

WEST COAST GOVERNORS'
AGREEMENT on **OCEAN HEALTH**
CALIFORNIA OREGON WASHINGTON

Executive Overview
Of the Action Coordination Teams'
Final Work Plans

May 2010

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AGREEMENT on OCEAN HEALTH
CALIFORNIA OREGON WASHINGTON

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Dear Friend of the Ocean,

In July 2008, we released an action plan for the West Coast Governors' Agreement on Ocean Health (WCGA). The plan identified 26 actions to guide this historic effort aimed at improving and sustaining the health of our shared coastal and ocean resources and the coastal communities that depend on them.

We understood that successful long-term implementation of the priorities in the Action Plan would require the advice and consultation of experts and those with specific on-the-ground knowledge of these subjects. To solicit expert knowledge and coordinate coast-wide implementation of the many activities, work groups known as Action Coordination Teams (ACTs) were established. From October 2008 to December 2009, these teams convened to develop comprehensive work plans for tri-state coordination and communication to help fulfill our vision of clean, healthy, and sustainable natural resources and communities along the entire West Coast.

This document is a compilation of summaries for eight issue-specific plans: Climate Change, Polluted Runoff, Marine Debris, *Spartina* Eradication, Renewable Ocean Energy, Ocean Awareness and Literacy, Seafloor Mapping, and Sediment Management. These final work plans reflect the numerous comments we received from the public when the plans were released in draft form in the summer of 2009. The full text of the eight work plans is available at our website: <http://westcoastoceans.gov/>.

We hope that you will join us in ensuring a healthy Pacific coast. If you would like to assist with implementing these work plans, please contact us at the WCGA website above. Thank you for your support.

Sincerely,



Christine O. Gregoire
Governor of Washington



Theodore R. Kulongoski
Governor of Oregon



Arnold Schwarzenegger
Governor of California

Contents

Introduction	4
Background on the work plans	5
Public comment	5
Next steps for the Executive Committee	6
Final work plan summaries	6
Climate Change ACT Work Plan	7
Polluted Runoff ACT Work Plan	12
Marine Debris ACT Work Plan	15
<i>Spartina</i> Eradication ACT Work Plan.....	19
Renewable Ocean Energy ACT Work Plan	25
Ocean Awareness and Literacy ACT Work Plan	30
Seafloor Mapping ACT Work Plan.....	34
Sediment Management ACT Work Plan	38

Introduction

In September 2006, the Governors of Oregon, Washington and California signed the West Coast Governors' Agreement on Ocean Health (WCGA). Under this agreement, the three states, by working together and consulting with federal agency leads and stakeholders, developed a bold set of actions to improve the health of our ocean and coastal resources. In July 2008, the three States released a final action plan that outlines many activities on a range of issues.

To coordinate coast-wide implementation of the WCGA Action Plan, the Executive Committee established workgroups known as Action Coordination Teams (ACTs) for specific areas of the plan. These teams are comprised of diverse experts from governments across the region (state, federal, and tribal), interest groups, and others. ACT members were charged with determining the best way to address or perform activities in the Action Plan that require multiple representatives.

Teams were created to accomplish actions associated with the following areas: climate change, polluted runoff, marine debris, integrated ecosystem assessments (IEA), *Spartina* eradication, renewable ocean energy, ocean awareness and literacy, seafloor mapping, sediment management, and sustainable communities.

*The **Executive Committee** is comprised of Governors' representatives from the three states and three federal co-leads from the Department of Commerce, Department of Interior, and the U.S. Environmental Protection Agency.*

From October 2008 to May 2009, eight teams (climate change, polluted runoff, marine debris, *Spartina* eradication, renewable ocean energy, ocean awareness and literacy, seafloor mapping, and sediment management) developed work plans for accomplishing the actions under their charge. These draft plans were distributed for public comment and were revised based on comments received. The final work plans are now complete. Two teams (the Sustainable Communities ACT and the IEA ACT) have developed draft work plans that will soon be released for public comment.

This document summarizes the eight final work plans. Specifically, this overview describes the intent of the work plans and how they were drafted. The summary of each work plan briefly conveys the ACT's recommended tasks to achieve progress on the actions. The summary provides a snapshot of what may be accomplished with existing resources and how each ACT would prioritize other actions should additional funding become available. To review the work plans in their entirety, visit the "Action Teams" page at the WCGA website:

<http://westcoastoceans.gov>.

Background on the work plans

The Executive Committee established the ACTs to serve as region-wide facilitation and coordination groups. ACTs inform and recommend to the Committee how to best implement the actions presented in the Action Plan. The teams were not created to supersede agency authorities, but are responsible for crafting a work plan to implement the actions in a timely manner using the best available science. Team members are ambassadors of the WCGA Action Plan, communicating not only with each other but also with other interested individuals and entities across the states.

ACTs convened for the first time at the October 2008 *West Coast Governors' Ocean Action Teams Meeting* in Seattle, Washington, where the process of developing work plans was launched. Teams used different approaches based on the nature of the issue and the scope of their charge. In general, when crafting the work plans, ACTs included a vision and description of the issue(s) followed by detailed activities and deliverables with information on a feasible timeline, outcomes, resources required to complete the tasks, and areas that intersect with other ACTs.

The eight final work plans are the culmination of months of work by the ACTs, completed via numerous team meetings and several iterations of drafts. They reflect the feedback received from the Executive Committee as well as substantial and constructive comments from the public.

Work plans were drafted from October to May of 2009. Upon approval by the Executive Committee, they were released and posted to the WCGA website for thirty days of public comment in June 2009. The Executive Committee sought ideas on the most effective strategies, activities, and outcomes needed to accomplish the actions in a regionally coordinated manner. During the public comment period, the ACTs began or continued to work on implementing tasks within the work plans using current resources and by leveraging efforts with similar, external activities.

Public comment

Recommendations were received from over 60 individuals or organizations during the public comment period. These comments were generally supportive of the work plans. Common recommendations pertained to the scope and priority of tasks identified in the work plans, the adequacy of the amounts of funds requested to accomplish the listed tasks, concern for environmental impacts of tasks identified in the plan, and the need to collaborate and partner with already existing efforts, including other ACTs.

After the thirty-day public comment period closed, the ACTs reviewed all input received and revised work plans as appropriate for final review by the Executive Committee. To ensure that all public comments were considered, each ACT provided the Executive Committee with a summary of the comments received and, as appropriate, the modifications made to address those comments. The Executive Committee reviewed the revised work plans, as well as the coinciding public comments, and approved the final work plans.

Next steps for the Executive Committee

The WCGA worked with Congressional offices to secure federal funds for fiscal year 2010 and is in the process of requesting 2011 funds for additional support in the implementation of the final work plans. Independent of the efforts of the Executive Committee's request for federal funds, ACTs are also exploring other resources to carry out specific tasks identified in their work plans.

We are excited to announce that the WCGA received \$500,000 via Public Law 111-117 (the Consolidated Appropriations Act of 2010, H.R. 3288). These funds were secured in the National Oceanic and Atmospheric Administration (NOAA) budget via Commerce, Justice, Science and Related Agencies appropriations.

In May 2010, the Executive Committee anticipates releasing draft work plans by the Sustainable Communities ACT and the IEA ACT for public comment.

Final work plan summaries

The sections that follow provide an overview of each ACT work plan. These summaries convey the overall elements aimed at achieving particular actions in the WCGA Action Plan. For each work plan, a table outlines the ACT's present perspectives on what may be accomplished with existing resources (e.g., staff time, funding) and which tasks will require additional support. Each section closes with a synopsis of how the team envisions pursuing activities should additional resources become available in the near future.

To review the work plans in their entirety, visit the WCGA website: <http://westcoastoceans.gov>.

Climate Change ACT Work Plan

[Back to contents](#)

West Coast Governors' Agreement Overarching Action 2:

Focus initial efforts, in collaboration with the federal government, on a West Coast-wide assessment of shoreline changes and anticipated impacts to coastal areas and communities due to climate change over the next several decades, and work together to develop actions to mitigate and adapt to the impacts of climate change and related coastal hazards.

Work plan summary

The primary objective of the Climate Change ACT is to recommend and develop a framework that assists state and local governments in planning for shoreline impacts resulting from climate change over the next several decades. This framework has targeted those activities involving local land use, infrastructure planning, and resource management in the marine shoreline area. The key focus is the development of a West Coast-wide assessment of shoreline changes, including the collection of information needed for this assessment, and identification of the anticipated impacts to coastal areas and communities (i.e., “what gets wet”). The work plan also calls for the development of recommended actions to mitigate and adapt to these impacts. Since addressing climate change was specifically called out as an overarching action in the Action Plan, the Climate Change ACT hopes that other ACTs will take climate change impacts into consideration in carrying out their work.

The tasks outlined in the Climate Change ACT's work plan focus on the following high-priority areas: 1) development of best available estimates for projected global and local sea level rise (SLR) and storminess; 2) physical shoreline impacts from projected SLR and storminess; 3) natural/ecosystem shoreline impacts from projected SLR and storminess; 4) adaptation strategies to address these impacts; 5) state-of-the-art guidance for coastal adaptation planning; and 6) the identification of information and research needs (and strategies for filling those needs) for coastal adaptation.

Major work plan tasks

The major tasks included in the work plan are summarized below. The table provided for each task briefly describes efforts the team intends to conduct or pursue with existing resources and identifies the tasks that would require additional resources to complete.

1. SLR and storminess estimates

Description Develop consensus estimates for sea level rise (SLR) and changes in coastal storminess (i.e., atmospheric and oceanic processes) along the West Coast of the United States for the years 2030, 2050, and 2100 and evaluate/assess the

available climate/weather models for developing improved insights into SLR and storminess.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> Undertake a National Academy of Sciences study to develop the needed consensus estimates on Sea Level Rise and storminess for the West Coast. 	<ul style="list-style-type: none"> Convene workshops essential for to inform coastal managers of the Academy study's results and potential impacts. Conduct an assessment of our current regional climate models and analytical tools to determine potential use of the models and tools by managers. Convene modeling workshop to ensure robust collaboration and shared communication in the development of regional coastal climate change projections.

2. Physical impacts assessment

Description Understand the physical impacts on coastal shoreline environments from SLR and storminess and report on the likely physical changes to the coasts of California, Oregon, and Washington.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> Develop a cross-state shoreline classification system for natural shorelines. 	<ul style="list-style-type: none"> Develop a classification system for modified shorelines. Identify the physical forcing mechanisms (e.g. potential increased wave energy) associated with climate change and identify and catalogue potential impacts of these mechanisms on both natural and modified shorelines. Identify possible assessment methods and predictive models that could forecast the impact of the physical forcing mechanisms.

3. Ecosystem and natural resource shoreline impact assessment

Description Describe the observed and anticipated ecological and ecosystem effects of SLR, storminess, and extreme events on coastal habitats.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> • Hold a West Coast conference for coastal natural resource managers, highlighting the “state of the science” presentations from ecological, climate, and policy experts. [Completed January 2009]. • Survey West Coast resource managers to catalog observed habitat changes and areas/issues of highest concern. 	<ul style="list-style-type: none"> • Identify existing models of sea level rise impacts on marshes and other natural shorelines, including a literature review of shoreline change impacts to natural resources. • Identify candidate habitat types for protection, restoration and/or enhancement and develop criteria for evaluating habitat types and methodologies. • Provide methodologies for establishing local/regional goals for adding resilience to wetlands and other “buffering” habitats.

4. Adaptation strategies

Description Develop a resource containing state-of-the-art coastal adaptation strategies for both natural and built environments. Recommend an education and outreach program.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> • Partner with University of Washington’s Climate Impact Group (CIG) and others in their development of a user-driven climate change adaptation database (all topics) intended to collect best practices from around the world. 	<ul style="list-style-type: none"> • Help fund a student assistant at CIG or other partners to proactively collect adaptation case studies and enter into database, provide information quality control, and assist users in using the tool. • Create specific products drawing upon the database information targeted at coastal stakeholders. • Augment database information by funding related studies/assessments of economic and scientific drivers and tradeoffs of particular adaptation strategies, and then communicate these findings to stakeholders.

5. Coastal Climate Change Adaptation Guidebook

Description Create a ‘Guidebook’ that encompasses information, findings, and recommendations generated by the tasks of this work plan. Develop an

education and outreach strategy for the Guidebook. Identify funding strategies for local governments to conduct detailed vulnerability assessments and to implement preferred adaptation strategies, including potential pilot projects. Specifically identify and fund pilot adaptation locations along the West Coast.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> Outline of information to be included in the Guidebook and potential criteria for pilot program development. 	<ul style="list-style-type: none"> Create a Guidebook (electronic and published version) with partners and outreach and education program. Provide ongoing support and maintenance of Guidebook as a “living” resource Fund a pilot program to enable “on-the-ground” demonstration of state-of-the-art adaptation strategies on the West Coast

6. Information needs

Description Identify and ensure information and recommendations to address the issues most relevant to land/resource managers. Create a strategy to fill the most pressing data and information gaps.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> Additional resources are required to accomplish this task. 	<ul style="list-style-type: none"> Identify the needed baseline data for coastal managers (e.g. shoreline maps) and develop a gap assessment of where these data are still needed. Create a scientific research agenda that identifies key questions related to predicting and assessing coastal change, and the monitoring data, modeling, and research needed to answer those questions. Undertake a gap analysis of social science information needed for implementation of adaptation strategies, including the data for economic tradeoff analyses.

7. Integration with other WCGA Actions

Description Ensure the information and tools in the Climate Change ACT work plan are shared with and coordinated with the other ACTs and related WCGA groups.

Obtain feedback and suggestions from the other groups to ensure that the information gathered by this overarching action is useful to the other efforts, especially habitat and research related actions.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> • Coordinate with the Sediment Management ACT on connected issues regarding sediment management and beach nourishment. 	<ul style="list-style-type: none"> • Meeting(s) with the other ACTs and WCGA related groups to provide information related to the Climate Change ACT products and gather feedback from these groups.

Sequence of tasks

While a number of these activities are ongoing, the Climate Change ACT has identified a number of the tasks that must be completed before others are undertaken. For example, the contents of the Guidebook and selection of pilot projects are dependent upon having sea level rise and storminess estimates, the physical and ecological impact assessments and the adaptation practices database. Other tasks can move in parallel with ongoing activities (e.g. the identification of research needs). In addition, the ACT has identified a number of related potential tasks that need to be further explored in relation to the overall goal of this Action – these include the characterization of legal options related to climate change adaptation strategies (e.g., relationship of the public trust doctrine), impacts of shoreline change on sediment management (and connection to the sediment management action of the WCGA Action Plan), and identification of barriers to implementing adaptation actions.

[Back to top](#)

Polluted Runoff ACT Work Plan

[Back to contents](#)

West Coast Governors' Agreement Action 1.2:

Combat polluted runoff through a variety of methods including low impact development (LID) and sharing strategies employed for existing and planned incentive programs to state and local governments on this objective.

Work plan summary

The Polluted Runoff ACT found that low impact development (LID) strategies serve as excellent pollution prevention approaches in areas experiencing development. The team recognizes that the list of possible sources of polluted runoff identified in the WCGA Action Plan will only be partially served by implementing LID strategies. The team agreed it will be difficult to demonstrate improved water quality in coastal communities without expanding the effort significantly to address the various sources of polluted runoff. Therefore, the Polluted Runoff ACT identified five tasks that would achieve the goals while staying within the boundaries set by Action 1.2. Three of these tasks are short-term activities that require no funding and are aimed at collecting existing information that could serve to inform better implementation of the remaining two tasks. The remaining two tasks require some funding and represent the team's longer-term commitment to institute a sustainable development approach in coastal communities.

The overarching strategy developed by the team relies on building a central node of an existing LID network on the West Coast to collect lessons learned and improve the efforts underway to protect coastal water quality. Therefore, Tasks 1-4 will provide information to the partnership formed in Task 5, which will cycle back through new tasks related to grant funding, training, etc.

Major work plan tasks

The major tasks included in the work plan are summarized below. The table provided for each task briefly describes efforts the team intends to conduct or pursue with existing resources.

1. Examine incentive-based programs for LID

Description The states will examine incentive-based (i.e., non-regulatory) programs that encourage local governments to use LID strategies in community planning. States will share this inventory of information with local governments and their staff, including planners and engineers.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> • All of the states, to varying degrees, are 	<ul style="list-style-type: none"> • No additional resources needed

currently developing and implementing incentive-based LID programs. The states will examine and share information on incentive-based programs with their own existing resources.	
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2. Collect information on grant programs and share lessons learned

Description The states will gather information on polluted runoff and LID grant programs to share lessons learned and effectively provide incentives and assistance (e.g., grants for local governments) for communities to pursue activities aimed at reducing the impacts of development in coastal areas.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> • Collect and share information on grant and fee programs with existing resources. Note that the states currently provide grants primarily for nonpoint source pollution control, not necessarily for LID or stormwater projects. Some local municipalities collect stormwater fees to implement their state municipal stormwater permit. 	<ul style="list-style-type: none"> • No additional resources needed

3. Contact the American Planning Association (APA) and state and local planning agencies

Description States will continue to work with state and local planning agencies, and support the incorporation of LID and climate change impacts into local coastal plans.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> • All of the states, to varying degrees, are working with state and local planning agencies to support LID implementation at the local level. The states annually provide coastal land use and LID training that qualify for APA credit for annual certification maintenance. The states will share information on working with planning agencies with existing resources. 	<ul style="list-style-type: none"> • No additional resources needed

4. Coordinate with NOAA and local governments to bring coastal community planning and development training to six interested West Coast communities (two in each state)

Description The ACT will work with NOAA to conduct coastal community planning and development training in two communities in each state. The team will develop and conduct additional trainings focused on polluted runoff, LID, and other sustainable approaches to controlling and improving coastal water quality.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> Work with NOAA to identify six coastal community planning and development training recipients and deliver the training to the selected locations.* <p>*Note as of March 2010 four of six communities have been identified.</p>	<ul style="list-style-type: none"> Work with communities and the LID Center, Inc. to develop and deliver six customized polluted runoff, LID, water quality, and sustainable water management trainings.

5. Create the West Coast Low Impact Development Partnership

Description Create and convene a West Coast Low Impact Development Partnership aimed at coordinating training, certification of practitioners, outreach, and regulatory and implementation tools related to polluted runoff and LID in coastal communities.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> Additional resources are necessary to accomplish this task. 	<ul style="list-style-type: none"> Work with the stakeholders to convene a kickoff meeting West Coast LID Partnership. Work with the newly formed partnership to host three meetings and launch a website containing up-to-date information identified in Tasks 1-4.

Sequence of tasks

The ACT discussed how activities will be prioritized or sequenced should additional funds become available. Tasks 1-3 and the first subtask of Task 4 (community training) will occur with existing resources. If additional resources become available, the ACT's first priority will be Task 5, establishing the West Coast LID Partnership. Second priority will be to host three Partnership meetings. Third priority will be the last two subtasks under Task 4, developing and conducting additional trainings focused on polluted runoff, LID, and other sustainable approaches to control and improve coastal water quality.

[Back to top](#)

Marine Debris ACT Work Plan

[Back to contents](#)

West Coast Governors' Agreement Action 1.4:

Establish baseline estimates of marine debris and derelict gear off the West Coast and set reduction goals. Support state and federal policies for achieving marine debris reduction goals, including debris prevention through expanded recycling, improved trash maintenance, public education, and enforcement of litter laws.

Work plan summary

Marine debris was identified as an important component of Priority Area 1: Clean Coastal Waters and Beaches. The Marine Debris ACT's work plan identifies the process by which the ACT will develop a tri-state marine debris strategy to fulfill the goals outlined in the WCGA Action Plan. The strategy, to be finalized by December 2010, will provide a framework to identify, assess, prevent, and reduce marine debris, leveraging existing resources and expertise in the three states and the federal government. Specifically, the strategy will address derelict fishing gear, land and ocean-based debris, debris prevention measures, and public outreach and education on marine debris. The states will then use the strategy to address marine debris cooperatively in years to come.

The work plan defines eight overall objectives that apply to the entire document. Each of the sections discussed (Derelict Fishing Gear, Land-based Debris, and Ocean-based Debris) contribute to the fulfillment of these objectives. The objectives will be achieved through collaboration with state, federal and local agencies, as well as tribal governments, non-governmental organizations, and industry. They provide an overarching set of checkpoints on the road towards significant reduction of marine debris in Washington, Oregon, and California.

Major work plan tasks

The major deliverables included in the work plan are summarized below. The table provided for each outcome briefly describes efforts the team intends to conduct or pursue with existing resources. It is important to note that some activities will not require funding until after the ACT itself sunsets, and implementation is underway by the West Coast Marine Debris Alliance (see number 5 below). Because some funds have already been provided by the NOAA Marine Debris Program, at least two priority outcomes could be accomplished for a minimum of \$50,000 of additional funding: the completion of the tri-state Marine Debris Strategy and the establishment of the West Coast Marine Debris Alliance.

1. Develop a tri-state Marine Debris Strategy

Description A detailed strategy will be developed that provides the framework for cooperatively addressing land and ocean-generated debris and derelict fishing gear in California, Oregon, and Washington.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> Develop the strategy with in-kind state and federal staff time commitment of ACT members in concert with key partners. 	<ul style="list-style-type: none"> Host collaborative tri-state workshops to generate the most effective strategy possible.* Produce and widely distribute the strategy once completed. <p>*Note the first of these workshops will be held in March 2010.</p>

2. Establish marine debris project guidelines

Description Guidelines will be established to identify and prioritize projects addressing various aspects of marine debris assessment, reduction, prevention, and outreach. The guidelines will set target reduction levels to minimize marine debris impacts.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> Initiate the guidelines with in-kind state and federal staff time commitment of ACT members and key partners. <p>*Contract services are necessary for completion and distribution of the guidelines, and require additional resources.</p>	<ul style="list-style-type: none"> Secure contract services to coordinate tri-state stakeholder input and draft the guidelines for derelict fishing gear, land-based debris, and ocean-based debris. Coordinate with the Sustainable Communities ACT on prevention infrastructure at marinas Identify impacted areas and estimate debris accumulation rates. Determine removal priorities and best practices for removal. Determine best practices for waste stream management. Produce and distribute guidelines widely.

3. Generate a marine debris project inventory and assess gaps

Description Information will be compiled regarding existing survey and removal activities along the coast, including those for land-based debris, which will reveal gaps.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> Take initial steps for creating inventory with in-kind state and federal staff time commitment of ACT members and key partners. <p>*Contract services are necessary for the completion of a comprehensive, up-to-date inventory and accurate assessment of efforts</p>	<ul style="list-style-type: none"> Secure contract services to build and maintain the database of existing programs. Host a tri-state workshop for experts to discuss current survey and removal activities and to identify gaps in these activities. Host a tri-state workshop to inventory current land-based debris efforts and identify gaps in these efforts. Use the inventory to identify major gaps and, in conjunction with the hot spot map (see number 4), to prioritize projects, efforts, and funding.

4. Craft a Marine Debris Implementation Plan

Description An implementation plan will be proposed for the Marine Debris Alliance (see number 5 below) that includes timelines, available resources, resource needs and opportunities, and a framework to leverage and direct resources to priority projects.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> Take initial steps for developing the Implementation Plan can be made with in-kind state and federal staff time commitment of ACT members and key partners. <p>*The Implementation Plan cannot be achieved without significant additional resources.</p>	<ul style="list-style-type: none"> Coordinate with the Seafloor Mapping ACT to generate marine debris location maps from sea floor mapping efforts Generate criteria for selecting and implementing future removal projects. Conduct an integral review of existing research on the North Pacific Gyre to assess clean-up and removal options as well as prevention opportunities. Administer a grant program (entity to be identified by the Alliance) to provide funding for priority projects identified in

	<p>the Alliance’s Implementation Plan.</p> <ul style="list-style-type: none"> • Create and disseminate effective outreach and education materials.
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5. Launch a tri-state Marine Debris Alliance

Description A permanent tri-state Marine Debris Alliance will be established to oversee the execution of the Marine Debris Strategy. The Alliance will meet regularly to discuss progress, share lessons learned, and plan related activities.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> • Initiate creation of the Alliance through in-kind state and federal staff time commitment of ACT members and key partners as well as organizations and industries not currently involved in the ACT. • Brief the WCGA Executive Committee on the International Convention for the Prevention of Pollution from Ships (MARPOL) Annex V • Washington and Oregon can consider joining the Pacific 2020 Initiative. 	<ul style="list-style-type: none"> • Convene regular tri-state Alliance meetings and ensure timely outcomes. • Secure contract services for part- or full-time Alliance coordination. • Establish a grant program for prevention and clean-up/removal activities, with significant funding required. • Produce press releases (with current resources) regarding enforcement activities. • Review refuse and recycling standards for Clean Marina Programs.

Sequence of tasks

Prior to release of the draft work plan for public comment, the ACT discussed how activities will be prioritized or sequenced should funds become available. Aspects of each of the tasks outlined above can be initiated with current resources; however, to fully achieve the goals of the Marine Debris ACT as set out in the WCGA Action Plan, significant additional resources are required.

The establishment of a West Coast Marine Debris Alliance is essential for success. Although the Alliance can be established on paper with in-kind support, its ability to function administratively and to effectively accomplish its objectives requires funds that are currently unavailable. The generation of guidelines and an inventory and assessment of efforts (Deliverables 2 and 3) are requisite steps for the generation of an Implementation Plan for the Marine Debris Alliance, which will serve as the framework for achieving the goals of the WCGA Action Plan.

[Back to top](#)

***Spartina* Eradication ACT Work Plan**

[Back to contents](#)

West Coast Governors' Agreement Action 2.4:

*Focus efforts on eradicating non-native cordgrasses (genus *Spartina*), which are transported between the three states on ocean currents, as a pilot coast-wide eradication.*

Work plan summary

Four species of non-native *Spartina*, commonly called “cordgrass,” are found along the West Coast of the United States and Canada. Where established, these invaders convert estuarine mudflats and salt-marsh ecosystems into uniform expanses of dense grass. Without diligent control, non-native *Spartina* is known to alter the hydrology of estuaries by modification of tidal creeks and navigational channels, dominate newly restored tidal marshes, displace thousands of acres of shorebird habitat, and drastically reduce biodiversity. Drift card studies have shown that *Spartina* can rapidly spread throughout the West Coast of the US and Canada through dispersal of seeds on ocean currents. Even if *Spartina* is successfully eradicated in one state, that area continues to be vulnerable to reintroduction from *Spartina* infestations in other states along the West Coast.

Nearly complete eradication of *Spartina* in San Francisco Bay, California, most sites in Oregon, and Grays Harbor and Willapa Bay, Washington demonstrate that it is possible to achieve eradication with adequate funding, political will and coordinated efforts. However, there are infestations that are not currently being adequately addressed in Humboldt Bay, California; the Siuslaw Estuary, Oregon; and various locations in British Columbia, Canada. Lack of effective management of these known, core infestations threaten the nearly successful eradication efforts in San Francisco Bay and Willapa Bay. Furthermore, lack of rigorous early detection that allows for inexpensive and quick eradication of satellite populations may allow for continued expansion of *Spartina* on the West Coast.

This work plan supports ongoing eradication efforts in San Francisco and Willapa Bays and focuses eradication efforts in Humboldt Bay, the Siuslaw Estuary, and in British Columbia. A successful coast-wide eradication by 2018, however, requires a concerted effort on a number of fronts. To accomplish this ambitious goal, the work plan addresses six critical elements: prevention, early detection, rapid response, eradication, restoration, and communication / public outreach. All of these elements are necessary for the successful eradication of *Spartina* on the West Coast.

Major work plan tasks

The six work plan elements included in the work plan are summarized below. The table provided for each element briefly describes efforts the team intends to conduct or pursue with existing resources.

1. Prevention

Description Preventing the introduction or spread of any invasive species (plant, animal, or insect) is always far more efficient and cost effective than trying to remove it after it is established. Current ballast water regulations likely minimize the threat of introduction of *Spartina* seeds by large ocean-going vessels; however, there are other vectors which are not as well controlled, including the movement of dredging equipment, recreational equipment, aquaculture equipment and products, and intentional planting for erosion control. The fact that *Spartina* seeds and fragments can be transported on large ocean currents necessitates strong prevention efforts.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> • Encourage the Province of British Columbia to expand its efforts to eradicate <i>Spartina</i>. • Pursue the inclusion of non-native <i>Spartina</i> on California’s Noxious Weed List. • Prevent the spread of <i>Spartina</i> into newly restored and highly vulnerable tidal marshes by developing best practices and coordinating with restoration managers and regulatory agencies. • Conduct treatment or remove seed heads at appropriate times to prevent seed set and transport on ocean currents. • Continue to educate recreational and commercial boaters (as well as other potential vectors) on preventing movement of <i>Spartina</i>. 	<ul style="list-style-type: none"> • Expand Best Management Practices to reduce introductions through shellfish aquaculture and solid ballast. • Expand education of recreational and commercial boaters and other potential vectors.

2. Early detection

Description Early detection of small, pioneer *Spartina* infestations is critical to an effective eradication strategy because the larger the weed infestation, the more difficult and resource intensive it is to control.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> • Continue active surveys with existing resources. • Continue to engage the public in reporting new infestations. 	<ul style="list-style-type: none"> • Identify areas that are vulnerable to <i>Spartina</i> infestation by modeling physical characteristics such as stream gradients. • Evaluate the feasibility of remote sensing methods for early detection. • Expand active surveys (e.g. helicopter and boat). • Improve identification and reporting of new infestations by the public.

3. Rapid response

Description Once a species is found through early detection efforts, early action is critical to stop further introductions and spread. With their prolific seed-producing abilities, rapid vegetative growth, multiple dispersal pathways, and the existence of thousands of acres of open, prime habitat along the West Coast, the potential for spread of invasive *Spartina* species is dramatic.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> • Identify which agency in California and British Columbia is responsible for rapid response to <i>Spartina</i> infestations so that action can be taken immediately. • Develop criteria and a process for coast-wide emergency declarations to allow for the most effective rapid response efforts. 	<ul style="list-style-type: none"> • Establish a funding source(s) available to state agencies for rapid response efforts. • Expand Oregon model for <i>Spartina</i> rapid response to a regional level.

4. Eradication

Description Established populations of *Spartina* pose a risk of reinfestation for the entire West Coast due to the fact that *Spartina* seeds can travel hundreds or thousands of miles on ocean currents. For this reason, the eradication of these populations is considered the highest priority in the *Spartina* eradication work plan.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> • Continue active eradication efforts in San Francisco Bay, California; and Grays Harbor and Willapa Bay, Washington. • Continue planning effort for <i>Spartina</i> eradication in Humboldt Bay, California. • Continue the partnership between Washington and British Columbia <i>Spartina</i> field staff. • Adopt a definition of eradication for <i>Spartina</i>. 	<ul style="list-style-type: none"> • Develop improved treatment method(s) for <i>S. densiflora</i>, which is less responsive to herbicide treatment. • Support and expedite efforts to eradicate <i>S. densiflora</i> in Humboldt Bay, California. • Work with The Nature Conservancy and Oregon Department of Agriculture in the prompt eradication of <i>S. patens</i> in the Siuslaw Estuary.

5. Restoration

Description After *Spartina* eradication is complete, it may be necessary to conduct restoration activities in order to restore the ecological function, integrity and sustainability of an area. Restored ecosystems are more resilient to invasions of non-native species, thus preventing the spread of *Spartina* on the West Coast.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> • Continue to restore areas that have previously been infested by <i>Spartina</i>. 	<ul style="list-style-type: none"> • Facilitate restoration efforts by better understanding how and where ecosystems continue to be functionally impacted after <i>Spartina</i> eradication has occurred. • Develop an internet-based GIS that delineates the location and extent of <i>Spartina</i>-degraded ecosystems. • Better coordinate and increase funding for <i>Spartina</i> restoration research. • Evaluate restoration results.

6. Communications and public outreach

Description Despite increased efforts to eradicate *Spartina*, the public has and will continue to play an important role in prevention and early detection. Furthermore, the public's support of non-native species eradication efforts is critical to maintaining the political will to continue these efforts. Improved communication between *Spartina* managers will facilitate sharing of information and increase effectiveness of programs along the West Coast.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> • Continue to present scientific research and management findings at professional meetings. • Continue to work with a variety of organizations to educate the public. 	<ul style="list-style-type: none"> • Work with the Western Aquatic Plant Management Society, Western Society of Naturalists, or other organizations that hold annual meetings for sessions devoted to <i>Spartina</i> eradication. • Hold the 4th International <i>Spartina</i> Conference in Humboldt Bay, or other suitable location in 2011. • Develop content for a web site and a list server for <i>Spartina</i> managers to facilitate regular electronic communication. • Better communicate the feasibility and purpose for <i>Spartina</i> eradication to the public.

Sequence of tasks

Acknowledging that new funding may be limited, the ACT has prioritized tasks within this work plan. The ACT has prioritized tasks into four tiers. A more detailed table of priorities can be found in Appendix C of the full work plan.

Tier 1, or the highest priority tasks, involves eradication of established *Spartina* populations. Since San Francisco Bay, Grays Harbor, Puget Sound, and Willapa Bay already have ongoing eradication efforts, the highest priority tasks will focus on eradication in Humboldt Bay, CA; and the Siuslaw Estuary, OR. The development of improved methods for *S. densiflora* treatment is also a top priority as this particular species is less responsive to herbicide treatments.

Tier 2 tasks involve active surveys to detect pioneer *Spartina* infestations so that treatment can begin before the infestation becomes too difficult to manage. The prevention of the spread of non-native *Spartina* to new locations and reinfestation of treated sites also fall under Tier 2. Examples of prevention tasks include encouraging the Province of British Columbia to expand their efforts to control infestations and reducing the risk of spread by recreational and fishing boats and other vectors.

Two of the tasks identified under the “Restoration” work plan element have been prioritized as Tier 3, as eradication work must take place before restoration can begin. Efforts to improve communication between *Spartina* managers and with the public also fall within Tier 3.

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The remaining tasks in the plan have been prioritized within Tier 4. These include three tasks within “Early Detection”, three within “Rapid Response”, three within “Restoration”, and one within “Communication/Public outreach”.

[Back to top](#)

Renewable Ocean Energy ACT Work Plan

[Back to contents](#)

West Coast Governors' Agreement Action 4.2:

Explore the feasibility for offshore alternative ocean energy development and evaluate the potential environmental impacts of these technologies.

Work plan summary

Renewable ocean energy is a component of Priority Area 4: Reducing Impacts of Offshore Development. The Renewable Ocean Energy ACT's work plan provides a framework to assess the feasibility of renewable ocean technologies by having informed industry, public, government, and tribal partners; establishing a clear, efficient, and effective regulatory process; encouraging siting that maximizes energy benefits and avoids or minimizes environmental impacts; and improving understanding of environmental, social, cultural impacts/ramifications of technologies. The strategy specifically addresses technologies that harness renewable ocean energy sources such as wind, waves and tides, and identifies seven key tasks. These tasks, to be achieved through collaboration with state, federal and local agencies, as well as tribal governments, non-governmental organizations, and industry, will make significant progress in assessing the feasibility of renewable ocean energy on the West Coast. Some of the tasks also help lay the foundation for conducting marine spatial planning regionally, especially as it relates to planning for renewable ocean energy.

Partners of the West Coast Governors' Agreement hosted a workshop entitled *Alternative Energy Development in the West Coast Ocean Environment* in September 2008. This workshop provided a forum to discuss how the region can plan and work together to address renewable ocean energy projects along the West Coast. These discussions continued in October 2008, when the WCGA convened its first Action Coordination Teams meeting. The workshop and meeting provided an important foundation for understanding the regional needs and issues around renewable ocean energy projects. The work plan used this information to define the key outcomes, problems, and criteria, which provided an important vision and practical guidance for developing the strategy and tasks.

Major work plan tasks

The major tasks included in the work plan are summarized below. The table provided for each task briefly describes efforts the team intends to conduct or pursue with existing resources. For tasks that have existing resources, work is already underway. Many of the tasks are scheduled for completion during or by the end of 2010, but these initial work products will be used to address on-going and evolving needs for addressing renewable ocean energy beyond this time period.

1. Synthesize data and information needs

Description A detailed synthesis report of data and information on the physical, biological, ecological, and socio-economic effects from renewable ocean energy. This report would compare and summarize the findings of the many existing sources of information and identify key data gaps. Additional ecological effects workshops could be held to improve the understanding of potential impacts and information regarding new technologies.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> • Assess and synthesize the information from key regional and national reports on renewable ocean energy. • Identify key data gaps and seek funding for research to fill needs. 	<ul style="list-style-type: none"> • Assess additional resources, such as those from other countries with more experience in renewable ocean energy projects. • Host collaborative ecological effects workshops to understand issues around other technologies such as wind and tidal. • Produce and widely distribute the data and information report once completed. • Fill data and information needs with targeted research based on findings.

2. Improve coastal siting

Description This task will be a working report that builds off of tasks 1, 5 and 6 by combining existing sources at the regional level to improve decision-making on siting and assist with understanding data gaps. Information will be tied to maps that display many types of spatial data such as important areas for key biological resources or habitats and human activities using coastal and ocean resources, and baseline information on physical environment and infrastructure. This information could be updated periodically. The WCGA sponsored a workshop in October 2009 to gather regional stakeholder input on the scope and key elements for the coastal siting report project. Based on these comments, the ACT renamed this project to: West Coast Marine Renewable Energy Planning Guidebook. The ACT also is revising the scope and elements of the project to reflect other input.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> • Host a regional workshop on coastal siting and information needs designed to assist with production of the report. • Utilize existing data to develop the first 	<ul style="list-style-type: none"> • Produce and widely distribute the planning guidebook once completed. • Build in cumulative impact analyses and decision-support software tools.

draft of the planning guidebook.	<ul style="list-style-type: none"> Update the planning guidebook as new data is available.
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3. Assess cumulative effects

Description The first phase is to develop an analytical framework to assess the cumulative effects of wave energy development that incorporates risk and uncertainty parameters. The second phase of the study is to actually apply the framework and assess the cumulative effects of wave energy development. This task will provide a more robust framework for considering cumulative effects in comprehensive planning than provided through the regulatory process for individual projects.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> Develop the framework for assessing cumulative effects of wave energy development. Share the results of this framework with regional partners. 	<ul style="list-style-type: none"> Assess cumulative effects in the second phase, put basic measurements from pilot projects, once available, into models. Extend the cumulative effects framework to assess cumulative effects of other technologies such as tidal and wind energy.

4. Data management and communication

Description Improving data management and communication within the region involves connecting existing mapping efforts. This task also seeks to improve regional communication by connecting regulatory agencies across the region to share lessons learned and develop a minimum, standard monitoring protocol for projects in the region.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> Incorporate and connect existing mapping efforts through web portals and merge some partner data into existing mapping databases. Identify key regional regulatory contacts and launch initial web-based meeting to connect staff and share lessons learned. Distribute information on data management and regulatory efforts through existing networks of ACT members. 	<ul style="list-style-type: none"> Merge additional data into portals and databases (e.g. marine mammal and seabird data, benthic data, and fish data). Consult with scientific experts on design of monitoring protocol. Host a series of regional meetings to develop a standard monitoring protocol and continue to connect regulatory agencies. Host workshops and/or set up new methods to seek stakeholder input into

<ul style="list-style-type: none"> Explore connections and partnerships with Northwest Marine Renewable Energy Center of Excellence. 	<p>standard monitoring protocol and improve education on available data tools.</p>
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5 & 6. Technology and energy infrastructure

Description Short white papers and other web-based information will be developed to convey basic information on the current types of renewable ocean energy technologies and energy infrastructure for the region. This information will be used in developing the coastal siting report.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> Develop and distribute white papers on technology and energy infrastructure and share information with regional partners. 	<ul style="list-style-type: none"> Develop additional materials to convey basic information on technology and energy infrastructure, as needed. Produce and distribute hard copies of white papers and other materials.

7. Education and outreach on regulatory process

Description In order to improve regional education on regulatory process for energy projects and create a more efficient process, this task seeks to: 1) define and identify all regulatory jurisdictions; 2) review process and timelines for state, federal and local jurisdictions that have a regulatory role in siting a facility; and 3) identify areas for improvement.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> Support and coordinate with efforts of current US Dept. of Energy (DOE) contractors (Pacific Energy Ventures), which will identify and define basic information on the regulatory roles, timelines, and process in the three states and for the federal agencies by fall 2009. Share individual ACT members' available educational materials on role and process. Utilize the results of the DOE regulatory assessment to identify and recommend areas for improvement. 	<ul style="list-style-type: none"> Develop additional educational materials, as needed, to clarify agency roles and process. Host workshops throughout the region to share messages about regulatory process with stakeholders.

Sequence of tasks

While all the tasks are important, the ACT has placed a high priority on tasks 1, 2, and 3 and a medium priority on tasks 4, 5, 6 and 7. Public outreach on regulatory process will now be considered for a higher priority because federal agencies have clarified their regulatory roles through a Memorandum of Understanding between Minerals Management Service and the Federal Energy Regulatory Commission. Work can be initiated with current resources with some activities occurring simultaneously and others requiring deliverables from other tasks to be completed. To fully achieve the goals of the renewable ocean energy ACT as set out in the WCGA Action Plan will require some additional resources. In particular, additional resources are needed to fill known and identified data gaps with studies, hold ecological and standard monitoring protocol workshops, develop the monitoring protocol, produce a final coastal siting report, and support the second phase of the cumulative effects study.

[Back to top](#)

Ocean Awareness and Literacy ACT Work Plan

[Back to contents](#)

West Coast Governors' Agreement Action 5.1:

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

West Coast Governors' Agreement 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.

Work plan summary

The ocean is the dominant natural feature of our planet; an understanding of ocean science concepts is essential to sustaining life on earth. Incorporating ocean education into our schools is an important facet of achieving an “ocean literate” population. However, when the National Science Education Standards (NSES) came out in 1996, there was little mention of ocean topics in the content standards. As a result, most state content standards do not include much about the ocean, coasts, or watersheds. Consequently, there is little teaching of these topics in most K-12 classrooms. Without a coherent framework of concepts and messages, these important topics remain on the margins of teaching and learning about science. Therefore, it is essential that states such as Washington, Oregon, and California systematically incorporate marine science into their education curricula.

Recognizing the importance of public understanding of the ocean, a number of institutions and individual educators in the U.S. have been involved in an effort to define what it means to be ocean literate. The Ocean Literacy Principles and their supporting Fundamental Concepts were developed in 2004 and 2005 via workshops and public comment, and were designed in accordance with the NSES.

The Ocean Awareness and Literacy Action Coordination Team (ACT) plans to assist educators in integrating Ocean Literacy Principles and Fundamental Concepts into their classrooms and programs by providing guidance on the tools and existing resources that are available to teach students to be ocean literate while achieving mastery of state science content standards.

An increase in public knowledge and understanding of marine science and the issues facing the ocean is also critical to engaging individuals to become better stewards of the environment. The ACT plans to provide the public and decision-makers in government and non-profit organizations with improved access to tools and information that will help them make informed decisions about the ocean and will stimulate participation in ocean conservation. To do this, the ACT plans to conduct a needs assessment to determine the content structure and best ways to

provide education and outreach to these audiences. One of the ACT’s goals is to raise awareness of and improve access to existing resources, programs, institutions, and scientific information. The outcomes and products of this Action will improve networking and communication among individuals and institutions engaged in ocean-related work. The resources will be available in multiple languages, as appropriate and feasible, and will strive for cultural relevance to diverse audiences.

Major work plan tasks

Actions 5.1 and 5.2 address improving ocean awareness and literacy but are directed toward fundamentally different audiences and the resulting methods and tools to educate these groups will differ. To increase efficiency, this ACT will work simultaneously on both actions because of the overlap in the strategies for each action. Some tasks are common to accomplishing both actions and where indicated below, tasks specific to just one action are listed.

1. Overall program coordination (Actions 5.1 and 5.2)

Description Hire a program coordinator to manage the various aspects of the work plan on a daily basis.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> Provide leadership and direction necessary to accomplish these tasks. 	<ul style="list-style-type: none"> Oversee the work of multiple short-term interns and provide continuity in administering the detailed aspects of the work plan for two years.

2. Conduct a needs assessment and develop a guidance document and/or other tools for integrating ocean literacy into school curricula (Action 5.1)

Description Conduct a needs assessment and, based on the results, develop a product(s) that will assist teachers in integrating Ocean Literacy Principles and concepts into their classrooms.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> Determine the nature of guidance document or tool to be used. 	<ul style="list-style-type: none"> Align scope and sequence for ocean literacy with science content standards in each state and review existing curricula for efficacy in teaching ocean literacy and content standards and conducting alignments where necessary.

	<ul style="list-style-type: none"> • Pilot-test with four teachers in each state.
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3. Develop shared messages and content (Action 5.2)

Description Develop shared messaging and content on California Current and other ocean and coastal topics, such as climate change and sea level rise, sustainable coastal development, non-point source pollution, marine debris, and invasive species that will be hosted on the WCGA Web site, ACT member websites, and/or any shared website that is developed.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> • Identify, inventory and collate content related to the California Current and other ocean and coastal topics common to the three states. 	<ul style="list-style-type: none"> • Research existing networks, websites, listserves, etc., that facilitate the exchange of information between scientists, educators, and the public.

4. Planning: Database and products (Action 5.2)

Description Conduct a needs assessment and establish a plan for physical products and for developing a resource database for the web resources and partners.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> • Research existing databases. 	<ul style="list-style-type: none"> • Review options and develop a plan for a database framework. • Conduct a needs assessment within each target audience to determine information and resources most needed, and how to develop resources to meet those needs.

5. Develop resource database and/or other products (Action 5.2)

Description Develop resource database and other products with shared messaging.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> • Develop basic database framework for an online resource product. 	<ul style="list-style-type: none"> • Research and coordinating products. • To develop the online resource database, resources will be needed to: <ul style="list-style-type: none"> ○ Create user interface. ○ Complete inventory and research. Input program and resource data into

	<p>database.</p> <ul style="list-style-type: none"> ○ Conduct design and usability reviews. ○ Purchase or otherwise identify website hosting, ongoing maintenance, and updates. ○ Develop additional products based on the results of the needs assessment (toolkits, brochures, display, briefing documents). ○ Formative and ongoing evaluation of products.
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6. Training and Outreach to Target Audiences (Actions 5.1 and 5.2)

Description Educate target audiences about the available resources and raising awareness through broad dissemination of messages and tools.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> ● Present products at meetings, conferences, and other events as available. 	<ul style="list-style-type: none"> ● Expand possibilities for ACT members to present products at meetings, conferences, and other events for maximum outreach.

Sequence of tasks

The ACT will work toward accomplishing both actions 5.1 and 5.2 simultaneously to take advantage of the broad expertise of all ACT members. The tasks identified to accomplish each action are presented in the work plan sequentially. A needs assessment is essential in order to develop effective products and resources for a variety of audiences including informal and formal educators and decision-makers. Upon completion of the needs assessment, other educational resources can be developed, tested, presented and marketed for the appropriate audience including an effective database.

[Back to top](#)

Seafloor Mapping ACT Work Plan

[Back to contents](#)

West Coast Governors' Agreement Action 6.3:

Complete a seafloor map of the bathymetry, benthic substrate, relief, geology, and habitat of all state tidelands and submerged lands out to three miles.

Work plan summary

As indicated in the WCGA Action Plan, each state is at a different stage regarding seafloor mapping. California has a mapping effort that is well underway but has recently had some setbacks due to California's budget situation. Washington is developing a strategic mapping plan, and assessing and prioritizing data gaps, leveraging existing planned work, and pursuing additional resources for new mapping. Oregon has completed its mapping plan and is similarly pursuing resources for mapping, particularly areas under consideration for marine reserves and ocean energy projects. Mapping efforts in Washington and Oregon were recently boosted when the U.S. Navy agreed to rescind its security restriction on release of high-resolution bathymetric data north of 46°N. Funds supplied to NOAA Office of Coast Survey under the economic stimulus package as well as through other federal funds provided additional assistance to the three coastal states for data collection in Fiscal Years 2009-2010.

The WCGA Seafloor Mapping Action Coordination Team will foster coordination of mapping along the West Coast, diversify and improve partnerships, and leverage resources necessary to accelerate progress and achieve mapping throughout the region. Through this regional partnership, the states will aim to set joint standards, agree on common products, define high priority areas, elevate and coordinate communication on mapping needs, and estimate a timeline for completion. The WCGA Action Plan set a goal of completing the seafloor map of West Coast states' waters by 2020.

Major work plan tasks

The WCGA Seafloor Mapping ACT draft work plan includes several essential elements for a successful seafloor mapping effort, including:

- data collection and processing
- data management
- development of map products
- communication, education, and outreach

To be truly useful for coastal managers and stakeholders, the West Coast seafloor mapping effort must include all of these elements, not just data collection. The major work plan tasks are summarized below and tables distinguish between efforts that the seafloor mapping

community can conduct or pursue with existing resources and those that require additional resources.

1. Data collection and processing

Description Collect and process high-resolution bathymetric, backscatter, groundtruthing data for the entire region. Strategically collect high-resolution seismic-reflection data. Other associated activities required to conduct mapping must also include developing partnerships to complete the mapping, establishing data standards, and conducting gap analysis on mapped and unmapped areas.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> • Continue to develop and advance strategies for each state at a certain level, including determining data standards. • Conduct mapping and groundtruthing under current funding allocations for certain areas of all three states. Mapping data, not including groundtruthing, has been acquired for¹: <ul style="list-style-type: none"> ○ 75% of California waters ○ 44% of Oregon waters ○ 13% of Washington waters • Finish gap analysis of mapping data in Oregon and Washington. 	<ul style="list-style-type: none"> • Further develop partnership and leveraging opportunities, through workshops, meetings, and other venues. • Accelerate and complete data collection and processing for state waters of entire West Coast.

2. Data management

Description Develop and maintain systems for storing, distributing, and linking raw and processed seafloor data.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> • Identify available in-kind support and capacity through various government entities, academic institutions, and others. These partners can also establish roles and responsibilities for data maintenance and distribution. 	<ul style="list-style-type: none"> • Establish and support long-term data management contract with NOAA National Geophysical Data Center. • Develop and maintain data-serving portals and databases for groundtruthing data. • Provide infrastructure upgrades for data

¹ For Oregon and California, this estimate includes data collection currently underway. While funding was recently received for additional mapping in Washington, updated estimates that include this new mapping effort are not available.

<ul style="list-style-type: none"> Assess models for on-line sharing and dissemination of data. 	<p>serving and storage.</p>
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3. Product Development

Description Develop a series of standard data products from the data such as seafloor character and habitat maps, geology maps (including faults and other important features), bathymetry, photos from groundtruthing videos, and perspective views of key features. These products provide an easy way to view and understand the data as well as integrate it with other information to support decision-making and education about marine resources.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> Some standard products have already been developed as part of on-going mapping efforts in California. Some similar products can be developed in additional limited areas through current funding allocations. The partners of the Seafloor ACT and the larger seafloor mapping community can continue to develop and share visualization products and creative fusion applications of mapping data as part of their individual projects. 	<ul style="list-style-type: none"> Develop and release initial mapping data within 9 months of data collection and processing. Complete comprehensive GIS-ready map products and standard map products on a fixed schedule. Develop seamless bathymetric/topographic digital elevation models and interactive web-mapping applications.

4. Communication, education and outreach

Description Develop a wide-range of educational materials and conduct outreach that demonstrates the value and diversity of uses of seafloor mapping data. Communication is essential to advance the formation of seafloor mapping partnerships, to coordinate mapping in the region, to help identify funding opportunities, and to increase the transfer of information into traditional coastal zone management and educational settings.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> The Seafloor Mapping ACT has developed a general factsheet demonstrating the uses and needs for seafloor mapping and can continue to provide the WCGA with some general talking points, 	<ul style="list-style-type: none"> Provide posters, information, briefings, and presentations at a variety of existing coastal management venues including conferences, workshops, and regional meetings.

<p>demonstration products, basic web information, and other communication materials.</p> <ul style="list-style-type: none"> • The Seafloor Mapping ACT can continue to: <ul style="list-style-type: none"> ○ Partner and coordinate activities with the US Interagency Working Group on Ocean and Coastal Mapping. ○ Identify and cultivate relationships with key regional partners and champions. 	<ul style="list-style-type: none"> • Develop and refine communication and education materials. • Host workshops to promote use of maps, technology transfer and other applications. • Develop suite of educational tools for use in traditional education setting (K-12, college). • Establish and support student mapping internships and training in academia and agencies.
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Sequence of tasks

The Seafloor Mapping ACT envisions a strategy that seeks to develop data products as mapping and data processing and groundtruthing is completed for geographic sub-regions. Various regions will conduct different phases of work at different times, as funding and activities progress. Many partners have missions and goals for acquiring or using seafloor mapping data and products. Seafloor mapping requires a significant investment, but will yield much larger benefits to our coastal communities and resource managers. The Seafloor ACT will promote a funding strategy that seeks to develop partnerships that will utilize and leverage existing resources, as well as seeking and directing supplementary funding for additional mapping needed to meet the objective of a comprehensive seafloor map for the West Coast by 2020.

[Back to top](#)

Sediment Management ACT Work Plan

[Back to contents](#)

West Coast Governors' Agreement Action 7.4:

Develop regional sediment management plans to maximize beneficial use of sediment in an environmentally responsible manner to protect and maintain critical community economic and environmental infrastructure.

Work plan summary

Development and implementation of regional sediment management (RSM) plans was identified as an important component of Priority Area 7 of the WCGA Action Plan. RSM plans, if implemented, will enable the three states to improve the environment and efficiency of decision-making by using the broader system as a framework to resolving sediment management issues. RSM plans help protect and enhance natural resources while supporting the existing built infrastructure and economic needs of coastal communities. Benefits of RSM include: restoring, maintaining or enhancing fish and wildlife habitats; nourishing beaches that are eroding due to reduced sediment transport from watersheds; protecting critical coastal infrastructure at risk from global climate change and sea level rise; enhancing recreational opportunities; and protecting and maintaining critical community infrastructure.

Definition of Regional Sediment Management (RSM):

Regional sediment management is a system-based approach to optimally manage coastal sediment projects for regional benefits rather than to solve site-specific problems.

To maximize the beneficial use of sediment throughout the three states, the draft work plan focuses on two main tasks: 1) encouraging development of RSM plans and projects throughout the three states, and 2) encouraging policies and coordination to effectively implement the plans and projects. The work plan pertains to the coastal zone as defined by each state and is designed to cover the nearshore region of the coasts of Washington, Oregon, and California including most estuaries.

The strategy is comprised of thirteen deliverables for developing effective RSM plans across the west coast. The deliverables will be achieved through collaboration with the U.S. Army Corps of Engineers, U.S. Environmental Protection Agency (EPA), coastal zone and water quality management agencies, other relevant local, state and federal agencies, and interested parties. See the work plan for detailed description of all thirteen deliverables.

Major work plan tasks

The major tasks included in the work plan are summarized below. The table provided for each task briefly describes efforts the team intends to conduct or pursue with existing resources.

1. Encourage development of RSM plans and projects throughout the states

Description Encourage and incentivize maximum beneficial use of sediment in RSM plans, identify and secure adequate funding for RSM planning efforts, fill data and technology needs and share tools for RSM planning, and perform repeated topographic and bathymetric surveys (including Light Detection and Ranging, or LiDAR) with sufficient frequency to detect and analyze trends and changes.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> • Secure funding for RSM efforts. • Compile information to share lessons learned. 	<ul style="list-style-type: none"> • Hold workshop to share case studies. • Develop white paper or website on lessons learned and hard structure study (jetties, breakwaters, protection devices, shoreline armoring).

2. Encourage policies and coordination to maximize implementation of RSM plans and projects

Description The ACT will examine federal policies to facilitate beneficial uses and regional sediment management, and will assist with developing, coordinating, and prioritizing tri-state policy responses for consistent and reinforced advocacy to Congress, federal, and state agencies on needed changes.

With Existing Resources...	With Additional Resources...
<ul style="list-style-type: none"> • Seek improvements to the national dredging policy and other opportunities. • Encourage Congress, federal agencies to augment funding for sediment planning and projects for the West Coast. • Maximize efficiencies of dredging opportunities by creating regional dredging partnerships – such as sharing dredging equipment on West Coast. 	<ul style="list-style-type: none"> • Partner with federal agencies to leverage resources to effectively address legacy pollutants. • Hold tri-state meeting/workshop to review, analyze and share state policies.

Sequence of tasks

Regional sediment management is important to enhance ocean and coastal habitats, protect coastal infrastructure, improve use of sediment resources, and create more efficient frameworks for decisions throughout the West Coast. Developing efficient regional sediment management plans will rely on developing workshops to share lessons learned and to compile existing information among the three states. The partnership of the three states and federal agencies is critical for this first step, and to avoid redundancies in RSM plan development.

[Back to top](#)