

WEST COAST GOVERNORS
ALLIANCE on OCEAN HEALTH

**Ocean Awareness and Literacy
Action Coordination Team
Work Plan**

December 2009/Revised 2012

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West Coast Governors Alliance on Ocean Health Ocean Awareness and Literacy Work Plan

In September 2006, the Governors of Oregon, Washington and California signed the West Coast Governors' Agreement on Ocean Health. Under this agreement, the three States, working together with tribal leadership, and consulting with federal agency leads and stakeholders, developed a bold set of actions to improve the health of our ocean and coastal resources. On July 29, 2008, the three States released a final Action Plan that outlines many activities on a range of issues. In 2011, the WCGA became the West Coast Governors Alliance on Ocean Health.

“Increasing the ocean awareness and literacy among our citizens” was identified as Priority Area 5 in the Action Plan, with two specific actions:

***ACTION 5.1:** Integrate ocean science and conservation into expanded environmental education curricula by encouraging changes to education content standards enhancing ocean literacy.*

***ACTION 5.2:** Support ocean awareness efforts for the public and for decision-makers at all levels and encourage improvement and expansion of self-directed learning institutions and volunteer programs.*

This work plan presents the Ocean Awareness and Literacy Action Coordination Team (OAL ACT) blueprint for working together as a region to address this priority area and carry out these actions.

Background

In 1999, The Ocean Project conducted an extensive, nationwide public opinion survey to measure public awareness and attitudes towards the ocean, and updated the survey in 2009 and 2010. The results paint a fairly dismal picture of public understanding of and concern for the ocean and the threats it faces, with little improvement in the ten years between the two surveys. Although most Americans value and care for the ocean greatly, they by and large are not aware of the threats to the ocean identified by the Pew Oceans Commission and the U.S. Commission on Ocean Policy in 2003 and 2004. For example, the survey found that the public does not recognize the risks to ocean health from climate change.

Improved public understanding of the ocean is an essential component of any plan to combat the threats to ocean health. The future of our ocean depends on our populace gaining a broad understanding of the ocean's importance, especially its influences on the economy, climate, biodiversity, our food sources, and on the overall quality of our lives.

An ocean literate population is equipped to understand the complex issues surrounding our use of ocean resources, weigh the risks and tradeoffs of different courses of action, and appreciate the need for civic engagement to address these issues. A baseline of ocean understanding will help



prepare and motivate students to pursue careers in science and technology that will set us on a course for addressing the issues to come. In addition, an informed populace is more aware of how their individual behavior affects the ocean, and how they can modify their actions for the benefit of ocean health. Taken cumulatively, individuals' behavior can have a tremendous effect on the ocean.

The two Actions listed above, which are the subject of this work plan to improve ocean awareness and literacy, target different audiences. Action 5.1 addresses promoting ocean literacy in K-12 education; Action 5.2 targets improved ocean awareness for the general public and decision-makers.

This work plan was adopted in 2009 and revised in 2012 to reflect our evolving understanding of the issues and the most effective way to address them.

The 2012 Revisions

Based on the results of our preliminary needs assessment, as well as conversations with others in the ocean literacy field, we determined that our original plan to develop a “guidance product” for educators was not the approach most needed, and a better overall strategy would be to engage collaboratively with others in the ocean education community to develop effective solutions. We see an important role for the OAL ACT in providing this community with data on the current state of affairs and needs, and convening key partners to work together to advance the ocean literacy. In addition, we are in a period of change in terms of school science standards. The expected adoption of the Next Generation Science Standards by each state will present a new set of needs and possibilities. The revised work plan is designed to be responsive and adaptive to emerging needs and new understandings.

Action 5.1 – Expanding K-12 Ocean Literacy

ACTION 5.1: Integrate ocean science and conservation into expanded environmental education curricula by encouraging changes to education content standards enhancing ocean literacy.

Photo Courtesy of Washington Sea Grant

Introduction

Action 5.1 highlights a consensus on the part of many ocean-related institutions and marine scientists on the importance of teaching ocean science and conservation to our youth. The National Marine Educators Association (NMEA), the National Oceanic and Atmospheric Administration (NOAA), the National Science Foundation Centers for Ocean Sciences Education Excellence, the College of





Exploration (COSEE), National Geographic Society, the Lawrence Hall of Science at University of California at Berkeley, tribal groups, and many other institutions and scientists are concerned that the essential role of the ocean in influencing and shaping all systems, living and non-living, has been largely overlooked in federal and state science standards. As stated in 2010 comments jointly submitted by NMEA and COSEE to the National Research Council on a draft K-12 science framework, “there are aspects of life in the ocean and of ocean processes that are quite unique and unlike their counterparts on land and in the atmosphere. There appears to be a default assumption that science exists exclusively in a terrestrial environment.”

The Ocean Literacy Principles

Recognizing the importance of a citizenry that is educated about the ocean, the institutions listed above, as well as many others, have been involved in an effort to define what it means to be ocean literate. The Ocean Literacy Principles and their supporting Fundamental Concepts (see Appendix A) were developed in 2004 and 2005 via workshops and public comment, and were designed in accordance with the National Science Education Standards. The Ocean Literacy Principles are the “big ideas” that citizens should understand about the ocean. An ocean literate individual understands coastal and ocean processes and can communicate that information to others. A group of marine educators have undertaken an effort called the Ocean Literacy Scope and Sequence, which defines the grade level appropriate science concepts that underlie each Ocean Literacy Principle. This effort will assist curriculum developers and teachers in translating the principles into science lessons.

Incorporating Ocean Literacy into K-12 Science Standards

As reflected in Action 5.1, influencing the content of science standards would be by far the most efficient way to bring about wide-scale change in the ocean literacy of our youth. These standards drive many aspects of learning in our schools – including textbooks and curricula adopted on a district or school-wide basis. This approach is not straightforward or certain, since the process for revising K-12 content standards is to some extent political, involving a range of competing interests, and varies from jurisdiction to jurisdiction, as does the level of specificity of the standards themselves. Timing is critical.

Next Generation Science Standards. We are faced with a window of opportunity in this regard. An effort to develop science standards that would be consistent from state to state is currently taking place at the national level, in consultation with state and regional entities. This effort is called the Next Generation Science Standards (NGSS), and is the equivalent of Common Core State Standards in science.

On July 19, 2011, the National Research Council (NRC) of the National Academies of Science released “The Framework for K-12 Science Education (Framework).” Because of active, coordinated involvement by a consortium of organizations involved in promoting ocean literacy, including the OAL ACT, during the review and comment period, that document includes an unprecedented treatment of ocean sciences. The Framework will be used by Achieve, Inc. (an independent, bipartisan, non-profit education reform organization based in Washington, DC) as the basis for the development of the Next Generation Science Standards. Achieve is committed



to completing the development of the NGSS within 18 months of the release of The Framework, by January 2013. Twenty-six states, including California, Oregon, and Washington, have been officially selected to assist with the development of the NGSS.

To the extent they are adopted by states, the NGSS will guide the development of textbooks and curricular requirements. If these standards incorporate ocean literacy, this will help spark the demand on the part of teachers and school districts for quality materials, training, and programs to teach the new standards. If the new standards are not adopted, the individual state standards will continue.

Other Related Efforts at the Federal and State Level

The No Child Left Inside Act and Environmental Literacy Plans. In 2001, Congress amended and re-authorized the *Elementary and Secondary Education Act* as the *No Child Left Behind Act (NCLB)*. This new version of the Act emphasizes setting high standards, measurable goals, and standardized testing. As a result of focusing on high stakes test subjects of math and language arts, a 2008 study by the Center on Education Policy documented that many school districts have significantly reduced the amount of class time spent on such subjects as social studies and science. Time devoted to field trips and outdoor learning activities have also been cut to give more time to tested subjects.

The *No Child Left Inside Act (NCLI)*, sponsored by Representative John Sarbanes of Maryland and Senator Jack Reed of Rhode Island, would amend the NCLB to include environmental



Photo courtesy of Golden Gate Audubon

education. The legislation would provide new funding for environmental education, particularly to develop rigorous standards, train teachers and to develop state environmental literacy plans. It also proposes giving states that develop such environmental literacy plans access to additional funds. Although to date the federal bill has not yet passed Congress to become law, individual states have been moving forward with adopting Environmental Literacy Plans. Oregon published its plan in 2010, and Washington State in 2011.

Education and the Environment Initiative (EEI). In addition to participating in the development of the NGSS, California is implementing an initiative designed to bring education about the environment into elementary and secondary schools in a systematic and unified way. EEI, staffed by the California Environmental Protection Agency, is working with the California Department of Education and other agencies to advance environmental literacy in the state. The EEI has developed Environmental Principles and Concepts, which are tied to academic content



standards, and a model curriculum. Ocean and watershed concepts are woven into the environmental principles and concepts, and are incorporated into the model curriculum. State law requires the environmental principles and concepts to be incorporated into criteria for textbook adoption, and will be considered for inclusion if the state content standards are revised.

Unfortunately, due to the California's fiscal crisis, the textbook adoption process has been defunded for the foreseeable future, and, as a result, the only place where California's State Board of Education-adopted environmental principles and concepts are formally embodied is in the EEI Curriculum (i.e., the "model" curriculum). Even so, many informal environmental education providers have begun aligning their materials to California's environmental principles and concepts, and, meanwhile, the EEI Curriculum has reached more than 2,000 teachers and 30,000 students to date.

Two Paths for Change - Tasks for Action 5.1

We have developed a two-pronged approach for raising the level of ocean literacy among students. The first prong involves working with ongoing processes to develop and adopt new standards that dictate learning in our schools. Task 1 addresses this path to change.

At the same time, the OAL ACT proposes to pursue a second path – finding ways to facilitate the incorporation of ocean science and literacy at the level of school districts, schools, and with individual teachers. This path is reflected by Task 2.

As practitioners in the marine education field, OAL ACT members are confident that a number of excellent marine education opportunities exist in our three states, therefore our plan does not focus on developing new educational resources. And while there is a cadre of educators who are highly motivated to teach about the oceans, and who are finding education resources to do so despite the challenges of teaching a subject that has largely been absent or limited in classrooms, many more teachers have an interest in teaching ocean science, but currently are not. Therefore, we approached this task with the idea of investigating this state of affairs – what does this second group of teachers need in order to effectively teach ocean science, what are the obstacles and opportunities, and how do they vary regionally?

We plan to use the results of our investigation in several ways to advance K-12 ocean literacy: (1) develop "success cases" – stories to illustrate how individuals, schools, and districts can overcome the challenges of teaching ocean literacy, (2) work with partner organizations to develop tools to improve access to existing ocean literacy resources, and (3) host an ocean literacy summit to share our findings and enlist the ocean literacy community in developing shared strategies, communications, collaborations, and best practices that are relevant to the diverse cultures of the West Coast.

Tasks for Action 5.1

Task 1: Work to shape the development and revision of formal educational standards and plans. This task includes working at state, federal, and tribal government levels to encourage the



incorporation of ocean science and literacy into academic content standards and environmental education plans.

1.A. Participate in the process of developing the NGSS. Work with Achieve, the NRC, and our three states to support the development of the NGSS, and to ensure ocean literacy elements of the Framework for K-12 Science Education are included in the standards.

1.B. Engage in State and Tribal Environmental Education Efforts.

- (1) Explore ocean science content of the EEI and how this initiative or parts of it could help inform ocean education in Washington and Oregon.
- (2) Participate in and support processes to develop state environmental literacy plans, to ensure ocean education is included in these plans.
- (3) Participate in and support Tribal Government environmental education efforts.

Task 2: Encourage ocean literacy at the level of school districts, schools, and individual teachers. In addition to efforts to address ocean literacy through revisions to educational standards (Task 1), the OAL ACT proposes to work on the goal of improving ocean literacy through other channels. In that regard, Task 2 encompasses a range of activities, described in the subtasks 2A through F, below. The general idea is to work with others to define a research agenda on the state of ocean literacy education (who is teaching ocean science and how are they teaching it; who is not currently teaching it, but would be interested in teaching it under the right circumstances; what are the barriers, opportunities, needs and preferences for expanding ocean literacy teaching; and what resources currently exist?); and to review existing research; consult with others in the field; and conduct original research to help answer these questions. This research will help define the remaining subtasks, which have the goal of assisting and inspiring educators, schools, and school districts in teaching students to be ocean literate while achieving mastery of science content standards.

In carrying out Task 2, the OAL ACT will consult with the organizations that are leading the



Ocean Literacy Scope and Sequence effort, which include NMEA and the COSEE Network. In addition, potential partners and ongoing activities will be identified in order to most effectively leverage existing work and fill gaps. Other partners may include NOAA's Bay Watershed Education and Training (B-WET) Program, Office of Education, and National Sea Grant Program; Department of



Interior; National Science Foundation, as well as appropriate state agencies and regional and local non-profit organizations and businesses.

The OAL ACT will examine how to best incorporate the California Current Large Marine Ecosystem (California Current) as an overarching theme for Task 2. The California Current is a geographic unifying feature for the West Coast of North America, extending from Baja California to Vancouver Island, British Columbia. This vast ocean and coastal ecosystem is essential to the West Coast's economic and environmental health, and is an area where marine productivity, as well as pollution, overexploitation, and habitat alteration, all converge. Understanding the complexity and significance of the California Current to humans is one way to foster ocean literacy in a regionally relevant context.

2.A. Conduct regional meetings to help define a research agenda improving K-12 ocean literacy. Regional meetings will help set the stage for the research component of the work plan – what do we need to know to move ocean literacy forward? The workshops will explore several areas. We will seek a dialogue on existing studies and the need for further research regarding current teaching practices for ocean topics, educator needs and student level of ocean literacy. We will also discuss the range of existing ocean education programs and resources and the available evidence of effectiveness.

2.B. Conduct a gap analysis of existing research, educational resources and programs to facilitate the teaching of ocean literacy. Building on the results of the regional meetings, the ACT will review and evaluate existing research, as well as websites and other resources that consolidate a range of marine education resources and programs, such as curricula, professional development opportunities, and field trips. The OAL ACT will work closely with relevant partners on this task.

2.C. Assess educator needs. The purpose of this task is to assess the current state of affairs with respect to ocean education in K-12: what are educators currently teaching about oceans and watersheds, who is teaching, what the barriers are to teaching these subjects, and how these barriers can most feasibly be overcome. In 2010 – 11, we conducted a survey and interviewed educators in the three states, to gather preliminary data relevant to this task.

This task will build on the prior needs assessment work, as well as the findings from the regional meeting. This task will consist of conducting a more formal, follow-up survey using a representative, random sample to collect data on the status of ocean science education in the region and in each state. In addition to informing the future work of the OAL ACT, the results of this survey will help numerous organizations understand the needs of educators for teaching ocean education, as our states move forward with the Next Generation Science Standards. These results will be broadly disseminated and publicized.



Photo Courtesy of Washington Sea Grant

2.D. Develop Case Studies.

Develop case studies/stories to illustrate the ways in which communities, school districts, schools, and/or individual educators across the country are successfully teaching ocean science and literacy. These stories would serve as examples and inspiration for others moving in this direction.



2.E. Host a West Coast Ocean Literacy Summit. Join with others in the ocean literacy community to host an Ocean Literacy Summit. Summit participants may include representatives from COSEE,

regional marine education associations, environmental education organizations, and other key educators involved in ocean literacy. The Summit will be designed to build on the outcomes and findings from the regional meetings (Task 2.A.). Presentations may include the results of the needs assessments and gap analysis research, and ocean literacy case studies, among others. Facilitated sessions will guide the development of regional strategies, collaborations, and best practices. The results of the Summit will be compiled and disseminated to relevant parties.

2.F. Work with partners to provide and improve access to and assist teachers with using ocean literacy resources, programs and tools, as needed. Preliminary results from the needs assessment, as well as anecdotal evidence, indicate that many teachers perceive that a lack of educational resources is hindering their ability to teach ocean literacy. This task would help address the need for teachers to have ready access to and an understanding of how to incorporate marine-related education resources into their teaching in a meaningful and congruent way. The details of this task will be shaped by the results of the gap analysis, follow-up needs assessment and Ocean Literacy Summit.



Action 5.2 – Building Ocean Awareness among the General Public and Decision-Makers

ACTION 5.2: Support ocean awareness efforts for the public and for decision-makers at all levels and encourage improvement and expansion of self-directed learning institutions and volunteer programs.

Introduction

An increase in public knowledge and understanding of the issues facing the ocean is critical to its current and future health. The public needs to be equipped to understand these challenges, and motivated to take individual action for ocean stewardship. Similarly, decision-makers at all levels require a baseline of knowledge about the ocean, and may in addition require specialized programs and tools to address particular issues in depth.

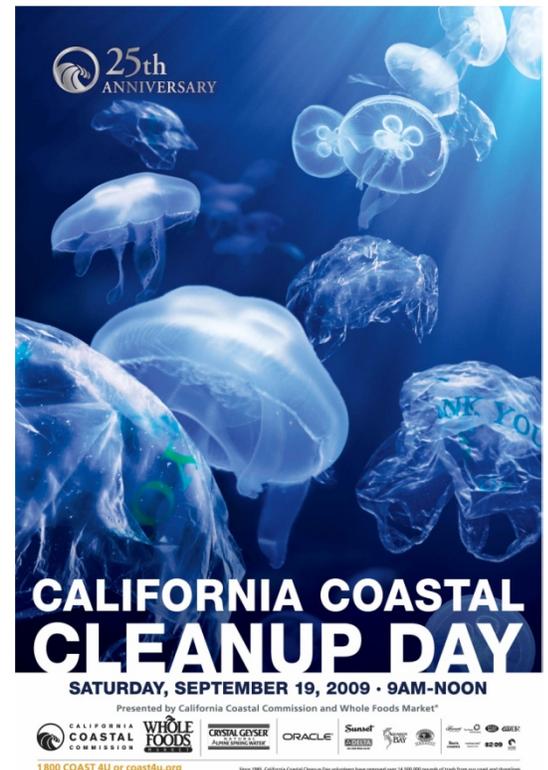
The OAL ACT work plan for Action 5.2 recognizes the existence of numerous programs and institutions working to facilitate ocean awareness and stewardship for these audiences, and focuses on supporting these efforts by: conducting research to help inform program development and improvement in the field as a whole; helping improve awareness, outreach and access; and by facilitating communication and collaborations. Because decision makers and the general public represent distinct audiences for communication purposes, with different needs, we will address these audiences in separate tasks in the work plan.

In terms of research, the OAL ACT will hold workshops and conduct gap analyses to identify underserved segments of populations, potential collaborations, and effective programs and tools that could be leveraged, duplicated, or expanded. Needs assessments will shed light on the most useful content and mechanisms for providing education and outreach to the public and decision makers.

In addition, we will work with partners to develop common communication strategies and shared messages so that the various entities working in the ocean awareness field reinforce one another's work and concepts, and gain traction with repeated exposures via a range of programs, informational materials, advertising, and other products.

Another focus will be on improving communication, partnerships and collaborations through convening workshops for self-directed learning institutions. The OAL ACT will also assist the WCGA as a whole, and individual ACTs, with outreach, as needed.

Graphic courtesy of California Coastal Commission





Tasks for Action 5.2

Task 3: Support ocean awareness efforts for the public and encourage improvement and expansion of self-directed learning institutions and volunteer programs.

The OAL ACT will conduct research to gain insight into what is currently the state of ocean awareness efforts for the public, and what social science tells us about how to most effectively deliver education and motivate stewardship. Based on the results, the OAL ACT will work with partners on several initiatives (described below), with the goal of assisting informal educators, self-directed learning institutions and volunteer programs with improving ocean literacy for adults and families.

Photo courtesy of Washington Sea Grant



The OAL ACT will also examine how to best incorporate the California Current Large Marine Ecosystem (California Current) as an overarching theme for this work plan task.

3.A. Conduct regional meetings/workshops with program providers for the general public (self-directed learning institutions and volunteer programs). Hold meetings/workshops with providers who are focused on educating the general public regarding the ocean. These meetings/workshops will help frame the gap analysis and needs assessments, and begin the process of crafting ocean related messaging (see task 6). In California, the OAL ACT will work with the Ocean Communicators Alliance (OCA) and others on this task, in addition to reaching out to a range of similar organizations in Washington and Oregon.

3.B. Conduct gap analyses for programs that target the general public. Identify existing programs that address ocean awareness and literacy for the general public in the three states. Determine which segments of the population and geographic areas are not currently being served, which topics are not being adequately addressed, which strategies have the greatest potential for effectiveness, and where there is duplication of effort. Identify successful programs that could be expanded or duplicated in other areas.



3.C. Conduct needs assessments for programs that target the general public. Review existing research and conduct additional surveys and interviews, as needed, to identify the needs of the general public for improved ocean awareness and education. The needs assessment will address what information and resources are most needed and how to deliver education in a way that will raise awareness about the importance of the ocean and motivate ocean stewardship.

3.D. Conduct an Ocean Awareness/Literacy Workshop for providers. Conduct workshop(s), possibly with the assistance of the Ocean Project, with existing visitor-serving program providers such as zoos, aquariums, science centers, and parks, to develop collaborations and strategies for increasing ocean literacy and awareness for the general public. Compile and disseminate the knowledge and strategies developed and shared as part of the workshop. The OAL ACT will work with a range of organizations to help us conduct outreach to visitor serving program providers, including the OCA in California, and the American Association of Zoos and Aquariums.

Photo Courtesy Great Sierra River Cleanup



3.E. Work with partners to support existing environmental and ocean awareness and literacy programs and resources, and to develop new elements, as needed. Support, improve, align, and expand existing ocean awareness and literacy programs and resources, including through facilitating communication and collaborations. These efforts may be informed by the results of the needs assessment and gap analysis, and may include trainings and dissemination of shared messaging, strategies, and

content, as available.

3.F. Encourage opportunities for connection with the environment. As opportunities present themselves, promote ways for the public to directly or virtually experience the values of ocean, coastal, and watershed resources in order to stimulate their investment in protecting them. Through our website, and via networking and sharing of resources among the ACT members and others in the field, work with partners to provide or promote clear ways for individuals and communities to act now to protect our oceans. These opportunities could include activities such as promoting sustainable seafood initiatives, and “citizen scientist” efforts.



Task 4: Support ocean literacy and awareness for decision makers at all levels.

This task focuses specifically on the other audience included in action 5.2 – decision makers. Although decision makers are also part of the general public and will be influenced by the work outlined in Task 3 above, they also occupy a distinct niche, with distinct needs in terms of educational content, format, and delivery. There are a number of organizations and programs that have the mission of educating decision makers. This task aims to support and expand those efforts, as possible.

4.A. Conduct regional meetings/workshops with program providers for decision makers. Hold meetings/workshops with providers who are focused on educating decision makers regarding ocean-related issues. These meetings will be designed to help frame the gap analysis and needs assessments, and develop collaborations and shared strategies among program providers.

4.B. Conduct gap analyses for programs that target decision makers. Identify existing programs that address ocean awareness and literacy for decision makers in the three states. Determine where there are gaps or duplication of effort in terms of audience, geography, or topical areas. Identify the array of strategies being employed, and whether there is evidence of effectiveness. Identify successful programs that could be expanded or duplicated in other regions.

4.C. Conduct needs assessments for programs that target decision makers. Review existing research and conduct additional surveys and interviews, as needed, to identify the needs of decision makers for improved ocean awareness and education. The needs assessment will address what information and resources are most needed and in what format to most effectively educate audiences about the importance of the ocean.

4.D. Support decision maker training/educational efforts. Work with existing providers of training and education for decision makers on an as-needed basis to develop strategies, products and provide other support to improve ocean awareness and literacy among local, state, federal, and tribal organizations in the region. Develop briefing documents and articles, as necessary.



Task 5: Cultivate consistent messaging and strategies for effectively communicating ocean, coastal and watershed-related topics.

To the extent members of the public are exposed to consistent educational messages on a particular topic from a variety of sources, there is a greater likelihood of impacting public awareness in general. In addition, social science researchers have studied how to communicate most effectively to transform attitudes and motivate behavior change. This task apply research findings and best practices in facilitating development of educational messages and communication strategies that could be shared by members of the OAL ACT, as well other ACTs and entities working to improve ocean awareness and encourage stewardship. Among the possible areas where these messages could be used are various media and outreach efforts, including press releases, interpretive programs, educational curriculum, live broadcasts, video/podcasts, ocean stewardship events, exhibits or publications. Effective communication strategies would inform a wide range of programs and trainings.

The messages would communicate the principles of ocean literacy, and in addition, may include the California Current, climate change and sea level rise, sustainable coastal development, non-point source pollution, marine debris, and invasive species, and other current issues or events related to the ocean. The OAL ACT would interface with the Ocean Communicators Alliance and others on this task.

5.A. Develop messaging. Identify, inventory and collate ocean and coastal-related messages and content. The task includes researching existing efforts to develop such messaging, including networks, Web sites, listserves and other sources that facilitate the exchange of information among scientists, educators, and the public (e.g. COSEEs, Sea Grant programs, NMEA, Association of Zoos and Aquariums (AZA), National Science Teachers Association (NSTA) affiliates, and Thank You Ocean Campaign). An effort will be made to craft key messages that have a high potential to connect to universal concepts and in language that will resonate with the diverse array of West Coast audiences. Some messages may be tailored to specific audiences. In particular, an effort will be made to focus messaging toward youth audiences through social media platforms.

5.B. Develop communication and dissemination strategies. The OAL ACT will work with others in the field to develop and/or disseminate guidance/trainings on effective communications strategies for informal educators, and how to effectively incorporate messaging into programs, media, outreach and marketing. In addition, we will develop a strategy to guide how the messages themselves will be broadly disseminated to organizations working on ocean literacy. Dissemination mechanisms are likely to be the WCGA Web site, OAL ACT member websites, and/or any shared website that is developed, listserves and presentations at conferences and workshops.



Task 6: Support WCGA as a whole, and other ACTs, in conducting education and outreach.

6.A. Provide guidance for the WCGA website. Advise the WCGA on education-related components of its website and other outreach mechanisms. Develop OAL ACT pages for inclusion on the WCGA site.

6.B. Develop informational pieces. Develop communications materials, such as fact sheets or brochures that describe the work of the WCGA and/or individual ACTs. These informational pieces would be tailored to specific audiences as the need arises.

6.C. Assist WCGA as needed. Assist the WCGA Coordinator, as well as other ACTs, on an as-needed basis.

Tasks Common to Actions 5.1 and 5.2

Task 7: Expand OAL ACT membership.

On an ongoing and as needed basis, expand OAL ACT membership to reflect the diversity of audiences and types of programs, both formal and informal, for ocean education and awareness in California, Oregon and Washington.

Task 8: Share OAL ACT findings and other related research broadly.

On an ongoing basis, as opportunities arise and tasks are completed, help educators, administrators, decision makers, and funders better understand the landscape and urgency of ocean education needs and opportunities by broadly disseminating our findings and related research through traditional and social media, at meetings and conferences, and via listserves, mailing lists, webcasts and websites.

Task 9: Conduct evaluation.

Plan and implement evaluation components for each preceding task, as appropriate, in conjunction with developing the details of each effort.



Completed Tasks

- Prepared and sent letters to the Superintendents of Public Instruction in Washington and Oregon (whose state science standards were revised in 2009), requesting that they: (1) integrate the Ocean Literacy Principles into science standards revisions, (2) work with the OAL ACT and additional marine educators, scientists, and technologists to develop guidance on how teachers can use ocean and watershed instructional materials and resources to teach content standards and achieve grade-appropriate ocean literacy, (3) identify model curricular materials that enhance teachers' abilities to teach marine sciences and, where gaps exist, develop new or revised materials, and (4) support professional development for K-12 teachers to learn ocean science concepts, skills and related pedagogy.
- Submitted comments to the National Research Council on the Framework for K-12 Science Education, which forms the basis for the Next Generation Science Standards (NGSS). Supported the recommendations of the ocean literacy community as represented by the COSEE leadership for addressing ocean literacy in the Framework.
- Submitted comments to Achieve on first public draft of NGSS, supporting recommendations of COSEE/NMEA critical stakeholder team (6/1/12).
- Conducted surveys and interviews of educators in the three states to gain insights into barriers and opportunities for teaching ocean literacy in the region and to identify potential differences and similarities among the three states. Worked with Lawrence Hall of Science Center for Research, Evaluation, and Assessment on this task.
- Conducted a presentation on the WCGA OAL ACT at the California and the World Ocean Conference in September 2010 in San Francisco.
- Conducted a poster session at 2012 National Marine Educators Association Conference (June 18-24, 2012).

References

No Child Left Inside Act <http://www.cbf.org/page.aspx?pid=687>

No Child Left Behind Elementary and Secondary Education Act <http://www2.ed.gov/nclb/landing.jhtml>

Oregon Environmental Literacy Plan <http://www.ode.state.or.us/search/page/?=2886>

Washington State Environmental and Sustainability Literacy Plan
<http://www.k12.wa.us/EnvironmentSustainability/LiteracyPlan.aspx>

Ocean Literacy website <http://oceanliteracy.wp2.coexploration.org/>

Next Generation Science Standards website <http://www.nextgenscience.org/>

California Education and the Environment Initiative website <http://www.calepa.ca.gov/education/eei/>

The Ocean Project website <http://theoceanproject.org/>



BUDGET and TIMELINE

| TASK | KEY DELIVERABLES | COST | TIMELINE |
|--|---|--------------------------------|-------------------------------|
| TASKS FOR ACTION 5.1 | | | |
| <i>Task 1: Work to shape the development and revision of Academic Content Standards and environmental education plans at the state, federal and tribal government level, to incorporate ocean science and literacy.</i> | | | |
| 1.A. Participate in the process of developing the NGSS. | Comment letter on NGSS | (in kind/no cost) | Ongoing |
| 1.B. Engage in state and tribal environmental education efforts. | | (in kind/no cost) | Ongoing |
| <i>Task 2: Encourage ocean literacy at the level of a school district, school, and individual teacher.</i> | | | |
| 2.A. Conduct regional meetings to help define research needs for completing Task 2. | 14 regional meetings held, meeting minutes and summary | \$25,000 | January 2013 to December 2013 |
| 2.B. Conduct a gap analysis of existing resources for teaching ocean literacy. | Gap analysis report | \$15,000 (contractor) | January 2014 to April 2014 |
| 2.C. Assess educator needs. Phase 1: Analyze results of initial survey (conducted by the OAL ACT), conduct interviews, and produce recommendations. \$7,000 (complete). Phase 2: Conduct and analyze follow-up survey using randomized sampling, prepare final report and recommendations. | Needs assessment reports – Phase 1 (complete) and Phase 2 | Phase 2: \$15,000 (contractor) | Phase 2: April to Sept 2014 |



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| 2.D. Develop Case Studies. | Write up of case studies | (in kind/no cost) | Feb to September 2012 |
| 2.E. Conduct a West Coast Ocean Literacy Summit. | Summit held; summary report on Summit | \$38,000 | September to March 2014 |
| 2.F. Work with partners to provide and improve access to ocean literacy resources, programs and tools, as needed. This task and budget will be better defined once tasks 2A to 2C are completed. | TBD | TBD | TBD |
| TOTAL COST 5.1 | | ≥\$93,000 | |
| TASKS FOR ACTION 5.2 | | | |
| <i>Task 3: Support ocean awareness efforts for the public and encourage improvement and expansion of self-directed learning institutions and volunteer programs.</i> | | | |
| 3.A. Conduct regional meetings/workshops with program providers. | 10 regional meetings held; meeting minutes and summary | \$18,000 | March 2014 to Sept. 2014 |
| 3.B. Conduct gap analyses for programs that target the general public. | Gap analysis report | \$15,000 | September to Dec. 2014 |
| 3.C. Conduct needs assessments for programs that target the general public. | Needs assessment report | \$10,000 | January to April 2015 |
| 3.D. Host a West Coast Ocean Awareness/Literacy Workshop for providers. | Workshop held; summary report | \$30,000 | June 2015 |



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| 3.E. Work with partners to support existing environmental and ocean awareness and literacy programs and resources, as needed. | TBD | TBD | ongoing |
| 3.F. Encourage opportunities for connection with the environment. | TBD | TBD | ongoing |
| <i>Task 4: Support ocean literacy and awareness for decision-makers at all levels.</i> | | | |
| 4.A. Conduct regional meetings/workshops with program providers for decision makers. | 6 regional meetings held; meeting minutes and summary | \$11,000 | January 2015 to June 2015 |
| 4.B. Conduct gap analyses for programs that target decision makers. | Gap analysis report | \$5,000 (contractor) | June 2015 to September 2015 |
| 4.C. Conduct needs assessments for programs that target decision makers. | Needs assessment report | \$10,000 (contractor) | September 2015 to January 2015 |
| 4.D. Support decision maker training/educational efforts. | TBD | TBD | ongoing |
| <i>Task 5: Cultivate consistent messaging and strategies for effectively communicating ocean, coastal and watershed-related topics</i> | | | |
| 5.A. Develop messaging. | Messaging document | (in kind/no cost) | June to December 2012 |
| 5.B. Develop communication and dissemination strategy. | Communications Plan | (in kind/no cost) | January to May 2013 |



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| <i>Task 6: Support WCGA as a whole, and other ACTs, in conducting education and outreach.</i> | | | |
| 6.A. Provide guidance for WCGA website. | website | (in kind/no cost) | Feb. 2012 and ongoing |
| 6.B. Fact Sheets or Brochures. | Final products | \$10,000 (graphic design) | TBD – as needed |
| 6.C. Assist WCGA as Needed. | TBD | (in kind/no cost) | ongoing |
| TOTAL COST 5.2 | | \$91,000 | |
| TASKS COMMON TO ACTIONS 5.1 AND 5.2 | | | |
| <i>Task 7: Expand OAL ACT membership.</i> | N/A | (in kind/no cost) | ongoing |
| <i>Task 8: Share OALACT findings and other related research broadly.</i> | List of places where results and findings were shared. | \$15,000 (travel) | ongoing |
| <i>Task 9: Conduct evaluation.</i> | Evaluation plan and reporting | \$25,000 | Timing in conjunction with tasks |
| TOTAL COST - 5.1 and 5.2 plus common tasks | | \$224,000 | |