valdez, AK	mini-ROVs, about undersea exploration video	2 hours	175 students and 125 adults
National Marine Educators Association	Around Alaska and the United States	hands-on presentation about our ROV program and a booth representing PWSSC and OSRI	3 hour presentation, 4 day conference	330 formal and informal educators
Kodiak School District	Kodiak Island, AK	use of ROV kit	9 months	25 students, 2 adults
NOSB students and coaches	Around Alaska	ROV build and oil spill response challenge	2 hours	100 students, 40 adults
Hoonah 7 th -12 th grade	Hoonah, AK	oil spill technology and response unit	3 days	50 students
			Total	473 students and 497 adults
			Beyond PWS	175 students and 372 adults

- **Increase the geographic impact of oil spill related educational products developed by PWSSC and OSRI beyond the Prince William Sound region**

We have successfully increased the geographic impact of oil spill related educational products by PWSSC and OSRI beyond the PWS region. See above table for the highlighted entries and graph below.



Number of students and teachers engaged in oil spill kit lessons

C. Describe problems or roadblocks encountered in project implementation.

Appendix K – OSRI Grant Policy Manual

Due to reductions in staffing we have not yet been able to completely standardize all lesson plans for web distribution and map them to Alaska State Standards. We have not yet been able to document the materials list and instructions for assembling the control boxes and motor sets; these activities will be completed in FY13 quarter one using other funding sources. The PWSSC website redesign is behind schedule, limiting our ability to post lesson plans in a suitable format for searching and accessing. The new rollout date is October 2012. Once lessons have been peer-reviewed and finalized, we will post them on the website and market them according to our outreach plan (in development). We have not yet designed marketing materials to outreach our lesson plans. We have requested funding from another source to contract a graphic designer to help us develop engaging and enticing marketing materials.

D. Highlight accomplishments, whether or not they were part of the original proposal.

- *Children of the Spill* Skype session with OSRI, PWSSC, and students in Alabama
- ROV build sets for 10 units (seven more than the original three proposed)
- NMEA presentation and booth
- Aligning ROV water challenge to an under-ice oil spill response
- Standardizing all lesson plans and activities into a single format
- Creating worksheets for each lesson plan/worksheet
- Training of two staff members in ROV assembly and basic troubleshooting

E. Conclusions.

Over the past year, PWSSC educators directly engaged 448 students and 495 adults and indirectly engaged another 25 students and 2 adults in lesson plans and activities related to oil spill properties, response, and equipment. We will continue to offer these lectures and labs in our traditional programs but acknowledge the importance of a solid marketing and outreach plan to achieve significant reach beyond PWS; we will develop a marketing plan over the next fiscal year to guide our outreach efforts. Oil spill response and technology programs are an integral part of our curricula and will continue to provide these lessons post-funding of this project. We value the significance of broadening our reach beyond PWS and are actively seeking partner classrooms in other regions (Southeast, Southwest, Northwest and North Slope) to bring PWSSC, and OSRI-sponsored, programs to new constituents. We will continue to work with the PWSSC website development team to ensure we have an easy-to-use, robust lesson plan database available to teachers interested in oil spill response and technology.

F. Appendix including copies of all written reports or publications completed or in progress, resulting from the project work. This also includes abstracts of papers presented at conferences. Please note the acknowledgment of OSRI support stated in Section 10.3.4 of the Grant Policy Manual.

Cordova Times May 11, 2012: Putting Lessons in Ocean Technology into Action

PWSSC Spring 2012 Breakwater article –ROV Challenge Comes to the Tsunami Bowl

Part II - Final Financial Statement

Please complete the attached Excel spreadsheet (GPM-appendix I – Fin Rpt Form).

