

Assisting Coastal Decision Makers in the Lower Columbia Biogeographic Province: A Strategy for the Coastal Training Program



South Slough National Estuarine Research Reserve
Coastal Training Program
July 18, 2003



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South Slough National Estuarine Research Reserve Coastal Training Program

Assisting Coastal Decision Makers in the Lower Columbia Biogeographic Province

A Strategy for the Coastal Training Program

July 18, 2003

Introduction

Managing the coasts of the Pacific Northwest has become an ever more complex task in recent years. Growing numbers of residents and visitors, and changing values, place new demands on natural and cultural resources. Since the late 1800s, the Pacific Northwest coastal region has depended upon traditional industries such as farming, logging, and commercial fishing, for its economic base.

In recent years, the social and economic benefits of the traditional industries have declined due to a variety of influences. For example, logging and commercial fishing have declined significantly. These changes relate, in part, to efforts to protect declining species such as coho salmon and the northern spotted owl, but they also relate to environmental and economic changes, and changes in the values of coastal residents.

Value changes parallel changes in the thinking of resource managers about how humans have altered natural systems, such as forests, tidal marshes and seacoasts, beaches and rivers. In an area between Cape Mendocino, California, and the mouth of the Columbia River known as the Lower Columbia Biogeographic Province, sweeping changes have occurred over the last decade in the management of public forestlands to protect sensitive fish and wildlife species. Communities within this region are trying to understand how to re-establish salmon runs and the natural functions of the rivers and estuaries that these icons of northwest culture depend on for survival. (Oregon State of the Environment Report. 2000.)

To assist managers in addressing a suite of environmental issues that are taking on growing significance, the South Slough National Estuarine Research Reserve (South Slough NERR), in cooperation with the National Oceanic and Atmospheric Administration (NOAA), and the state of Oregon, is developing a Coastal Training Program (CTP). The mission of the CTP is to provide issue-specific information for coastal managers and decision makers that will assist them in the stewardship of coastal resources. The goal of the CTP is to foster better-informed decision-making to improve coastal stewardship at local and regional levels. To do so, the CTP provides information services and training opportunities for specific audiences of coastal decision makers, based upon their needs.

Coastal decision makers are individuals who are responsible on a day-to-day basis for making decisions about activities that affect the cultural and natural resources, environmental health, and livability, of the coastal zone.

Background

South Slough NERR, founded in 1974, is the nation's oldest national estuarine research reserve. It manages about 4800 acres of estuarine habitats and associated forests, and fresh water streams for research, education, and stewardship. The site is located within the South Slough arm of the Coos estuary in Coos County on the southern Oregon Coast in an area known as the Lower Columbia Biogeographic Province. South Slough has well-established research, stewardship, and education programs based at the South Slough NERR Interpretive Center and in the surrounding bay and nearshore ocean waters. The CTP is an initiative of the National Estuarine Research Reserve System (NERRS).

Emerging issues

Emerging resource management issues pose new challenges for coastal decision makers. An example is *managing the spread of introduced, exotic plant and animal species in the coastal environment*. Exotic aquatic and terrestrial invaders moving into coastal habitats alter the mix of plants and animals, sometimes disrupting entire ecosystems and displacing or even eliminating native plants or animals. The spread of invasive species pose the second greatest threat of extinction after habitat loss. Nationally, the cost of controlling the spread of invasive organisms approaches \$123 billion annually. (Department of Interior, 2003.) The costs include not only treatment and control, but also the economic losses that occur when invasive exotics displace commercial species.

Other emerging issues include:

- *Re-establishing the natural conditions and functions of altered estuarine habitats such as tidal marshes, eelgrass beds, and mudflats.* Restoring coastal wetlands and tidelands once altered for agriculture and development is a national priority. Between 1870 and 1970, nearly 68 percent (about 50,000 acres) of Oregon's tidal wetlands were diked, drained, or filled. (Oregon State of the Environment Report.) In Oregon alone, land managers have returned hundreds of acres of estuarine wetlands to conditions approximating their pre-development state. Re-establishing estuarine wetlands provides the means for repairing habitat for commercial fish and shellfish species, invertebrates, birds and mammals, and for protecting native plant communities. Throughout the province watershed councils are planning or engaged in restoration.
- *Managing critical coastal habitats through the development and use of marine protected areas or marine reserves.* The decline of important food fishes, the loss of coastal marine habitats, and the need to protect important nearshore ocean resources coincide with efforts to evaluate and establish Marine Protected Areas (MPAs) and marine reserves. The recent development of an MPA policy in Oregon and California is central to the debate over how to manage ocean resources in the region.
- *Managing water quality.* Maintaining water quality has been, and continues to be, a top concern for human health, sustainable fisheries and wildlife, or developing new industry. The region receives abundant rainfall in the winter, but water shortages are common in summer in many coastal communities.
- *Preparing for the expected consequences of sea level rise that may result from climate change.* Coastal communities must be prepared to address the consequences of sea level rise that will result from changing climates. Climate

change and global warming will affect low-lying coastal communities and estuaries by influencing the intensity of storms, causing increased flooding, and erosion, threatening the safety of residents, and causing economic loss.

- *Preparing for the development of eco- and nature-based tourism industries and their impact on sensitive coastal environments.* Tourism is a growing industry that will intensify the impact visitors have on natural and cultural resources, and lead to conflict among users with differing values. The growth tourism will present new challenges and opportunities for decision makers.

One of the assumptions of the CTP is that individuals make up their own minds. Another is that, given the choice, individuals prefer to ground their decisions in the best available scientific and technical knowledge. The job of the CTP coordinator is to facilitate the dialogue among scientists and managers and serve as a bridge between decision makers on one side and technical experts on the other.

Goal and objectives

The goal of CTP is to foster better-informed decision-making to improve coastal stewardship at local and regional levels. The program's objectives are to:

- Increase the application of science-based knowledge and skills by local and regional coastal decision-makers.
- Provide opportunities for discussion and collaboration among coastal decision makers.
- Support coastal decision makers and facilitate their efforts to understand the role of human activities in the coastal environment.

To meet these objectives, over the next two to three years the CTP will:

- Identify, establish communications with, and assess the needs of, coastal decision makers.
- Test and adapt an Inquiry-Based Information Services model (IBIS) to expose information gaps and develop demonstration products designed to provide information to fill those gaps.
- Conduct evaluations (e.g.: a followup survey sent to participants six months after attending a workshop or other event) to measure the effectiveness of CTP training and outreach.

CTP Market Analysis

In 2002, South Slough NERR completed an analysis of training available to decision makers in the Lower Columbia Biogeographic Province. The analysis revealed several topics upon which to base CTP. (Malouf, 2002). The topics correlate with the emerging issues identified above.

According to the analysis, a training program based on South Slough NERR's research and stewardship programs will provide significant assistance to coastal decision makers. Research topics at South Slough NERR have included restoring estuarine wetlands, tidal channels and riparian wetlands; identifying and controlling invasive exotic species; the life history of juvenile coho salmon in estuarine habitats; the effects of

commercial oyster cultivation on eelgrass and tidal flat communities; and the biological and physical linkages between the estuarine and nearshore ocean environments.

South Slough NERR has developed a reputation for leadership in the field of estuarine wetland restoration. Answers to some basic questions about restoration are emerging from this work.

Recommendations of the CTP Advisory Group

The CTP Advisory Group met for the first time on March 20, 2003 to review the market analysis and make recommendations for developing the program. The advisory group reviewed the informational needs for each of the six training topics and recommended the South Slough NERR emphasize two primary topics: Marine Protected Areas and estuarine wetland restoration. The group included two additional topics – water quality and invasive species management – within the context of the primary topics.

Echoing the market analysis, the advisory group recommended the CTP focus on areas where South Slough NERR has experience. Start by “sticking with what you know,” is how one advisory group member put it.

The advisory group acknowledged the interrelationship of all the topics and prioritized them as follows:

CATEGORY I (primary topics):

- Re-establishing the natural conditions and functions of altered estuarine habitats such as tidal marshes, eelgrass beds, and mudflats.
- Managing critical coastal habitats through the development and use of marine protected areas or marine reserves.

Included (within the context of the primary topics) are:

- Water quality management
- Managing the spread of introduced, exotic plant and animal species in the coastal environment

CATEGORY II (secondary topics):

- Eco- and nature-based tourism
- Preparing for climate change

The advisory group’s rationale was that the Category I topics are directly pertinent to estuarine managers in the region and follow upon the experience of South Slough NERR’s stewardship and research programs. The Category II topics are also applicable to estuary management. While the South Slough NERR has not researched these topics, they are topics with which South Slough NERR has had experience. Through its interactions with the Coos Regional Trails Partnership, the Coastal Environments Learning Network (CELN), and other partners, South Slough NERR plays an important role in addressing these topics.

For the secondary topics, South Slough NERR’s role will be to facilitate the gathering of information. For example, in June 2003, the CTP conducted a workshop on managing visitor impacts on natural and cultural coastal resources. South Slough NERR plays an important role in managing visitor impacts because it is a major attraction on the

southern Oregon coast for visitors. The workshop generated interest among managers in developing common indicators for measuring visitor impacts throughout coastal Oregon. The South Slough NERR and Oregon Sea Grant are currently making plans to continue this discussion among coastal resource managers.

The advisory group emphasized that the division of topics into primary and secondary categories is not intended to eliminate any of the topics.

Needs assessment

Between April and June 2003, the South Slough NERR surveyed 27 watershed councils on the Oregon coast to assess the needs of communities considering, or engaged in, restoring estuarine wetlands. (Bragg, 2003.) The CTP Advisory Group recommended watershed councils as a target audience. The assessment identified several needs for information and technical assistance, including how to plan and monitor restorations, how to analyze costs and benefits, understanding how anadromous fish use estuaries, and assessing tidal hydrology. The results indicate that a number of community groups, other than watershed councils, also could benefit from information or training on estuarine restoration. While attempting to change the use patterns of former tidelands altered for agriculture and development is a controversial topic, there appears to be some support for restoration, nevertheless. Watershed councils are likely to welcome training that addresses these issues.

Staffing and partnerships

South Slough CTP staff consists of a program coordinator, assisted by an education staff for program development, and an administrative staff to assist with staff training and program administration. In addition, the stewardship coordinator will play an integral role in developing the restoration focus for CTP, and in testing the IBIS model.

Determining the training needs of decision makers will be an on-going task. Specific elements such as identifying target audiences, conducting needs assessments, or developing training products, will occur as the needs of decision makers become clear.

South Slough NERR often works with partners to accomplish its mission. The CTP will seek opportunities for partnership with state and federal agencies, non-profit organizations, watershed councils and others to meet its objectives.

Partnerships offer many benefits, including a wider range of thoughts and ideas, the expertise and knowledge of scientists and technicians from different disciplines, and access to funding. Successful partnerships will have widespread benefits for the CTP as knowledge of, and experience with, the CTP grows.

Current partnerships include the Coos Watershed Association, the Coastal Environments Learning Network, the Bureau of Land Management, the Port of Coos Bay, U.S. Forest Service, the Coquille Indian Tribe, Oregon Department of Land Conservation and Development, Oregon Department of Fish and Wildlife, Oregon Department of Environmental Quality, Oregon State University Extension Sea Grant, Oregon Institute of Marine Biology (University of Oregon), Southwest Oregon Community College, the Coos Regional Trails Partnership, the National Park Service, the Lower Columbia River National Estuary Program, and the Tillamook National Estuary Program. South Slough NERR has worked with these groups to sponsor workshops and in some cases, consulted with their representatives in developing the CTP.

Representatives of the Department of Land Conservation and Development, Oregon Department of Fish and Wildlife, Department of Environmental Quality, OSU Sea Grant, Tillamook NEP, Lower Columbia River NEP, National Marine Fisheries Service, and the Partnerships in Studies of Coastal Oceans (PISCO) serve on the CTP advisory group.

The CTP works closely with the Coos Watershed Association on a number of projects, including developing issue papers and organizing coastal decision maker workshops. A partnership with the Department of Land Conservation and Development was instrumental in developing a water quality model code, sponsored by the CTP in 2001.

The CTP is currently working with the Coos Regional Trails Partnership, Port of Coos Bay, and the National Park Service to develop demonstration and informational products for recreational paddlers in the Coos River estuary. In February 2003 the CTP sponsored (as a coastal decision maker workshop) a meeting of the South Slough NERR Winchester Estuarine Wetlands Restoration Project Advisory Committee.

Training topics and target audiences

Based on information from the market analysis and staff knowledge about coastal zone training and outreach programs, Table 1 identifies the six training topics in two categories, lists potential target audiences for each topic, and provides a partial list of agencies or organizations known to offer some training relative to the topic. The CTP will develop brochures, issue and position papers, videos, web presentations or other products to assist decision makers. It will also develop workshops to take on the road or repeat for multiple audiences. The point is to provide training in a form and location convenient to the audience's needs. Methods may vary for different audiences even with the same subject material, so it is important to pay close attention to what the target audience is asking for in order to understand what works best for each group.

Table 1. Target Audiences for Coastal Training

Topic	Potential target audiences	Agencies or organizations providing information
CATEGORY I		
<i>Re-establishing the natural conditions and functions of altered estuarine habitats such as tidal marshes, eelgrass beds, and mudflats.</i>	<ul style="list-style-type: none"> • Landowners • estuary program managers • planners • conservation groups • wildlife managers • watershed councils • public agencies • regulatory officials • fishermen • restoration practitioners 	South Slough NERR Some watershed councils OSU Sea Grant
<i>Managing critical coastal habitats through the development and use of marine protected areas or marine reserves.</i>	<ul style="list-style-type: none"> • fishermen • seafood processors • policy makers (state, regional) • gas, oil exploration companies • shippers • marine mammal managers • conservation groups • fishery managers 	Oregon State University Sea Grant COMPASS PISCO Oregon Ocean Policy Advisory Council NOAA CSC
Water quality management	<ul style="list-style-type: none"> • watershed councils • irrigation districts • soil and water conservation districts • landowners • oyster growers 	OSU Extension Service OSU Sea Grant Oregon Department of Health NOAA Musselwatch

	<ul style="list-style-type: none"> • public health managers • coastal community planners • property developers • agricultural managers • water quality managers 	
<i>Managing the spread of introduced, exotic plant and animal species in the coastal environment</i>	<ul style="list-style-type: none"> • port managers • landowners • oyster growers • agricultural and timber land managers • shippers • fisheries managers • fishermen, mariculturists, oyster growers • estuary program managers • forestry, small woodlot owners and managers • landscapers, master gardeners, arborists 	OSU Extension Service OSU Sea Grant Oregon Department of Agriculture – Pest Management Division (emphasis on terrestrial plants) Portland State University – Invasives Program. www.oda.state.or.us/plant/inv_spp/
CATEGORY II		
<i>Preparing for the development of eco- and nature-based tourism industries and their impact on sensitive coastal environments.</i>	<ul style="list-style-type: none"> • chambers of commerce • coastal, land-use planners • local government officials • transportation managers • estuary program managers • developers • tourism promoters and vendors • conservation groups • environmental professionals • wildlife scientists 	No known programs
<i>Preparing for the expected consequences of sea level rise that may result from climate change.</i>	<ul style="list-style-type: none"> • coastal and land-use planners • developers • emergency services • natural resource managers • conservation groups • wildlife managers 	Outreach program – National Aeronautics and Space Administration, Hatfield Marine Science Center, Newport

Inquiry-Based Information Service (IBIS)

To understand more clearly what questions decision maker audiences are asking, the South Slough NERR will test IBIS (Inquiry-Based Information Service). In implementing the CTP, this model will provide a tool to analyze the questions that decision makers pose for scientific experts. In the IBIS model, the CTP, in concert with other South Slough NERR programs and advisors, reformulates general and specific questions as scientifically answerable questions. South Slough NERR then develops information, or demonstration projects, to provide guidance to managers. IBIS emphasizes person-to-person contacts between scientific experts and decision makers.

The focus of CTP on estuarine restoration will involve coordination with the stewardship and research programs and South Slough NERR program advisors to refine the questions that decision makers pose. After defining the questions, all South Slough NERR programs potentially play roles in developing demonstration projects. The degree of involvement for any particular program will depend on the questions posed, the forms the answers are to take; and what services and expertise that program could provide, relevant to the question asked. In this way, IBIS will integrate South Slough NERR programs in a manner similar to that of a consulting firm.

In the case of restoration, the questions that arise are likely to be about specific natural resource management issues related to re-establishing coastal and estuarine

wetlands. The South Slough NERR stewardship or research programs would likely address the majority of these questions.

A smaller percentage may be appropriate for the CTP to address through a demonstration project. Timeliness will often be a key factor in determining which questions an IBIS demonstration project can answer, because decision makers often need accurate information rapidly in order to meet regulatory or other deadlines.

Although restoration offers a proving ground for IBIS, South Slough NERR will test the model with the other training topics as well. Restoration lends itself to testing IBIS, because South Slough NERR has the experience and expertise to answer questions in this field. However, decision makers may pose questions on other topics that are beyond the scope of South Slough NERR to answer. IBIS still provides direction by evaluating all of the information and training needs and recommending a plan of action (including referral to other training providers or partners for additional analysis).

Figure 1 provides a schematic picture of how this model will work. The South Slough NERR solicits questions from decision maker audiences, through person-to-person contacts, focus groups, and other methods. As the questions are refined they provide the framework for developing audience needs assessments. The complexity of the needs assessments will vary, depending upon the circumstances, timing, and information needed. A simple survey may reveal needs related to a specific audience and topic. Complex issues affecting multiple stakeholders and multiple topics may require professional analysis.

Needs assessments reveal information gaps that originate with various audiences. The CTP subsequently works with advisors, research, and stewardship staff, to articulate the audience's needs into scientifically answerable questions. Next, the research and stewardship staff design demonstration projects, select monitoring protocols and sampling designs, manage the projects, and collect and analyze data. Finally, the CTP, assisted by education staff, presents the answers in the most effective format for the intended audience. The sequence of steps may vary, depending on the circumstances and degree of involvement of programs and advisors.

Distance learning

South Slough NERR is evaluating the potential for using a distance learning network to deliver training simultaneously at remote locations. Distance learning facilities exist at most of Oregon's high schools and universities, community colleges and education service district offices, including Southwestern Oregon Community College. The CTP has held initial meetings with SWOCC staff to investigate how to make use of the network. For some training, distance learning offers a delivery format that minimizes traveling long distances to attend training at South Slough NERR.

Evaluating CTP

South Slough NERR currently evaluates the CTP by surveying participants after trainings. The NERRS is currently developing CTP performance measures at a national level. Performance measures can help demonstrate the effectiveness of the CTP, however, one size will likely not fit all. Performance measures crafted at individual reserves may take into account issues, opportunities for information exchange, and public attitudes regarding coastal management, that distinguish each. The South Slough NERR will participate in development of performance measures at both levels.

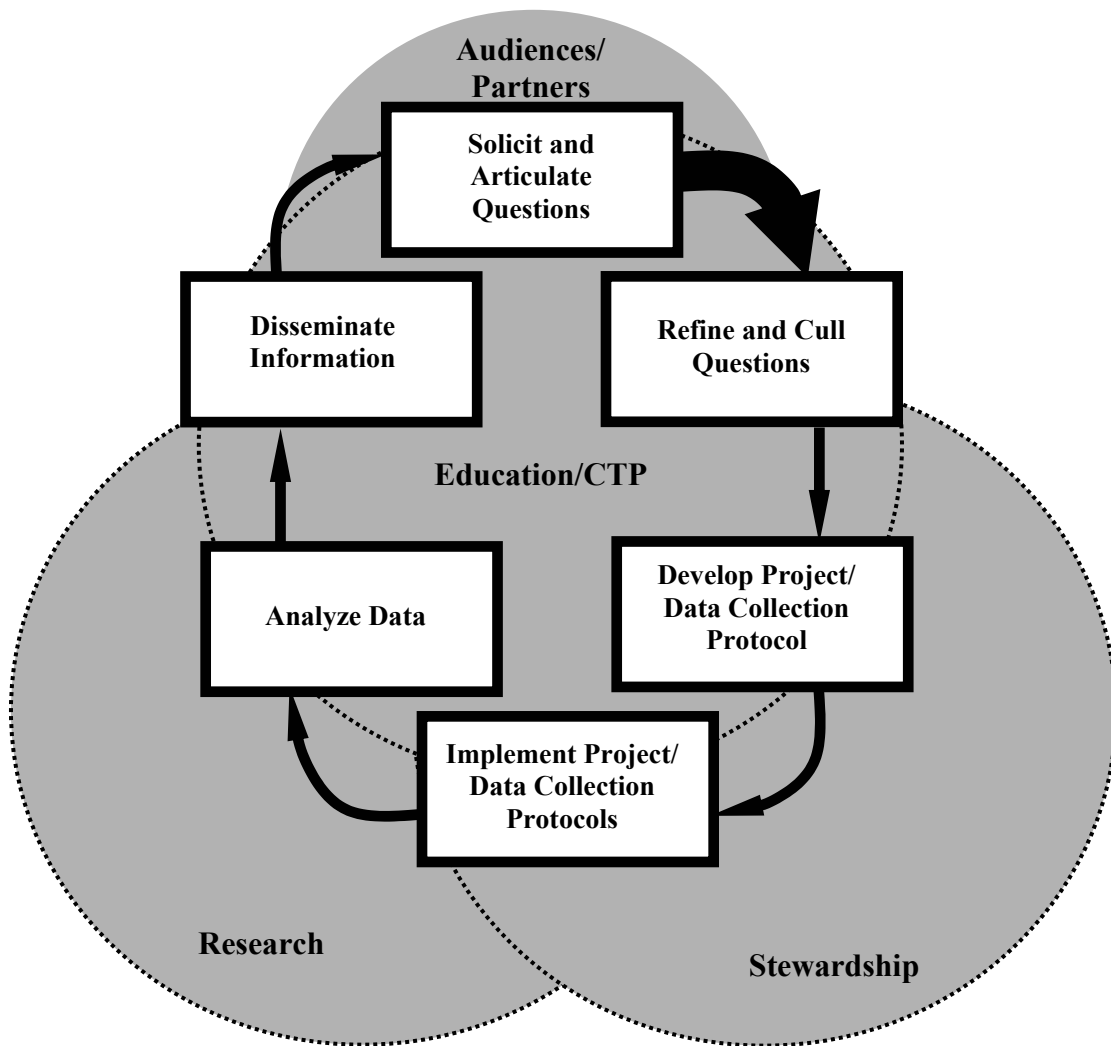


Figure 1. IBIS: The Inquiry-Based Information Services model

Figure 2. presents a timeline for developing the South Slough National Estuarine Research Reserve Coastal Training Program.

Task / Event	2003				2004				2005				2006					
	Jan	Apr	July	Oct	Jan	Apr	July	Oct	Jan	Apr	July	Oct	Jan	Apr	July	Oct		
Advisory group meeting	X		X		X		X		X							(X)		
	(Advisory group will meet semi-annually during planning phase and annually after 2004. Evaluate need for group beyond 2005.)																	
CTP Planning	X-----X	Finalize CTP planning																
	X-X	Budget planning				X-X	Budget planning				X-X	Budget planning				X-X	Budget planning	
Needs assessments (audience / topic)	X---X Watershed councils / Estuarine wetland restoration																	
	X-----X Coastal zone managers / Marine Protected Areas																	
	X Identify MPA topics for issue paper and CDM workshop																	
	X-----X Private landowners / Estuarine wetland restoration																	
	X Identify project																	
	X-----X Policy makers / Estuarine wetland restoration																	
	X Identify project																	
Product development (product / topic) (non-IBIS)	Restoration CD X----->																	
	X-----X Issue paper / Tide gates																	
	X-----X Issue paper / (MPAs: subject to be determined)																	
	X-> SSNERR Calendar																	
CDM workshop	X WTRP advisory group																	
	X Visitor impacts																	
	X Estuaries & Their Watersheds																	
	X Restoration workshop (content to be determined)																	
	X MPA workshop (content to be determined)																	
	X Estuaries & Their Watersheds (re-evaluate need for this CDM workshop beyond 2004)																	

Task / Event	2003				2004				2005				2006			
	Jan	Apr	July	Oct	Jan	Apr	July	Oct	Jan	Apr	July	Oct	Jan	Apr	July	Oct
Marketing plan development	<p>X-----X Set up SSNERR editorial/style board / Develop style guidelines</p> <p>X-----X Develop CTP promotional brochure</p> <p>X-----X Scoping for web site revision</p> <p>X-----> Web site development (coordinated with DSL, SSNERR web site revision)</p>															
Inquiry-based Information Services (IBIS) model development	<p>X RAE seminar</p> <p>X-----X Begin IBIS planning, consultation w / stewardship, research programs, focus groups. Consultation and adaptive planning will be ongoing.</p> <p>X---X identify target audience for demonstration project (initial phase based on results of current NA)</p> <p>X-----X scoping, focus groups</p> <p>X Identify demonstration project</p> <p>X-----> Project development and implementation</p> <p>X-----> Expand / modify demonstration project</p>															

Figure 2: CTP Timeline

Notes: Estimated time for a task or event of determinable duration is indicated by a closed dashed line (X---X).
 Estimated time for a task or event without a determined completion date is indicated by an open dashed line with arrow (X-->)

Literature Cited

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South Slough National Estuarine Research Reserve Coastal Training Program

Marketing Plan

July 18, 2003

Introduction

The South Slough National Estuarine Research Reserve has developed a framework for a Coastal Training Program (CTP) to provide information and technical assistance to coastal managers and others whose decision-making significantly impacts coastal environments. That framework depends on understanding the needs of target audiences to develop science-based training and information services for coastal decision makers within the Lower Columbia Biogeographic Province, an area extending from the mouth of the Columbia River south to Cape Mendocino. Coastal decision makers are individuals who are responsible on a day-to-day basis for making decisions that affect the coastal zone and its natural and cultural resources.

To develop widespread recognition of the role the CTP plays the South Slough NERR has developed a marketing plan for the next three years. Its elements include:

- Developing a brand identity and promotional materials for CTP to increase its visibility as a source of information and training assistance.
- Forming a South Slough NERR editorial and style board to assure consistency in product designs, key messages, and presentation strategies. Style guidelines will apply to all South Slough NERR publications, promotional materials, and information products.
- Cultivating partnerships with other training providers and professional associations that represent target audiences and broadly supported by the coastal management community.

Tasks

To achieve these objectives, the CTP marketing strategy will:

- Develop key messages and themes, CTP logos, and graphics.
- Publish a CTP introductory brochure.
- Participate in reorganizing the South Slough NERR web site to serve as an information and training resource.
- Maintain an up to date database of coastal decision makers through regular communications with decision makers and stakeholders.

Periodic reviews help the CTP maintain training programs that are responsive to the audiences' needs and provide opportunities to adapt training programs to meet changing needs. South Slough NERR will evaluate CTP's marketing success in a similar way. The CTP relies on written evaluations by participants to evaluate the training. To determine South Slough NERR's success at meeting these marketing objectives, the CTP coordinator will periodically contact participants to learn how they continue to make use or adapt the training they have received.

CTP provides a powerful new tool to assist coastal decision makers. The next several years will be an important time for South Slough NERR as it begins to test its CTP strategies and products. By the end of 2004, South Slough NERR expects to have made significant progress in the marketing tasks identified above.

How well decision makers recognize South Slough NERR for its role in coastal training will be a measure of marketing success. Perhaps the clearest indication of a successful training program will be how frequently decision makers say, “We ought to ask the South Slough NERR about this project. Those folks down there are knowledgeable about this – and very helpful.”

South Slough National Estuarine Research Reserve Coastal Training Program

Assessing the Needs of Watershed Councils in Restoring Estuaries

July 18, 2003

Introduction

More people are enjoying the Pacific Northwest coast for living, playing, working, and visiting. Coastal areas, and particularly estuaries, are special places with special attributes. These mixing zones, where fresh water meets the salty sea, attract migrating shorebirds and waterfowl. They provide homes for wildlife. Estuaries act as buffers to reduce the force of storm surges and absorb the runoff from seasonal rains. Estuaries provide habitat for developing juvenile fish such as salmon and Dungeness crab. Estuarine wetlands absorb nutrients and trap sediment to build salt marshes, among the most productive lands found. (Schultz, 1990.) Estuaries also provide water for residents and businesses, and safe harbor for commercial vessels, fishing fleets and recreational boaters. No wonder, then, that estuaries are also attractive to people, who build cities, industries and homes around coastal wetlands and use them for both recreation and commerce.

In some Pacific Northwest estuaries, as much as 85 percent of the original marshes were lost to development or agriculture. As a result, many of the important wetland functions have been lost.

The loss of coastal wetlands has led to reduced water quality and insufficient water supplies for many coastal communities. Invasive, exotic species of plants and animals have colonized coastal waters, the intertidal zones, and the lowlands of major river basins. (Oregon State of the Environment Report, 2000.)

The situation in the Pacific Northwest mirrors a national trend in which more people are living and recreating in coastal zones. Yet even as coastal populations continue to grow people are beginning to understand that coastal ecosystems have their limits. Managing the problems that arise as the unintended consequences of coastal development requires sound decision-making on the part of coastal managers, and residents.

To assist decision makers, the National Oceanic and Atmospheric Administration (NOAA), the state of Oregon, and the South Slough National Estuarine Research Reserve (South Slough NERR), have developed the Coastal Training Program (CTP). The CTP provides opportunities for dialogue between scientists, managers and stakeholders, as well as access to information, technology and, where appropriate, training that can benefit coastal managers. The goal of the CTP is better-informed decision-making and improved coastal stewardship locally and regionally. The objectives include gaining a better understanding of the role of human activities on coastal environments, increasing the use of science-based knowledge by decision makers, and providing opportunities for dialogue and collaboration.

The South Slough NERR is located in the South Slough arm of the Coos River estuary, located on the southern Oregon coast. The South Slough is a relatively undeveloped estuary that typifies many within the Lower Columbia Biogeographic Province, a narrow strip on the western slopes of the coast ranges of Oregon and northern California that extends from the mouth of the Columbia River south to Cape Mendocino.

Who is a coastal decision maker? In the relatively rural coastal communities of the northwest, nearly everyone plays an important role in managing coastal resources, but some, because of their jobs, public duties, or professions, play larger roles than others do. These decision makers may include farmers, commercial fishermen, business owners, elected officials or government employees. Coastal decision makers are individuals who are responsible on a day-to-day basis for making decisions about activities that affect the coast and its natural and cultural resources.

Background

Determining the needs of specific decision maker audiences is the foundation of the CTP. In 2002, South Slough NERR began a systematic assessment of training opportunities within the region and available to coastal decision makers. The goal of the market analysis, *An Inventory of Training Programs Serving the Oregon Coast* (Malouf, 2002) was to identify topics where training that could be of benefit to managers was not available from other providers. Staff review of the market analysis identified six potential training topics:

- Managing critical coastal habitats through the development and use of marine protected areas or marine reserves
- Re-establishing the natural conditions and functions of altered estuarine habitats such as tidal marshes, eelgrass beds and mudflats
- Managing the spread of exotic or invasive species
- Water quality management
- Preparing for the expected consequences of sea level rise that may result from climate change
- Preparing for the development of eco- and nature-based tourism industries and their impact on sensitive coastal environments.

In February 2003, a Coastal Training Program Advisory Group – including representatives of the Oregon Department of Land Conservation and Development Coastal Program, Oregon Sea Grant, marine educators, coastal managers, and South Slough NERR staff – reviewed the analysis. The group recommended that South Slough NERR focus CTP on two topics: managing coastal habitats through the development and use of marine protected areas and marine reserves, and re-establishing the natural functions of altered estuarine habitats.

Re-establishing the natural conditions and functions of altered estuarine habitats – a process generally referred to as estuarine restoration, is a field in which the South Slough NERR has completed significant research and on-the-ground work. Selecting estuarine restoration as a focal CTP topic is timely. In the early 1990s, Oregon developed a system of locally organized watershed councils to begin the task of restoring some of the natural functions of the state's rivers and streams. To date, most of the watershed councils in coastal Oregon have been focusing their efforts on streamside projects designed to improve habitat in the upland regions of coastal watersheds. Examples of these types of projects include planting riparian vegetation, erecting fencing to reduce streamside trampling by livestock, and placing logs and root wads in the streams to increase channel complexity and provide fish habitat.

Now the coastal watershed councils are beginning to turn their attention to the estuaries. However, many watershed councils find that they lack the experience and expertise to plan and undertake estuarine restoration.

The advisory group identified watershed councils as an important target audience. Because these groups are organized on a local, grassroots level, their members are often stakeholders who play important roles in influencing local communities to support or oppose restorations projects. Watershed councils are thus in a good position to evaluate community needs and attitudes regarding restoration.

Methods

This assessment was conducted in two phases. In Phase I, South Slough NERR mailed a survey (Figure 1, Appendix) to the directors of nine watershed councils on the Oregon coast. Subsequent attempts were made to interview the Phase I respondents by phone. The recipients were selected to represent both major and minor watersheds and associated estuaries. Nine surveys were mailed on or about March 20, 2003, with a response deadline of April 1, 2003. After the deadline, South Slough NERR used follow-up letters, emails, and phone calls to encourage non-respondents to complete and return their surveys.

The number of anticipated responses dropped to seven from nine because two respondents chose to combine their response with that of another watershed council with which they had a closely coordinated working relationship. Four responses were received by Apr. 11, 2003, including one such combined response.

In Phase II, South Slough NERR mailed the survey on or about March 20, 2003, to 18 watershed councils. The deadline for responding was April 15, 2003. There were no follow-up interviews planned for this wider group. After the deadline, South Slough NERR used follow-up letters, emails, and phone calls to encourage non-respondents to complete and return their surveys.

The number of anticipated responses dropped to six from 18 because one organization, the South Coast Watersheds Council of Curry County, served as an umbrella for 10 local watershed councils. Similarly, the Midcoast Watershed Association represented four watershed councils located on the central Oregon coast. (A list of the watershed councils contacted is in the Appendix.)

Watershed councils that responded during Phase I included:

- Siuslaw WC
- Necanicum WC
- CREST (Columbia River Estuary Study Taskforce)-Clatsop WC (combined response)
- Tillamook WC

Watershed councils that responded during Phase II included:

- Umpqua Basin WC
- Tenmile Lakes WC
- Lower Rogue WC
- Nestucca-Neskowin WC
- South Coast WC – Curry County (representing 10 local south coast councils)

Response rate

Based on the number of Phase I surveys sent out and the number of surveys returned, regardless of whether or not the recipients combined responses, the response rate was 4/9, or 44 percent. When the reduction in the number of expected responses due to combined responses is taken into account, the response rate becomes 4/7, or 57 percent.

Based on the number of Phase II surveys sent out and the number of surveys returned, regardless of whether or not the recipients combined responses, the response rate was 5/18, or 27 percent. When the reduction in the number of expected responses due to combined responses is taken into account, the response rate becomes 5/6, or 83 percent.

The adjusted response rate for Phases I and II, taking into account that some councils combined their responses, is

$$[(4/7) + (5/6)]/2 = 70\%.$$

Considering the actual numbers of surveys sent out and returned, the overall response rate is $[(4/9) + (5/18)]/2 = 36\%$.

Responses to the survey

Four of nine respondents (44%) are currently involved in estuarine restoration (Q1). Seven of nine (78%) anticipate beginning estuarine restoration projects soon (Q2). Of the seven, five anticipate beginning projects within three years or less. One respondent anticipates multiple projects within 3-5 years. Two have indefinite plans. One has no plans for projects.

Eight of nine respondents (88%) said their watershed councils needed technical assistance or information about estuarine restoration (Q3). Seven of nine (78%) identified other local organizations or agencies engaged in, or contemplating, restoration (Q4).

In Question 5, respondents selected from a list of organizations those groups in their communities that need information regarding estuarine restoration. Table 1 lists the groups or organizations most frequently identified.

Table 1 – Question 5

No. times identified	What groups need information?
7	Our local watershed council Local government officials Farmers and ranchers
6	State agency officials General public Rural landowners
5	Business leaders Local non-profit organizations Commercial fishermen Me
4	Local land trusts, conservation groups State government officials Federal agency officials

Question 6 asked respondents to identify what types of information about estuarine wetland restoration they needed. Table 2 lists the most frequent responses.

Table 2 – Question 6

No. times identified	What types of information are needed?
7	Restoration planning
6	Restoration monitoring Case studies of restoration projects Methods of assessing tidal hydrology Anadromous fish use of estuarine wetlands Estuarine wetland restoration methods
5	Costs associated with restoration Regulatory/permitting issues Funding sources for restoration
4	Channel development in estuary wetlands Public attitudes about estuarine restoration Estuarine wetland vegetation communities

Question 6 allowed additional comments:

“New ideas on restoration and monitoring is always good information.”

“It would be controversial here and the politics must be addressed.”

Question 7 asked what methods of delivering information or training would be best. Table 3 lists the responses.

Table 3 – Question 7

No. times identified	What are the best delivery methods?
7	Workshops Field trips
6	Written publications
4	Video presentations

Question 7 also allowed additional comments:

“Would be optimal to have SSNERR partner with the council for the effort identified in #6.”

“Video presentations is a very good idea along with written publications. People can learn more at their leisure.”

“At some point, information at council meeting”

Question 8 was open-ended. It asked, “Are there any specific issues associated with estuarine wetland restoration you would like to see addressed by the South Slough NERR and partners, through either an analysis of existing information or the implementation of an experimental demonstration project or series of projects?”

Responses included:

“Local government official and concerned stakeholders want to know economic costs, benefits associated with restoration, for example, what is economic potential of a site as grazing land vs. restored site (w/benefits to fish, flood mitigation, recreation, etc.). In Siuslaw, landowners are willing to restore, money is available, but local representatives do not see economic potential of restored estuarine wetlands. [An example] from South Slough may aid in management decision-making process.”

“Any issues [that] would emerge through contacts with SSNERR staff as the council is clueless about estuarine issues.”

“Restoration needs and potential of the Rogue River estuary at Gold Beach and zone of tidal influence.” “I would like to research with knowledgeable people the need or benefits, and potential of, work in the lower rogue estuary.”

“Anadromous fish use of estuarine habitat and effectiveness-monitoring of fish use in estuarine restoration projects.”

“Show landowners who have participated.”

“Yes – removing tide gates to allow flow without causing flooding. (Perceived view that it is only bad to remove tide gate.) Demo project at several sites would show impacts and effects.”

“A presentation (evening) on the value and function of estuaries down here in Curry Co. would be well-received.”

Followup interviews

The South Slough NERR conducted follow-up interviews during the weeks of June 16 and June 23, 2003, with representatives of the Phase I watershed councils that returned the survey.

These included:

- CREST/Clatsop WC
- Tillamook WC
- Siuslaw WC
- Necanicum WC

Since the majority of Phase I respondents represented the north or central Oregon coasts, South Slough NERR conducted an additional interview with a representative of the South Coast Watersheds Council in order to sample a broader range of opinions. Repeated attempts to contact representatives of the councils; were not always successful. Nevertheless, interviews conducted with two councils indicate widespread geographical interest in the training or informational products that might be developed.

Analysis and conclusions

The results of the survey indicate that many coastal watershed councils are poised to begin projects designed to restore estuarine wetlands. However, the councils need information and technical assistance on a number of pertinent topics before they can, with confidence, begin to make the physical changes necessary to re-establish natural functions on these altered lands. The councils need to know more about how to plan their projects, how to monitor them, and how to analyze the costs and benefits of various restoration treatments.

Councils also need assistance understanding the role of tidal hydrology, and understanding how anadromous fish use estuaries. Some of the councils look to the South Slough NERR as a source of technical assistance, training, and knowledge about estuarine wetland restoration.

The results indicate that a number of community groups could benefit from information or training on the subject of estuarine restoration. Changing the traditional uses of former tidelands altered for agriculture and development is a controversial topic in the Pacific Northwest. While there appears to be some support for restoration, advocates must be prepared to demonstrate the costs and benefits to coastal communities. This implies a broader need to help the public understand the need and purpose for changing the management of these lands.

Watershed councils and their communities are likely to welcome training that addresses these issues.

A copy of the telephone interview questions and answers is in the Appendix.

Appendix

Watershed councils contacted

The watershed councils contacted for this survey included:

Phase I

Siuslaw WC*
Columbia River Estuary Study Taskforce (CREST)
and Clatsop WC (combined response)*
Necanicum WC*
Tillamook WC*
Coquille WC
Coos WC
Alsea WC
Mid-coast WC

Phase II

Umpqua Basin WC*
Tenmile Lakes WC*
Lower Rogue WC*
South Coast Watersheds Council – Curry County*
New River WC**
Floras Lake WC**
Sixes River WC**
Elk River WC**
Euchre Creek WC**
Lower Rogue WC**
Hunter Creek WC**
Pistol River WC**
Chetco WC**
Winchuck River WC**
Nestucca-Neskowin WC*
Young's Bay WC
Port Orford WC
Netarts Bay WC
Lower Nehalem WC

* Returned the survey

** Represented by the South Coast Watershed Council

Figure 1. Survey instrument

(Except for the deadline date, the survey was identical for both Phase I and Phase II.)

Estuary Restoration Questionnaire

(Please respond by April 1, 2003)

Part I: Your Watershed Council

1. **Is your watershed council presently involved in restoring estuarine wetland habitats?**
 Yes No
2. **If not, do you anticipate your watershed council becoming involved in estuarine wetland restoration? How soon?**
 Yes Yes, within years No
3. **Does your watershed council need technical assistance or information about estuarine wetland restoration?**
 Yes No

Part II: Other Groups or Organizations

4. **Are other organizations, agencies or groups engaged in or contemplating estuarine restoration activities in your watershed?**
 Yes No Please identify
-
-

5. **Within your community, who needs to learn more about the purposes of, and needs for, restoration?**
(Check as many as apply)
- | | |
|---|--|
| <input type="checkbox"/> Me | <input type="checkbox"/> Our local watershed council |
| <input type="checkbox"/> Rural landowners | <input type="checkbox"/> Local government officials |
| <input type="checkbox"/> Business leaders | <input type="checkbox"/> General public |
| <input type="checkbox"/> Commercial fishermen | <input type="checkbox"/> Farmers and ranchers |
| <input type="checkbox"/> Planners | <input type="checkbox"/> State government officials |
| <input type="checkbox"/> Local land trusts or conservation groups | <input type="checkbox"/> Federal agency officials |
| <input type="checkbox"/> Local non-profit organizations | <input type="checkbox"/> State agency officials |
| <input type="checkbox"/> Other (identify) _____ | |

Part III: Types of Information

6. **What types of information about estuarine wetland restoration are needed?**
(Check as many as apply)
- | | |
|---|---|
| <input type="checkbox"/> Restoration monitoring | <input type="checkbox"/> Regulatory/ permitting issues |
| <input type="checkbox"/> Case studies of restoration projects | <input type="checkbox"/> Methods of assessing tidal hydrology_ |
| <input type="checkbox"/> Wetland Mitigation | <input type="checkbox"/> Estuarine wetland vegetation communities |
| <input type="checkbox"/> Restoration planning | <input type="checkbox"/> Estuarine wetland restoration methods |
| <input type="checkbox"/> Costs associated with restoration | <input type="checkbox"/> Funding sources for restoration |
| <input type="checkbox"/> Sediment dynamics associated with tidal wetlands | <input type="checkbox"/> Channel development in estuary wetlands |
| <input type="checkbox"/> Anadromous fish use of estuarine wetlands | <input type="checkbox"/> Public attitudes about estuarine restoration |
| <input type="checkbox"/> Other (identify) _____ | |

Additional comments:

7. Regarding information or training about estuarine wetland restoration, what formats would be most useful? (Check as many as apply)

- | | |
|---|---|
| <input type="checkbox"/> Workshops | <input type="checkbox"/> Written publications |
| <input type="checkbox"/> Field trips | <input type="checkbox"/> One-on-one consultations |
| <input type="checkbox"/> Conferences, public venues | <input type="checkbox"/> Video presentations |
| <input type="checkbox"/> Multi-media (e.g., CD with video, graphic and print presentations) | |
| <input type="checkbox"/> Other (identify) _____ | |

Additional comments:

8. Are there any specific issues associated with estuarine wetland restoration you would like to see addressed by the South Slough NERR and partners, through either an analysis of existing information or the implementation of an experimental demonstration project or series of projects?

Thank you for participating. Please mail your completed questionnaire by April 1, 2003, to:

*John Bragg, Coastal Training Coordinator
South Slough National Estuarine Research Reserve
PO Box 5417
Charleston OR 97420
fax: (541) 888-5559
email: john.bragg@state.or.us*

Telephone interview text, questions and answers

Here is the text used in the telephone interview:

“In recent months, the South Slough National Estuarine Research Reserve has been assessing the needs of watershed councils for information and technical assistance related to restoring estuarine wetlands. In April, we mailed a needs assessment survey to your organization and 26 other coastal watershed councils. Many of the respondents indicated a need for information and technical assistance within this field.

“We are calling now because your group: 1) responded to the survey, and 2) was selected for a follow-up interview to help us determine how best to assist in providing information or technical assistance related to estuarine wetlands restoration.

“Our analysis of responses to the survey indicates there is a need for assistance in planning for estuarine wetland restoration projects. In addition, respondents indicated they would benefit from assistance with: implementing monitoring programs; analyzing costs and benefits; methods of assessing tidal hydrology, understanding how anadromous fish use estuarine wetlands and case studies of existing projects. The analysis also indicates that workshops, field trips, written publications and video presentations (in that order) are the preferred methods of providing assistance.

“South Slough NERR is studying ways to develop an estuarine wetland restoration planning guide. One idea is to produce a guide that could be distributed on a compact disc. This CD would likely contain: a reference guide to federal, state and local rules related to restoration; a review of case studies of estuarine wetland restoration projects; interviews with restoration scientists about key topics such as monitoring; cost/benefit assessments; links to restoration websites and appropriate government agencies; downloadable forms, bibliographies and issue papers related to key topics, and other data. The target audience for the product would include any individual or group contemplating an estuarine wetland restoration project, as well as local and state government officials, businesses and landowners. Our goal for this product would be to provide a one-stop shopping center of sorts, where individuals, organizations, communities and groups could find information about planning, analyzing and monitoring estuarine wetland restoration projects.”

The questions and answers follow.

ON A SCALE OF 1 TO 5, WITH 1 BEING THE LOWEST AND 5 BEING THE HIGHEST, HOW USEFUL WOULD SUCH A PRODUCT BE TO YOUR GROUP?

(Rating: 4.5-5) “Such a product would be very timely right now.”

(Rating: 4) If this was a CD with information and data, staff could access it in the office but it would have limited distribution. But if it included Power Point displays that could be used educationally, the usefulness as an outreach tool would increase dramatically. In that form the CD would be very useful, since the council works with many smaller groups involved, or potentially involved, in restoration in many south coast communities.

HOW WOULD YOUR ORGANIZATION USE SUCH A PRODUCT?

Two uses were identified: a) Use to “explain to others what we’re doing.” Estuarine restorations change the landscape on a dramatic scale. The CD would be helpful in showing people, including local officials and decision makers, what can be done. b) Use for technical comparisons between case studies and current projects; provide examples of standardized monitoring between locations; help determine minimal standards (E.g., it may not be practical to sample all anadromous fish populations in a large system, but knowing what the minimal monitoring level should be can be helpful, especially when making comparisons between different projects or sites.)

The CD would be useful for general education about the value of and need for restoration because, “there is a real gap in terms of people’s understanding of what estuaries are, especially down here.” South coast estuaries are small and often become cut off from the ocean by barriers during low summer flows. Many people do not even recognize that they are discrete systems with valuable natural functions. These systems, though small, present unique challenges for restoration.

HOW WOULD YOUR ORGANIZATION DISTRIBUTE THIS PRODUCT?

Link to website; take to council meetings and other public assemblies.

Limited distribution among staff as a reference tool; wider distribution if available as an outreach tool. Within a wider program, the CD’s Power Point displays could be used as a feature presentation at meetings, training sessions, public venues, etc.

ARE THERE SPECIFIC TYPES OF INFORMATION THAT SHOULD BE INCLUDED IN SUCH A PRODUCT?

Case studies, sources of funding, regional networking and contacts

Top 10 functions of estuaries, packaged in a format suitable for schools, decision makers or general audiences; also technical data and information on how coho salmon use estuaries would be very helpful for restoration professionals and organizations such as watershed councils.

WOULD THIS PRODUCT HELP DECISION MAKERS AND COMMUNITY LEADERS UNDERSTAND THE PURPOSE AND NEED FOR RESTORING ESTUARINE WETLANDS?

“Absolutely.” Focus on the need and purpose for restoration, more than love of the environment. E.g., Improved fish production might result from restored estuarine wetlands. “Tie it to the economic side of things.” Job creation – if we get a grant to remove tide gates or install new ones, that is money spent here in the community.

“Yes – for sure.”

IF SOUTH SLOUGH WERE TO DEVELOP SUCH A PRODUCT, HOW SOON WOULD YOU LIKE TO SEE IT BECOME AVAILABLE?

“The sooner the better.”

If it came online in 2004 that would be great – we know it takes a while to develop this kind of product. This kind of information would be pretty timeless.”

Literature cited:

Malouf, B. 2002. An Inventory of Training Programs Serving the Oregon Coast. An analysis of current environmental training programs serving the Oregon coast. South Slough National Estuarine Research Reserve.

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South Slough National Estuarine Research Reserve Coastal Training Program

The Coastal Training Program Advisory Group

(Amended April 24, 2003)

Introduction

The South Slough National Estuarine Research Reserve has selected an advisory group to assist in developing a Coastal Training Program (CTP). The first meeting of the advisory group was Feb. 20, 2003. This document describes the purpose, duties, and membership of the advisory group.

The advisory group was assembled to meet requirements of the National Oceanic and Atmospheric Administration's National Estuarine Research Reserves System for qualifying South Slough NERR's CTP as fully operational. This report is one of several planning documents South Slough NERR must submit to the CTP technical committee to meet the qualification guidelines.

Purpose of the group

Over the long term the advisory group will help to ensure relevance, buy-in, and continued networking and support for training programs. The advisory group includes representation from Oregon State University Sea Grant and the Oregon Department of Land Conservation and Development's Coastal Program. It includes a member of South Slough NERR's management commission as well as key partners, including the Coos Watershed Association, the Oregon Department of Fish and Wildlife, the Oregon Department of Environmental Quality and the Tillamook Estuaries Partnership. Technical advisors to the advisory group include staff members of the South Slough NERR research, education and stewardship programs.

Membership guidelines

Membership is by invitation and members serve at their pleasure. There is no fixed term of membership or limit on the size of the advisory group. Under NOAA guidelines, membership must include representation from Sea Grant and Oregon Department of Land Conservation and Development. Advisory group members may recommend for membership other individuals whose knowledge or expertise may be of value in developing the CTP. Advisory group members are selected based on their knowledge of and familiarity with:

- Oregon's estuarine management issues
- Methods for delivering environmental education and training.

As the CTP develops, the South Slough NERR will seek additional advisory group members from among local and regional partners, stakeholders, educators and coastal managers with an eye toward acquiring expertise relevant to newly identified training topics.

The advisory group will meet twice a year during the early stages of program development (the next 2-3 years). South Slough NERR envisions the group meeting at least annually over the longer term. The intent is for the South Slough NERR to maintain the CTP advisory group over time representing key partners, environmental educators, and agency representatives that can benefit from and contribute to CTP strategy development.

Decision-making

During its first meeting, the advisory group operated without a specific mechanism for making group decisions. The meeting format was of an informal, get-to-know-each-other style. At the next meeting of the advisory group, the group will be asked to agree upon a formal method for making group decisions. The group's recommendations and decisions are advisory only and subject to the approval of the South Slough NERR management commission.

Advisory Group duties

Specific tasks for which the advisory group was asked to provide assistance at the February meeting included:

- Determining the priority of training efforts across six categories identified in the market analysis for potential coastal training.
- Based on the prioritization of these categories, recommending appropriate or additional target audiences.
- Determining appropriate methods for delivering training.
- Identifying future partners to assist with funding, developing, and/or delivering training programs.
- Other duties determined appropriate by the advisory group.

Advisory group membership

Members of the advisory group are listed in the appendix.

Appendix

Coastal Training Program Advisory Group

Revised April 23, 2003

Mike	Gray	District Biologist	Oregon Department of Fish and Wildlife, Charleston	(541) 888-5515
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South Slough National Estuarine Research Reserve Coastal Training Program

Environmental Training Programs Serving the Oregon Coast: A Market Analysis of Existing Environmental Training Opportunities

Executive Summary

Dec. 23, 2002

The market analysis, Environmental Training Programs Serving the Oregon Coast: A Market Analysis of Existing Environmental Training Opportunities, was undertaken in order to develop a workplan for the Coastal Training Program (CTP) at South Slough National Estuarine Research Reserve (SSNERR) and to meet a requirement of the National Oceanographic and Atmospheric Administration for certifying the CTP as fully operational. The Coastal Training Program is a national initiative of the National Estuarine Research Reserve (NERR) system. It developed from a series of coastal decision maker workshops tailored to address the specific training needs of professional audiences working on coastal management. The first of these coastal decision maker workshops was conducted in 1988 at the Rookery Bay NERR in Florida and targeted environmental professionals.

The analysis identifies gaps and trends in current training available from a wide variety of sources and gives some indication of the target audiences and topics on which SSNERR should focus its coastal training efforts. The methods used to collect information for this inventory included telephone contact, written surveys and an email survey for training providers, as well as extensive research on the Internet and informal conversations with coastal decision-makers.

The analysis gives insight into the nature of existing training programs and opportunities, the audiences served, the topics covered, and the way the training fits into the overall mission of the providing organizations and institutions. Interviews also were conducted with South Slough staff to assess the audiences and topics addressed by current SSNERR training programs and workshops.

The staff of the Rookery Bay Reserve found coastal resource managers benefited from training informed by current research and best management practices. In 1993, a NOAA sponsored initiative resulted in establishing the training capacity at 11 reserves. Recently within the NERR system NOAA has developed an initiative encouraging individual reserves to offer coastal decision maker workshops that addressed local and regional environmental concerns.

The market analysis identifies at least six topics of environmental concern where the CTP can be of, including:

- **Marine Protected Areas and Marine Reserves** – Oregon and the federal government have approved the establishment of marine protected areas that provide critical habitat for fish, invertebrates and plants, but the use and application of reserve areas is controversial.
- **Invasive species** – The encroachment of non-native plant and animal species, both terrestrial and aquatic, poses serious ecological and economical challenges for coastal and inland communities.

- **Ecotourism** – While environmentally-based tourism is growing in popularity, it has yet to make a significant impact upon Oregon’s coastal economy or environment. Developing ecotourism may provide economic benefits, but too rapid a development presents its own environmental challenges.
- **Water quality** – Both sufficient water to meet coastal communities’ needs, and water of sufficient quality to protect their citizens’ health, are necessary. Reducing nonpoint source pollution and helping coastal cities manage storm water offer important arenas for environmental training.
- **Climate change** – Changing climate may have important consequences, such as altering the severity of storms or the distribution of species on the Oregon coast, but for the most part the effects are unknown.
- **Tideland restoration** – South Slough has provided lead research in restoring tidal flows to formerly diked and drained coastal wetlands.

Research at South Slough National Estuarine Research Reserve includes programs on saltwater marsh restoration, control of invasive plant and marine animal species, distribution of marine species in the nearshore environment, and water quality monitoring.

Training based on the research program may offer the best opportunity to provide significant assistance to coastal decision makers. Respondents to the pilot survey were asked what types of training would be beneficial. They indicated that policy or legal training, ecosystem (“big picture”) training and technical training would be beneficial.

Environmental Training Programs

Serving the Oregon Coast



A Market Analysis of Existing Environmental Training Opportunities

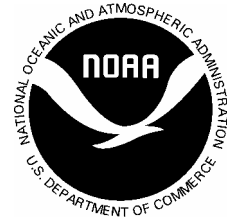
prepared by

South Slough National Estuarine Research Reserve's

Coastal Training Program



June 7, 2002



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Acknowledgements

This work and final report was made possible by support from the National Oceanic and Atmospheric Administration's Estuarine Reserves Division. The information provided by South Slough staff and the support of the South Slough Management Commission has been very valuable. Most importantly, the cooperation and assistance from all of the individuals providing information has made this project successful.

Overview of the Coastal Training Program

National Initiative

The Coastal Training Program is a national initiative of the National Estuarine Research Reserve (NERR) system. The CTP has its foundation in coastal decision maker workshops that address the training needs of professional audiences working on coastal management. Rookery Bay NERR in Florida was the first reserve to formally target the environmental professional audience in 1988 with "coastal decision-maker" workshops. The education staff at the reserve found that many coastal resource managers benefited from training based on current research and best management practices. By 1994, the entire NERR system adopted a program encouraging reserves to offer coastal decision maker workshops that addressed issues of local and regional concern.

These workshops were useful, but the NERRs education coordinators agreed that they would be more effective as part of a comprehensive and strategic approach to serve the needs of coastal decision makers. The goal of the Coastal Training Program is to develop the capacity within the NERR system as a whole and each NERR individually to provide training programs that improve coastal resource management.

Coastal Decision Makers

Every day people make decisions that greatly affect the health of Oregon's coastal and estuarine ecosystems. The cumulative effect of these decisions, for better or worse, will be felt for decades, maybe longer (see Table 1). Not surprisingly, many of the decision-makers are people who specialize in fields that do not include training in ecology or aquatic sciences or who have very little time to keep up with the latest research.

Table 1: Aspects of estuarine health affected by coastal management practices and policies.

- 1) Species abundance, composition, and spatial/temporal distribution
Examples: protection of endangered species, exclusion of invasive species, management for sustainable human food, fiber and fuel supplies.
- 2) Nutrient, pollutant and sediment quantity, composition, distribution
Examples: control of bioaccumulative toxins, erosion control in uplands to reduce sediment loads in waterways, nutrient management to prevent eutrophication.

- 3) Energy flow (micro and macro climate change)
Examples: loss of shade increasing upland stream temperature, global warming altering ocean circulation.
- 4) Water quality, abundance, distribution
Examples: sustainable use of human drinking water supply, floodplain management to reduce frequency of destructive floods, minimize pollution to protect water uses.
- 5) Overall resistance and resilience of ecosystem
Examples: allowing the estuary to respond to natural fluctuations in climate, managing the ecosystem so that it can respond to human modification without long-term consequences.
- 6) Health and prosperity of human residents
Examples: addressing poverty in coastal communities, increasing access to health care, education, employment, and a sense of community.

Essentially every aspect of estuarine health is affected by the decisions that coastal managers make. If we try to provide coastal training opportunities to address every coastal management decision, we will be spread too thin and ineffective. By turning to the coastal managers to find out the best way we can support their efforts, the CTP helps ensure that our limited resources are spent in a way that contributes to overall estuarine health in our bioregion.

As part of the development of the CTP at South Slough NERR, we have defined quality coastal training as:

- Targeted for a specific audience engaged in paid or volunteer work that affects the health of coastal ecosystems, particularly estuaries
- Accurate and relevant so that specific actions can be taken based on what people have learned
- Bringing together the best people and resources on a topic
- Integrated with other decision-making resources
- Enjoyable, engaging, and easy for the target audience to participate in

We have distinguished the CTP from other outreach and education efforts by determining that it is:

- Not a public involvement or volunteer recruitment program
- Not a marketing tool for the Reserve or any other organization
- Not general education or information about coastal issues

Looking at the Coastal Training Market

Objectives

The main objective of the market analysis was to understand the organizations that currently offer training for coastal decision makers. To accomplish this developed an inventory of training programs available to coastal decision-makers in the Lower Columbian Bioregion.

A secondary objective was to establish communication between South Slough staff and coastal training providers in order to share information and resources. Because of the relatively small coastal training market in Oregon and our interest in building relationships through this process, we took an approach to collecting data that allowed for personal contact.

Methods

First we defined coastal training as: specialized education or professional development targeted for an adult audience engaged in paid or volunteer work that affects the health of coastal ecosystems.

Next we identified potential coastal decision makers and the broad topics that could fit within a coastal training program (see Table 2). This analysis formed the basis of our inventory. We asked the staff of SSNERR and representatives from other organizations involved in coastal training for their suggestions for training providers that might address any of these broad topics. This list of training providers grew during the interview process because we asked respondents to identify other potential training providers. We conducted some initial background research using the Internet and written materials for each training provider. Basic information about the organization and contacts was entered into an MS Access database. Additional information, including the main issues or topics addressed by the organizations, their areas of focus and their target audiences was included in the database.

Table 2: Comprehensive list of topics of “coastal decisions”

Hydromodification [Individual land managers, state and federal agencies]:

What activities/hazards justify significant modification of waterways, what alteration is desirable/acceptable, how is compliance enforced/encouraged, watershed activities to reduce sediment input.

Commercial Fisheries [Consumers, fishers, regulatory agencies, federal]:

How much harvest of which species, by what methods, when and where, how is compliance enforced/encouraged, what steps are taken to mitigate the effect of this harvest, watershed restoration activities, health of ecosystem.

Recreational Fisheries/Game Wildlife Management [Individual hunters/fishers, state and federal agencies]:

How much harvest of which species, by what methods, when and where, how is compliance enforced/encouraged, what steps are taken to mitigate the effect of this harvest, response to predator/invasive species.

Non-Game Fish and Wildlife Management [Residents, visitors, non-residents, federal/state, local government]:

Gauging and/or altering attitudes about non-game species, habitat conservation and enhancement activities, response to invasive species, response to predator species.

Coastal Environmental Disaster/Hazard Response [Residents and visitors, local government, federal, state]:

Understanding risk as part of municipal planning, coordinating effective interagency work, mobilizing monitoring and clean-up efforts, response to coastal hazards, including flooding and catastrophic erosion.

Aquacultural Practices [Individual aquaculturists, regulatory agencies, state and federal]:

Techniques for seeding, growing, harvesting, processing, interactions between wild and cultured organisms.

Municipal Planning/Economic Development [Residents, local government, state, federal]:

Transportation and communications infrastructure, recreation and tourism development, new business and industrial development in coastal areas, water-dependent commercial/industrial uses, setting and achieving acceptable levels of municipal/industrial/commercial effluent, municipal/ industrial/commercial water use, waste management, zoning/land use planning to encourage smart growth, erosion control practices on new and re-development, public works – road and sewer maintenance, stormwater management.

Coastal Decision-Making Process/Local Capacity Building [All levels of government; residents]:

Evaluation of possible environmental consequences, conflict management, relationships between local, state and federal partners, consideration of appropriate temporal and spatial scale for planning.

Coastal Agricultural Practices [Individual farmers, regulatory agencies, mostly state and federal]:

Cropping systems/tillage practices, pasture management, chemical and organic inputs, on-farm watershed restoration activities, managing animal wastes.

Coastal Forest Practices [Consumers, individual foresters, timber companies, federal/state foresters, regulatory agencies]:

How much harvest of which species, by what methods, when and where, what steps are taken to mitigate the effect of this harvest, watershed restoration activities, response to invasive species.

Coastal Mining Practices [Individual land managers, mining industry, state and federal agencies]:

How much removal of which materials by what methods, when and where, how is compliance enforced/encouraged, what steps are taken to mitigate the effect of this removal, what to do with abandoned mines.

Citizen Behavior [Individual land managers]:

Residential water use, septic tank maintenance, small-scale land management, encounters with non-game wildlife including marine mammals, recreation and tourism, land and water based activities, maintenance and operation of recreational vehicles/vessels, response to environmental regulations, food, fiber and synthetics consumption and disposal habits, energy use, household waste management.

Email Contact

We sent requests for information by email to twenty-five people. Six were returned as of 14 January 2002. Reminders were sent out to improve the response rate. Email surveys were sent to only one individual within each organization, with the request that the message be forwarded to the most appropriate person. In two cases, someone other than the original addressee responded.

Telephone Contact

We completed interviews with 13 people by telephone. Another 11 were contacted, but were not reached for interviews. Records were kept on how many calls were made and the results of each attempt. Some of these may still return calls or respond through email. These interviews followed a questioning route, but were not scripted surveys. This flexibility allowed for greater probing and clarification, but reduced our ability to compare the data we collected.

The questions focused on the training or professional development opportunities available to coastal decision-makers and the potential for collaboration on future coastal training. Contact information was collected for additional people and organizations that might be contacted as the focus topics and target audiences for the Coastal Training Program develop.

Pilot Survey: Coastal Land Use Planners and Water Quality Protection

We also gained useful information from participants at two workshops offered to coastal land use planners. These workshops were part of a series of three informal, day-long events that included county and city planners, state agency personnel, elected officials, and consultants. We were presenting, and soliciting feedback on, draft educational materials (primarily slide shows) for planners and others to use to communicate with elected officials. The educational materials were supplemental to a guidebook on regulatory techniques for local jurisdictions for reducing non-point source pollution caused by land development.

In this pilot survey, we were testing both the survey instrument and the method (i.e., allowing for time during a workshop for participants to complete a written needs assessment). We distributed a written questionnaire to all participants of the March 2001 workshop in Tillamook, Oregon. Based on responses and feedback, we modified the questions and layout slightly and then handed out a similar survey to all participants at the April 2001 workshop in Newport, Oregon (see Appendix A for surveys).

We received 12 completed surveys from the first group and eight completed surveys from the second group. The only workshop participants who did not complete surveys were those who did not work for or with any city or county jurisdiction (see Question 1 of the surveys). The data collected with this survey is only useful in a general sense and does not reflect a rigorous assessment of this audience's training needs and interests. This was intended as a pilot test for a future study.

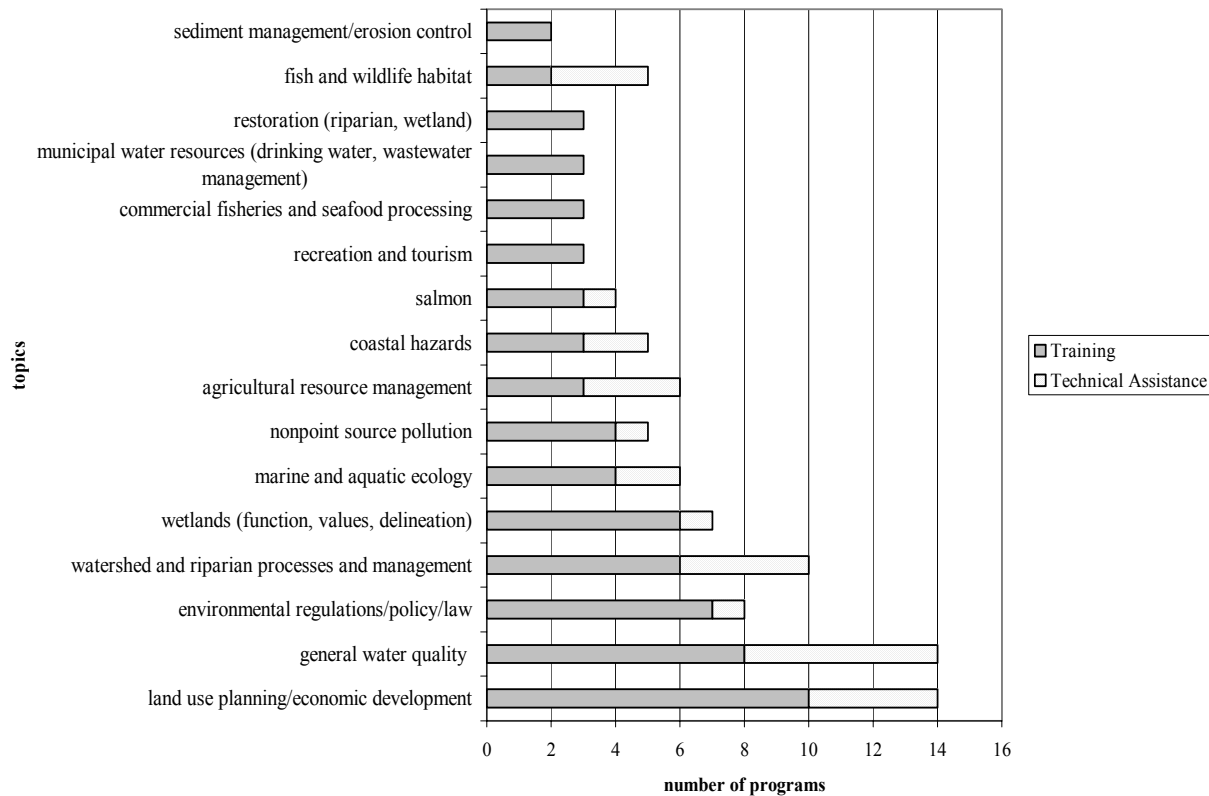
Results of the Coastal Training Inventory

The inventory provides a snapshot of training and professional development opportunities available on a range of issues that are potentially related to the Oregon coast. With a combination of research, in-person meetings, email, and phone contact we collected information on over sixty organizations. Thirty-four of those offer training or professional development workshops of some kind. Eight organizations offer training, technical assistance, and technical information. Fifteen organizations offer only technical assistance or one-on-one training to individuals; eight others offer both technical assistance and training. Forty organizations offer technical information in some form in addition to training or technical assistance. Organizations that offer only technical information were not included in the inventory.

The most common topic among the programs inventoried is coastal land use planning and community development (see Figure 1). Several of the topics covered by training programs deal with inland aquatic resources but could be useful for coastal decision-makers with minimal translation.

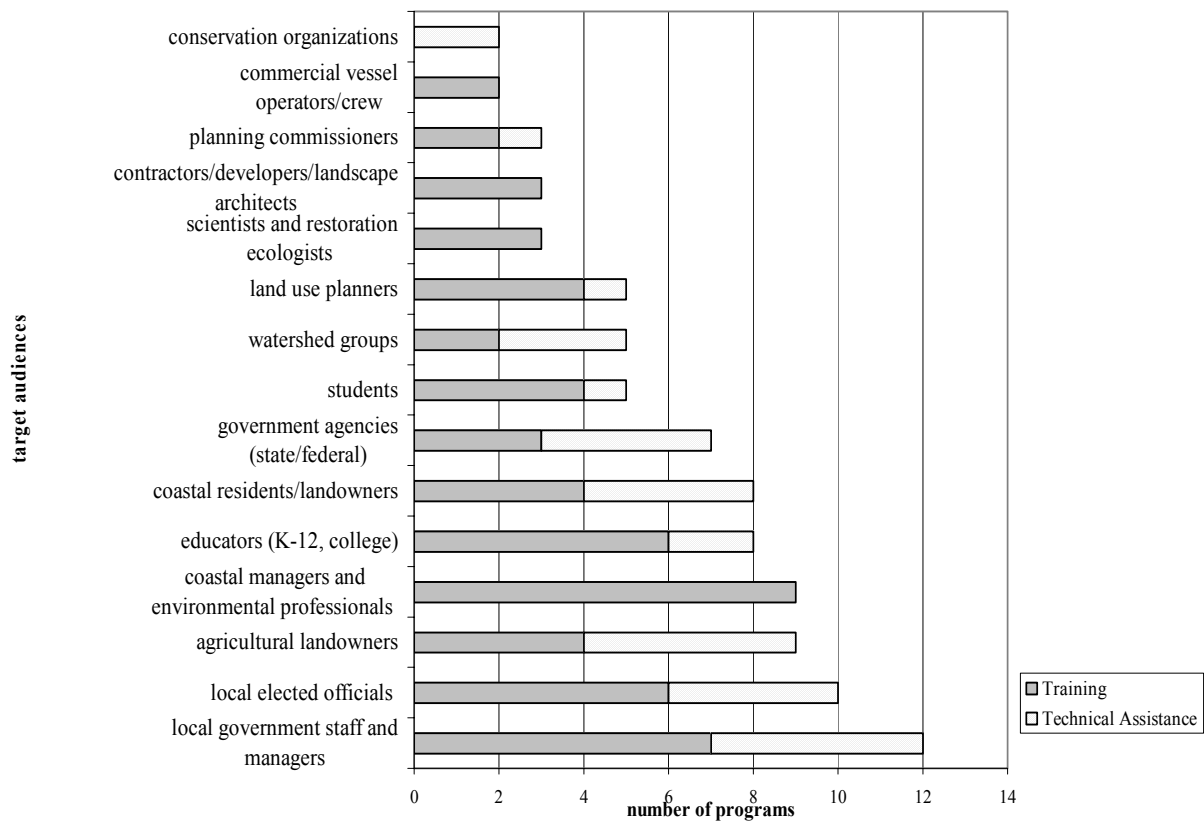
[Note on Figure 1: Respondents were not asked to fit their programs into set topical categories, so the list of topics in Figure 1 represents a range of specialization. Hence, both “salmon” and “fish and wildlife habitat” appear. Some topics were grouped together for this listing and some that only appeared once were omitted from this list.]

Figure 1. Training Topics of Inventoried Programs



The primary audiences targeted by the inventoried training providers reflect the range of training topics (see Figure 2). Some programs might be better classified as “education” rather than training because they are designed for broad audiences (such as “coastal residents”). Others focus on small groups that are based on membership in professional organizations or previous training. The general audience that is most targeted is local government staff, followed by local elected officials. Targeting an audience does not necessarily mean that a program actually serves that audience. Follow-up research will be needed to assess the degree to which these targets are actually reached.

Figure 2. Target Audiences of Inventoried Programs



The common characteristics among training programs is most clearly illustrated by dividing them into ten basic categories that reflect the mission of the training providers:

- community colleges
- university programs
- federal agencies
- state agencies
- local partnerships
- regional partnerships (public/private or cross-jurisdictional public)
- non-governmental organizations (NGO)
- private organizations
- professional associations
- tribal organizations

Community colleges

The three community college programs in this inventory do not include all of the coastal community colleges in the region, but they do represent those that are most likely to be important to South Slough NERR's CTP. The Urban Watershed Institute at Clackamas Community College is a well-developed watershed management program that offers certification and day-long conferences. These are focused on urban issues, such as stormwater management and urban riparian restoration, which do not necessarily transfer to coastal Oregon. Marine and Environmental Research and Training Station (MERTS) of Clatsop Community College is on the North coast and offers professional development courses and licensure with an emphasis on commercial vessel operations. Southwestern Oregon Community College (SWOCC), our nearest community college neighbor, offers an Environmental Science and Forestry Program. Degrees available at SWOCC include Associates in Applied Science in Environmental Technology, in Forest Technology, and in Landscape Technology.

University programs

The university programs primarily focus on full time students seeking degrees with the exception of Oregon Sea Grant and two professional development programs at Portland State University. Undergraduate and graduate education that prepares people for work as coastal decision makers does not strictly fit our definition of training, but we investigated the prominent programs in this bioregion. The University of Oregon's Oregon Institute of Marine Biology in Charleston, OR is already a key partner in the research and education activities of SSNERR and could play an important role in future training efforts at the Reserve. Oregon State University's Hatfield Marine Sciences Center in Newport houses several university and governmental programs and is clearly a critical part of the coastal training scene in Oregon. The Marine Resource Management Program at Oregon State University awards 7-10 Masters degrees per year in one of four concentrations (Ocean and Coastal Resources, Marine Fisheries, Marine Pollution, and Marine Recreation and Tourism).

Oregon Sea Grant (including Extension Sea Grant) is a university-based, statewide program providing support for research, education, and outreach based on a partnership between the state and the federal government (NOAA). Extension Sea Grant offers one-on-one training, information, and local workshops on the coast and in some inland areas. Topics include fisheries, marine safety, seafood production and food safety, coastal hazards, aquatic ecosystem health, community capacity-building, and a variety of other issues determined by strategic planning and the expertise of local extension agents or specialists.

Two other university programs that serve non-student audiences are based at Portland State University: the Watershed Management Professional Program (WMPP) within the Executive Leadership Institute of the Hatfield School of Government and the Wetland, River and Watershed Professional Development Program within the School of Extended Studies. WMPP targets public and private environmental professionals and offers training in current resource management issues with a slant towards policy issues including watershed health, water quality policy, salmon recovery and restoration. The Wetlands, River and Watershed Professional Development Program includes specialized environmental assessment and design courses, some of which apply toward

Certification as a Professional Wetland Scientist. Neither PSU program has a coastal focus, but according to a PSU representative, people do travel from the coast to take courses in Portland.

Federal agencies

Training by federal agencies in this region focuses on landowners, primarily agricultural landowners, and federal employees' professional development. Although the inventory does not include these programs, the main way federal agencies impact the training market in this region is through grant support of local or state programs. An example of this is the Coastal Zone Management Act funds that provide the Department of Land Conservation and Development with training and technical assistance funds.

There are several national training centers not included in this inventory such as the federally-supported National Environmental Training Center for Small Communities. Other examples of national programs include the US Army Corp of Engineers' dredging and sediment management courses.

The United States Environmental Protection Agency (EPA) produces an inventory of watershed training courses available across the country primarily from state and federal agencies (<http://www.epa.gov/owow/watershed/wacademy/catalog.html>). The EPA also offers the Watershed Academy which is made up of internet-based distance learning training modules. These and other online courses are available to anyone with adequate internet connectivity, but these were also not included in this inventory.

State agencies

The training provided by state agencies focuses on providing decision makers with the skills and knowledge needed to meet responsibilities and regulations, e.g., Division of State Lands, wetlands; Oregon Department of Transportation, safety; Oregon Watershed Enhancement Board, salmon habitat restoration; Department of Environmental Quality, Clean Water Act issues including total maximum daily loads for streams and non-point source pollution; Department of Land Conservation and Development, land use and planning. Outreach, one-on-one technical support, and information sharing is more common than ongoing coastal training from state agencies. State agency personnel are often involved in other training venues (such as professional association workshops).

Local Partnerships

The two local partnerships included in this inventory are representative of similar groups on the coast: the Coos Watershed Association and the Coos Soil and Water Conservation District. There are more than 30 watershed associations and 7 soil and water conservation districts with stewardship interests in Oregon's coastal zone. Training is not the primary mission of any of these local partnerships, but they are committed to education and outreach and they can reach many different audiences.

Regional partnerships

In addition to the watershed level organizations, there are several important regional organizations such as the Lower Columbia River Estuary Program, the Columbia River Estuary Study Taskforce, and the Tillamook County Performance Partnership. Their missions include education and outreach, sometimes to residents in general and sometimes focused on specific decision maker audiences. Some of these programs also offer training workshops or technical assistance.

Non-governmental organizations

There are two main categories of non-governmental organizations (NGO). There are the issue advocacy groups such as For the Sake of Salmon and Oregon Trout, that target multiple audiences, but address primarily one or two issues. There are also NGOs that focus on a single audience, but address a variety of coastal issues. One example of this is Shoreline Education for Awareness (SEA) which trains interested coastal residents as docents for coastal visitors.

Private organizations

This category is most likely not fully captured by this inventory. Only one private organization, the Environmental Law Education Center in Portland, is included in this inventory. They provide specialized training in dredging and sediment management, water quality policy, and Endangered Species Act compliance. It is not clear how accessible these and other Willamette Valley and Portland Metro training opportunities are to coastal decision makers.

Professional associations

Professional associations generally do not exist for the sake of training alone, but they can include training and professional development in their mission. Training is usually provided during annual conferences and focuses on current, hot topics. There are often opportunities for on-going sharing of techniques and solutions. Training is generally organized by members for members, but often brings in expertise from other groups. Technical workshops can be offered as part of an annual conference or throughout the year. Some associations, such as the Oregon Chapter American Planning Association, have sub-committees dedicated to providing quality professional development and training to members.

Tribal organizations

There were no tribal organizations found in this region specifically offering training. This is an area of the inventory that should be investigated further. We did include several tribal training and professional development organizations based in other areas of the country but serving environmental professionals in this region. The Institute of Tribal Environmental Professionals mainly targets tribal air quality professionals while the Native American Water Association targets tribal wastewater operators and managers.

Trends

Issues of water quality (and quantity) will continue to grow in importance as Oregon's coastal zone population increases. With the increase of population, the need for appropriate training will also grow. There are about 30 watershed associations in the coastal zone. Most of those

organizations began by addressing rural, land and forest-based problems such as erosion, habitat restoration, streamside protection, etc. Increasingly watershed associations are beginning to address urban issues, including non-point source pollution and storm water runoff, among others. Related issues include:

- Total maximum daily loads (TMDLs). These regulations, which up until now have addressed mostly agricultural pollution issues such as manure flow into streams, are coming to cities. Under Section 303(d) of the Clean Water Act, TMDLs are used to regulate the maximum amount of pollution allowed in streams that fail to meet federal clean water standards, and apportion the responsibility for that pollution to various water users such as agriculture, industry, and cities.
- National Pollutant Discharge Elimination System Phase 2 Permitting Program (NPDES II). Water pollution degrades surface waters making them unsafe for drinking, fishing, swimming, and other activities. As authorized by the Clean Water Act, the National Pollutant Discharge Elimination System permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. Point sources are discrete conveyances such as pipes or ditches. Individual homes that are connected to a municipal system, use a septic system, or do not have a surface discharge do not need an NPDES permit; however, industrial, municipal, and other facilities must obtain permits if their discharges go directly to surface waters.
- Endangered Species Act. Recent changes in administrative policy, combined with recent court decisions, have altered the way the ESA is applied to protect some fish including Pacific salmon. The changes include reducing or eliminating critical habitat designations in some cases. How these changes will affect coastal decision-making and training is unclear.
- The effects of Measure 7, approved by Oregon voters, are unclear.
- Oregon's financial crunch is likely to get worse before it gets better.
- Fishing, logging, and farming industries are not thriving on the coast. Most recently (May 28, 2002) federal fishery managers announced the likelihood of a complete moratorium on groundfish harvests of rockfish on the continental shelf to protect over fished and depleted stocks of yellow eye, canary and bocaccio rockfish.

Current Coastal Training Resources and Efforts at South Slough National Estuarine Research Reserve

Based on recent funding and discussions with staff at SSNERR, the CTP has a variety of resources available for the initiation of the program and its long-term development. As of 2002, SSNERR has available:

- Funding at least through 2003 for
 - 1 FTE (plus partial FTE for temporary help)
 - a small budget for workshops, equipment and partnerships
- Existing staff time (approximately 0.25 FTE total)
- Equipment, including a laptop computer, workstation, LCD projector, portable color printer, web design/graphics software

- Water quality and urban development training materials (publications and videos)
- Existing web space and a preliminary site
- MS Access databases
 - Coastal decision maker contacts
 - Market analysis contacts
- Advisory group expertise (pending formation of the group)
- Partnership support on most topics
 - Oregon Sea Grant
 - Ocean/Coastal Program
- Support from other training providers interested in reaching the Southern Oregon Coast with our assistance

Another critical resource that the CTP will tap is the depth of knowledge and professional expertise that the South Slough NERR staff has to offer. The education, stewardship and research programs at the South Slough NERR already contribute to coastal training efforts in this region through both formal and informal communications. While some of these activities might not fit our definition of coastal training, they are all potential building blocks for a comprehensive coastal training program.

Lectures, seminars, and workshops

- Lecture series (cultural history, economic/social trends along the coast, wildlife, invasive species, sustainability)
- Teacher/parent/helper training for class visits to SSNERR
- Wetland restoration techniques course
- Coastal decision-maker workshops
 - Water trails (broadening understanding of estuary topics with community economic development implications)
 - Marine Activity Resource Education (MARE) (teacher training)
 - Water quality model code workshops
 - Pony Creek watershed assessment (community meeting to share initial results of assessment work)
 - National Estuaries Day
 - Needs assessment training workshop
- Salmon and Estuaries Conference at Oregon Institute of Marine Biology
- Tideland restoration workshop
- Seminars
 - Linkage between nearshore and estuaries
 - Oyster/eelgrass ecology
 - *New Carissa* impacts (1998 oil spill)
 - Shoreline change seminar with NAME conference
- Wetland restoration sessions at professional association conference
- Other courses: estuarine ecology science and management, marine and estuarine larval invertebrates (Oregon State University Marine Station)

Informal Information Sharing

- Field visits plus mini-consultations for new wetland restoration projects
- Interaction with the public and SSNERR Interpretive Center visitors
- Working with volunteers
- Bioregional habitat conservation planning
- Information sharing and informal technical training
 - Advisory role leading to informal, personal contact with researchers, agency personnel, private industry
 - Ongoing work with the Coos Watershed Association
 - Technicians interested in dye-marking techniques, net sampling techniques
 - Working with Youth Corp and students
 - One-on-one training, individual contact with restoration practitioners
 - Working with graduate students as part of the System-wide Monitoring Program (SWMP)

Target Audiences in This Region

One of the keys to a successful training program is clearly identifying target audiences. By specifically targeting a group of people with common professional traits, it becomes possible to realistically identify and address their interests, skills, and training needs. We are already offering valuable training to the coastal decision makers on the Southern Oregon Coast, but the needs assessment will allow us to focus our efforts to provide the greatest benefit to the Oregon and northern California coast. It is important that the knowledge and expertise of the SSNERR be tailored to meet specific training needs identified by the target audiences.

Preparing a needs assessment based on the information gathered in this market analysis is the next phase of the CTP. The needs assessment will provide SSNERR with information to significantly enhance its training for coastal decision makers and build stronger connections between the work of the Reserve and regional coastal management.

After identifying and selecting a target audience, that audience will assist the coastal training program coordinator in identifying training topics that are most needed for their work. This section provides an initial discussion of topics that might become part of the Coastal Training Program.

Potential Coastal Decision Makers Audiences

Identifying potential target audiences will be critical to determining the specific training opportunities we will offer. There are more audiences than we can address, but it is actually a smaller community of people and decision makers than one might expect from such a large geographic area. According to Oregon Coastal Management Program statistics, 225,000

Oregonians live within the coastal zone in Oregon. This coastal zone includes part or all of seven counties, nearly 30 cities, and three federally recognized tribal nations. There are more than 30 watershed associations with stewardship interests in Oregon’s coastal zone. There are 23 ports in Oregon, including those on the coast and on the Columbia River and 22 estuaries along the Oregon coast.

Table 3: Potential Coastal Decision Makers Audiences:
Members and leaders of watershed councils (about 30 watershed councils in the coastal zone)
Members and leaders of soil and water conservation districts (7 districts in the coastal zone)
Land use planners
Policy makers (including statewide planning, estuary management planning)
Diking districts (flood control entities)
Environmental professionals (consultants)
State and local elected officials (county commissioners, city councilors, mayors, legislators)
Municipal employees (city managers, road maintenance staff)
Oyster growers
Farmers and other land managers
State and federal staff (particularly regulatory agencies)
Commercial, industrial and residential water users
Seafood processors and other local industry
Coastal researchers *
Resource users (boaters, fishers)*
Environmental educators*
Coastal residents*

* These categories may or may not be appropriate audiences for coastal training but are included here for the sake of discussion.

The pilot survey data can give us some direction for which audiences we might target for water quality related coastal training (see Figure 3). Survey respondents included land use planners, state agency personnel, elected officials, and local government staff. Local elected officials were identified as potentially benefiting from training more than any of the other groups. When asked what the main barriers are to implementing water quality protection strategies, respondents indicated that both a lack of resources and public attitude about environmental regulations were both barriers (see Figure 4). This indicates that training for local officials in ways and reasons to secure funding for water quality protection would be useful, particularly in combination with general outreach and education for coastal citizens.

Another approach to determining the primary audience to address is to determine which coastal management issues are currently most important to the health of estuaries in the bioregion. This “triage” approach would require us to determine the pressing environmental issues and then identify the key decision makers affecting those issues. Figure 5 shows the responses from workshop participants when they were asked which factors were affecting water quality in their community.

Figure 3: Who Would Benefit from Access to Training?

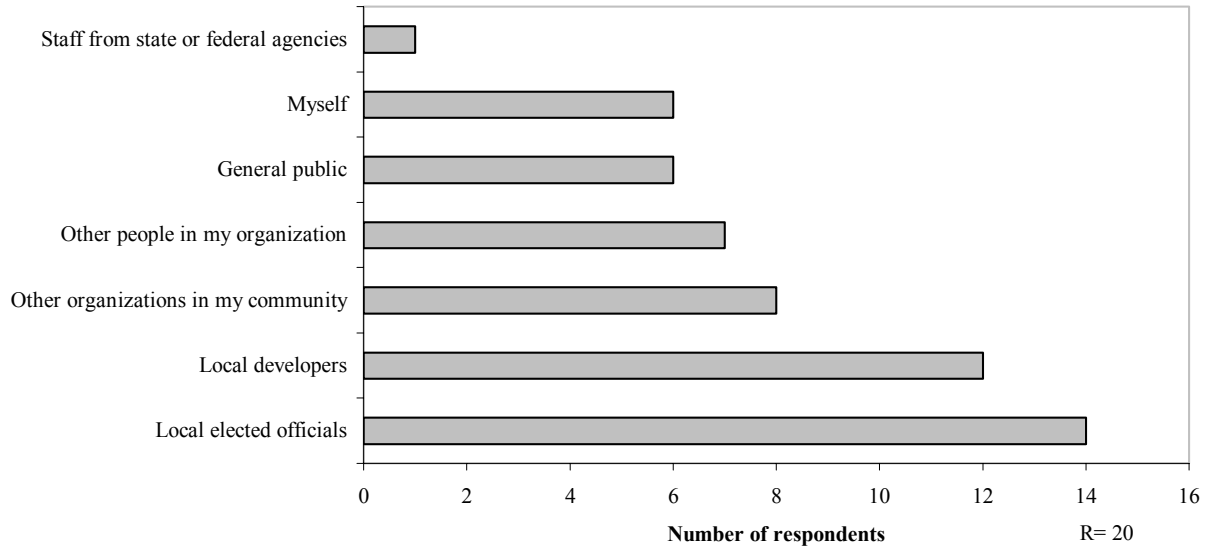


Figure 4. Main Barriers to Local Water Quality Protection Strategies

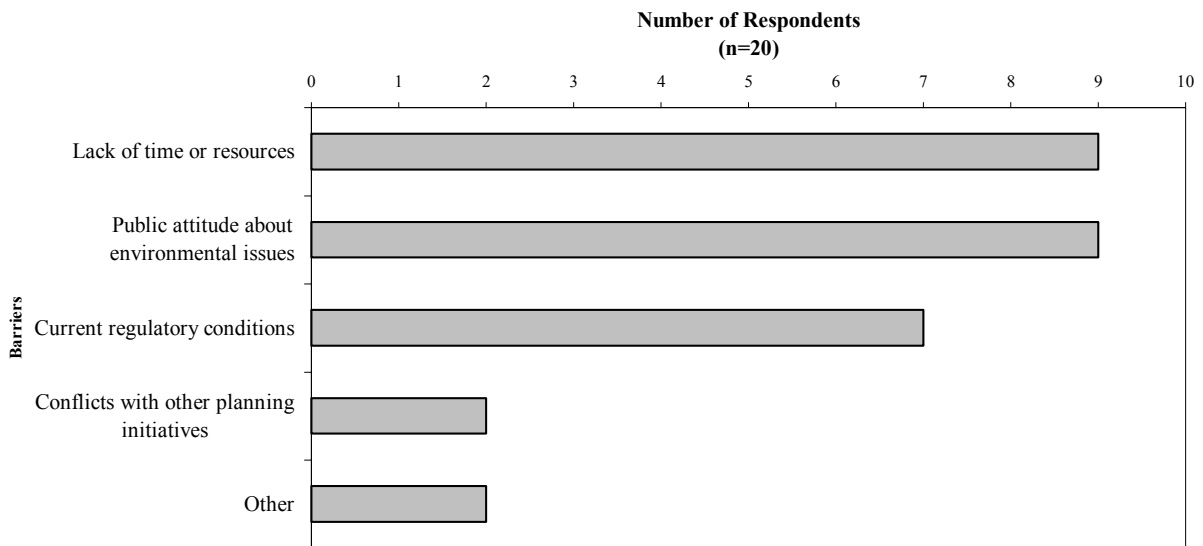
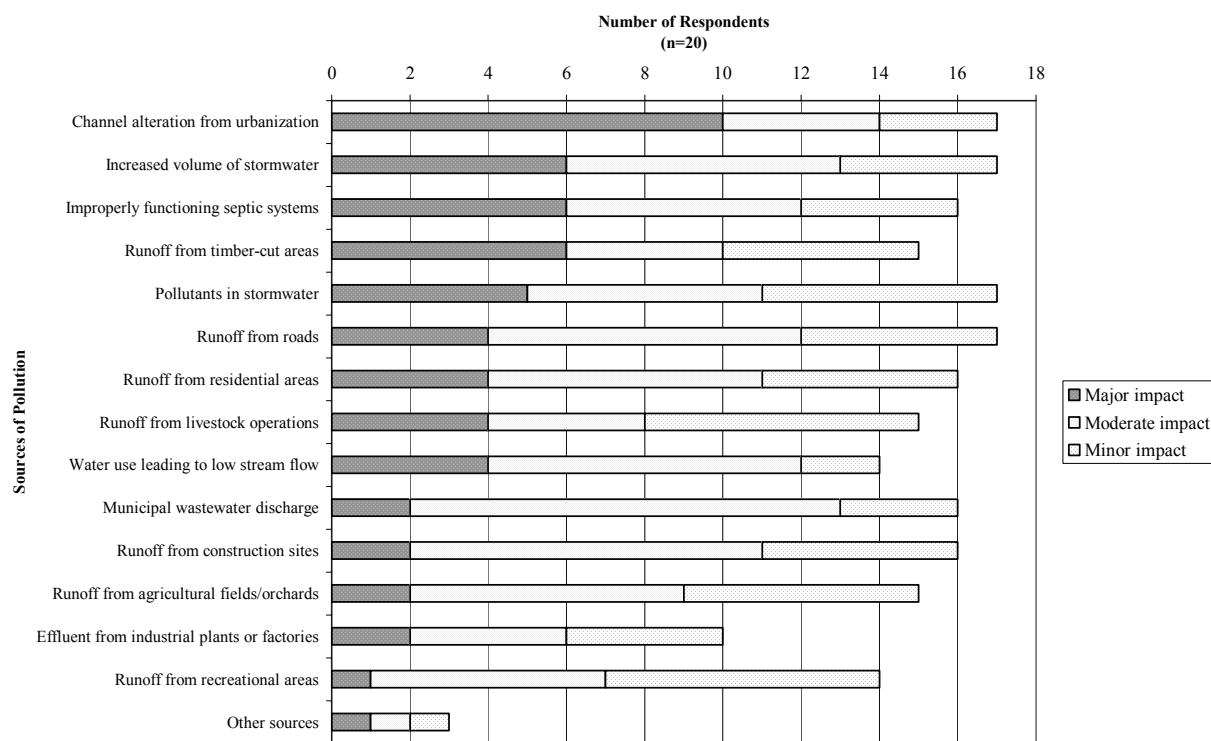


Figure 5. Best Guess Ratings of Sources of Water Quality Pollution

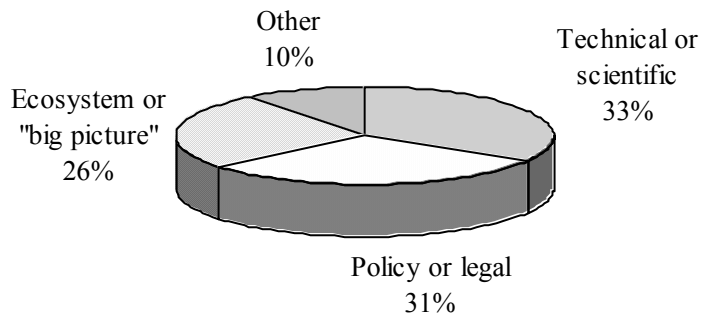


Topics Identified in South Slough Staff Interviews and Discussion

On-going studies at South Slough National Estuarine Research Reserve include lead research on estuarine wetlands restoration, water quality monitoring, juvenile coho salmon rearing in the restored wetlands of Winchester Creek; effects of oyster cultivation on estuarine habitats; as well as studies of the influence of the estuary on the nearshore ocean environment. Training that is based on the research program offers the best opportunity to provide significant assistance to coastal decision makers.

Respondents to the pilot survey were asked which types of training would be beneficial. They indicated almost equally that policy or legal training, ecosystem or big picture training, and technical training would be beneficial (see Figure 6).

Figure 6. What kinds of training would be beneficial?



Appendix A: Market Analysis Tools

Email Contact

This is a version of the request for information sent to 25 individuals from agencies, public programs, and non-governmental organizations. Specific information about the organization was sometimes added to the first paragraph if it was useful for clarifying who should respond to the email or how the contact person was identified.

Dear <contact name>,

I am interested in learning about any technical training or professional development opportunities offered by the <organization name> to coastal environmental professionals and decision-makers. I hope that you can point me in the right direction. While our main interests are on the coast, we are also interested in the potential for partnerships that might bring new opportunities to coastal communities.

To give you some background, the South Slough National Estuarine Research Reserve is participating in a federally-funded initiative called the Coastal Training Program. The goal of the Coastal Training Program is to coordinate regional education efforts to focus on the training needs of the people whose daily decisions affect the health of our coastal resources. These coastal decision makers, such as regulators, tribal officials, volunteer board members, planners and elected officials, all provide more effective leadership when they have access to current training and accurate information.

I am compiling an inventory of educational opportunities for coastal decision makers in Oregon. This information will help us determine who is being served by the existing adult education programs, what topics and issues are already being addressed, and what services the Coastal Training Program can offer. The following brief survey focuses on your current adult education programs.

Please forward this survey to the person in your organization with the most information on adult education and outreach, or please let me know how to get in touch with that person. The survey should take you only about fifteen minutes to complete. To be of greatest value in our analysis, we ask that you respond by Friday, January 11, 2002. Your participation is, of course, voluntary, and you may decline to answer any question.

6. Who do you target when you are marketing your educational programs? (Please list all of the types of people you would like to reach with your programs, such as "agricultural landowners," "elected officials," "public works personnel," etc.)

7. How many of each type of program does your organization offer (or assist in offering) in an average year? (Please indicate a number in all responses below. Write [0] if you do not offer this kind of program.)

- Conferences
- Workshops
- Classes
- Roundtable discussions
- Field trips or tours (separate from workshops)
- Other opportunities (Please explain.)

8. Who delivers your educational programs? (Please mark all appropriate responses.)

- Organization staff
- Consultants
- Academics
- Volunteers
- Others (Please explain.)

9. What is the average cost to a participant? (Please mark the most appropriate choice.)

- Free
- \$1 to \$50
- \$51 to \$100
- \$101 to \$200
- Over \$200
- Too variable to characterize (Please explain.)

10. On average, how many people attend each program? (Please mark the most appropriate choice.)

- Up to 10 people
- 11 to 30
- 31 to 50
- Over 50
- Too variable to characterize (Please explain.)

11. As we develop the Coastal Training Program, we will be looking to organizations like yours for partnership opportunities. What types of support would you be interested in receiving? (Please mark all appropriate responses.)

- Marketing assistance
- Content assistance and technical assistance
- Facilities and logistics

- Funding assistance
- Presenters from the South Slough Reserve
- Other support (Please explain.)

12. What types of support could your organization offer to the Coastal Training Program? (Please mark all appropriate responses.)

- Marketing assistance
- Content assistance and technical assistance
- Facilities and logistics
- Funding assistance
- Presenters or trainers
- Other support (Please explain.)

13. Who do you see as the leading provider(s) of coastal management training in Oregon?

14. We would like your input on the topics and audiences that the Coastal Training Program should address. In your opinion, what are the current gaps in educational opportunities for coastal decision makers in Oregon?

15. Who else in your organization should we contact for information?

- Name:
- Position:
- Phone:
- Email:

Thank you very much for your participation. Please return this to bmalouf@harborside.com by January 11, 2002.

Telephone Contact

Method note: Some of this information (particularly categories 1, 2, and 4) was filled in based on research and confirmed during the conversation.

- 1) Organization name:
- 2) Contact Information:
- 3) Current sponsors/partners:
- 4) Web site:
- 5) Region of focus (primary target audiences, jurisdiction)

- | | |
|--------------------------------------|---|
| <input type="checkbox"/> Coos county | <input type="checkbox"/> Other county |
| <input type="checkbox"/> South coast | <input type="checkbox"/> Central coast |
| <input type="checkbox"/> North coast | <input type="checkbox"/> Oregon coastal |
| <input type="checkbox"/> Statewide | <input type="checkbox"/> West coast |
| <input type="checkbox"/> National | <input type="checkbox"/> Other |

- 6) Organization's mission:
- 7) Types of training programs:

- 8) Format:
 - Workshop
 - Field trip
 - Conference
 - Technical assistance
 - Course
 - Curriculum (set of courses)

- 9) Details of program format:
 - a) Delivery method:
 - b) Length:
 - c) Where:
 - d) Frequency:
 - e) Supporting materials:
 - f) Accessible:
 - g) Certification:

- 10) Cost to participants:
- 11) Average number of participants:
- 12) Target audiences:
- 13) Training topics:
- 14) Who are the trainers/teachers:
- 15) What incentive do participants have for involvement?
- 16) What incentive do trainers have for involvement?
- 17) How do you market your program(s)?
- 18) Future plans for programs:
- 19) Partnership opportunities for South Sough and this organization:
 - a) What can we offer them?
 - b) What can they offer us?
 - c) Upcoming projects good for sharing?

What niche do you see for South Slough in the coastal training arena?

Appendix B: Training Inventory Summary

<p>American Public Works Association Oregon Chapter</p>	<p>Annual Meeting and Workshops</p>	<p><i>Offering technical assistance</i></p>
<p><i>Primary target audience</i> members of public works association</p> <p><i>Coastal issues</i> water resources, stormwater, wastewater</p>	<p><i>Region</i> statewide</p> <p><i>Category</i> professional association</p>	<p><i>Offering training</i></p>
<p>Center for Coastal And Land-Margin Research, OGI/OHSU</p>	<p>Science for Society</p>	<p><i>Offering technical assistance</i></p>
<p><i>Primary target audience</i> university students</p> <p><i>Coastal issues</i> tsunami, estuarine turbidity</p>	<p><i>Region</i> coastal, international</p> <p><i>Category</i> university</p>	<p><i>Offering training</i></p>
<p>Center for Water and Environmental Sustainability, Northwest Stream Restoration Design</p>	<p>Northwest Stream Restoration Design Symposium</p>	<p><i>Offering technical assistance</i></p>
<p><i>Primary target audience</i> educational institutions, water-related agencies, watershed councils</p> <p><i>Coastal issues</i> watershed restoration</p>	<p><i>Region</i> PNW</p> <p><i>Category</i> university</p>	<p><i>Offering training</i></p>
<p>College of Oceanic and Atmospheric Sciences, Oregon State University</p>	<p>MS PhD</p>	<p><i>Offering technical assistance</i></p>
<p><i>Primary target audience</i> university students</p> <p><i>Coastal issues</i> oceanography</p>	<p><i>Region</i> Corvallis/Newport</p> <p><i>Category</i> university</p>	<p><i>Offering training</i></p>
<p>Columbia River Estuary Study Taskforce</p>		<p><i>Offering technical assistance</i></p>
<p><i>Primary target audience</i> local government, elected officials, staff</p>	<p><i>Region</i> regional - Lower Columbia</p> <p><i>Category</i> regional partnership</p>	<p><i>Offering training</i></p>

Coastal issues Land use planning, community development, water quality

Coos Soil and Water

Offering technical assistance

Conservation District

Primary target audience

agricultural landowners

Region Coos area

Category local partnership

Offering training

Coastal issues agricultural land management (25 attended manure management/composting), water quality (40 attended riparian management)

Coos Watershed Association

Offering technical assistance

Primary target audience

landowners in watershed, community leaders

Region Coos area

Category local partnership

Offering training

Coastal issues water quality, watershed health, aquatic species, fish passage

Ecotrust

Offering technical assistance

Primary target audience

watershed councils, public agencies, grantmakers, and conservation organizations

Region PNW

Category NGO

Offering training

Coastal issues sustainable community development

Environmental Law Education

Various Conferences

Offering technical assistance

Center

Primary target audience

environmental professionals including: attorneys, consultants, scientists, engineers, and representatives of municipalities, government agencies and community organizations

Region Portland Metro

Category private

Offering training

Coastal issues dredging/sediment management, water quality policy, endangered species act

Environmental Science and

Offering technical assistance

Forestry Program, Southwestern Oregon CC

Primary target audience

college students

Region Coos area

Category community college

Offering training

Coastal issues watershed management, water resources, wildlife conservation

Executive Leadership Watershed *Offering technical assistance*

Institute, PSU, Watershed Management Professional Management Professional Program (WMPP)

Primary target audience public and private resource professionals *Region* PNW - national *Offering training*
Category university

Coastal issues watershed health, water quality policy, salmon recovery, restoration

For the Sake of Salmon *Offering technical assistance*

Primary target audience Watershed groups, Tribes, government agencies at all levels, fishing, timber and agricultural interests, independent consultants *Region* west coast *Offering training*
Category NGO

Coastal issues Fish Passage/Culverts, Watershed Assessments, Working with the Media, Working at a Watershed Level (social, economic & watershed topics)

Hatfield Marine Sciences *Offering technical assistance*

Center, OSU

Primary target audience teachers, school administrators, kids ages 3-18 and their parents *Region* Newport *Offering training*
Category university

Coastal issues water quality, marine science teacher education,

Lane Council of Governments *Offering technical assistance*

Primary target audience local government, elected officials, staff *Region* Lane County *Offering training*
Category regional

Coastal issues sustainable economic development, land use planning, community development

League of Oregon Cities, Local Governance *Offering technical assistance*

Local Governance Institute Institute

Primary target audience new city officials and staff *Region* statewide *Offering training*
Category professional association

Coastal issues land use planning, development

Lower Columbia River Estuary Program			<i>Offering technical assistance</i>
<i>Primary target audience</i>	<i>Region</i>	regional - Lower Columbia	<i>Offering training</i>
residents of the region, k-12 teachers and students	<i>Category</i>	regional	
<i>Coastal issues</i>		water quality, biological integrity	
Marine and Environmental Research and Training Station (MERTS) Clatsop CC	MERTS		<i>Offering technical assistance</i>
<i>Primary target audience</i>	<i>Region</i>	north coast	<i>Offering training</i>
prospective commercial vessel operators or crew	<i>Category</i>	community college	
<i>Coastal issues</i>		marine safety, commercial fishing vessel crew member training, navigation	
Marine Resource Management, OSU	MS/MA Degree Program		<i>Offering technical assistance</i>
<i>Primary target audience</i>	<i>Region</i>	Corvallis/Newport	<i>Offering training</i>
graduate students	<i>Category</i>	university	
<i>Coastal issues</i>		fisheries, seafood production, marine pollution, nature-based tourism, coastal wetlands, hazards, marine policy, marine protected areas,	
National Association of	NACo Water Program		<i>Offering technical assistance</i>
<i>Primary target audience</i>	<i>Region</i>	national	<i>Offering training</i>
county officials, county staff	<i>Category</i>	professional association	
<i>Coastal issues</i>		wetlands, watershed management, drinking water quality, non-point source pollution	
National Pollution Prevention Roundtable: Local Government Workgroup			<i>Offering technical assistance</i>
<i>Primary target audience</i>	<i>Region</i>	national	<i>Offering training</i>
city/county officials, public works managers/staff	<i>Category</i>	professional association	
<i>Coastal issues</i>		water and land quality	

Native American Renewable Energy Education Project	workshops	<i>Offering technical assistance</i>
<i>Primary target audience</i> tribal college instructors	<i>Region</i> national	<i>Offering training</i>
<i>Coastal issues</i> renewable energy	<i>Category</i> tribal organization	
Native American Water Association, Water System Operator	Water System Operator	<i>Offering technical assistance</i>
<i>Primary target audience</i> tribal wastewater operators, tribal wastewater managers	<i>Region</i> national	<i>Offering training</i>
<i>Coastal issues</i> wastewater, drinking water	<i>Category</i> tribal organization	
Northwest Environmental Training Center		<i>Offering technical assistance</i>
<i>Primary target audience</i> environmental professionals	<i>Region</i> PNW	<i>Offering training</i>
<i>Coastal issues</i>	<i>Category</i> NGO	
Ocean and Coastal Law Center, University of Oregon School of Law	Ocean and Coastal Law Statement of Completion	<i>Offering technical assistance</i>
<i>Primary target audience</i> university law students	<i>Region</i> Eugene	<i>Offering training</i>
<i>Coastal issues</i> marine law, environmental law,	<i>Category</i> university	
Oregon Association of Clean Water Agencies, ACWA		<i>Offering technical assistance</i>
<i>Primary target audience</i> public works staff and city managers	<i>Region</i> statewide	<i>Offering training</i>
<i>Coastal issues</i> ESA, stormwater management, water quality	<i>Category</i> professional association	
Oregon Association of Conservation Districts		<i>Offering technical assistance</i>

<i>Primary target audience</i> rural land owners, farmers, ranchers	<i>Region</i> statewide <i>Category</i> regional partnership	<i>Offering training</i>
<i>Coastal issues</i> water quality, soil quality, riparian management, manure management		
Oregon Chapter American assistance Planning Association, Oregon Planning Institute	Oregon Planning Institute	<i>Offering technical</i>
<i>Primary target audience</i> land use planners, planning commission members	<i>Region</i> statewide <i>Category</i> professional association	<i>Offering training</i>
<i>Coastal issues</i> land use and community planning		
Oregon City/County Management Association	Annual Conference	<i>Offering technical assistance</i>
<i>Primary target audience</i> city/county officials	<i>Region</i> statewide <i>Category</i> professional association	<i>Offering training</i>
<i>Coastal issues</i> municipal management, development		
Oregon Dept of Environmental Quality Water		<i>Offering technical assistance</i>
<i>Primary target audience</i>	<i>Region</i> statewide <i>Category</i> state	<i>Offering training</i>
<i>Coastal issues</i> Water, air, land quality, non-point source pollution, environmental regulations		
Oregon Dept of Fish and Wildlife, Outdoor Skills	Outdoor Skills Education	<i>Offering technical assistance</i>
<i>Primary target audience</i> educators, recreators, elected officials, media, students, special interest organizations	<i>Region</i> statewide <i>Category</i> state	<i>Offering training</i>
<i>Coastal issues</i> outdoor skills education		
Oregon Dept of Land Conservation and Development Ocean-Coastal	GIS training for users of DLCD products	<i>Offering technical assistance</i>
<i>Primary target audience</i>	<i>Region</i> statewide- coastal	<i>Offering training</i>

land use planners, planning	<i>Category</i> state	
<i>Coastal issues</i> GIS for coastal management, coastal hazards, coastal resource management, techniques for coastal planning		
Oregon Division of State Lands - Wetlands Program	various wetland ID and planning workshops	<i>Offering technical assistance</i>
<i>Primary target audience</i> planning staff, elected officials, environmental professionals	<i>Region</i> statewide <i>Category</i> state	<i>Offering training</i>
<i>Coastal issues</i> wetlands, wetland identification, removal-fill permit process		
Oregon Institute of Marine Biology		<i>Offering technical assistance</i>
<i>Primary target audience</i> university students	<i>Region</i> Charleston <i>Category</i> university	<i>Offering training</i>
<i>Coastal issues</i> Marine ecology, invertebrate zoology, biological oceanography		
Oregon Sea Grant, Extension Sea Grant		<i>Offering technical assistance</i>
<i>Primary target audience</i> various, including commercial fishers, aquatic monitoring professionals, community members and leaders in coastal towns, landowners, farmers and	<i>Region</i> statewide - coastal <i>Category</i> university	<i>Offering training</i>
<i>Coastal issues</i> fisheries, marine resource economics, invasive species, watershed and aquatic health, seafood, aquatic ecosystem health, coastal tourism, marine mammals, community resources		
Oregon Shores Conservation Coalition		<i>Offering technical assistance</i>
<i>Primary target audience</i> coastal residents	<i>Region</i> statewide - coastal <i>Category</i> NGO	<i>Offering training</i>
<i>Coastal issues</i> pollution, marine debris, land development, marine ecology		
Oregon Trout, Salmon Watch Education Program	Salmon Watch Education Program	<i>Offering technical assistance</i>
<i>Primary target audience</i>	<i>Region</i> statewide	<i>Offering training</i>

k-12, teachers	<i>Category</i> NGO	
<i>Coastal issues</i> trout, aquatic health		
Oregon Watershed Enhancement Board	biennial conference	<i>Offering technical assistance</i>
<i>Primary target audience</i> watershed council staff and members	<i>Region</i> statewide	<i>Offering training</i>
<i>Coastal issues</i> watershed restoration; salmon habitat	<i>Category</i> state	
Pacific Coast Congress of Harbormasters and Port	Semi-Annual Meetings	<i>Offering technical assistance</i>
<i>Primary target audience</i> members of Pacific Coast Congress of Harbormasters and Port Managers	<i>Region</i> PNW	<i>Offering training</i>
<i>Coastal issues</i> marina and port development, water quality, sustainable development	<i>Category</i> professional association	
Pacific Northwest Chapter International Erosion Control Association	Erosion Control 2001 conference	<i>Offering technical assistance</i>
<i>Primary target audience</i> erosion control contractors, landscapers, builders, public works staff	<i>Region</i> PNW	<i>Offering training</i>
<i>Coastal issues</i> erosion control, stream restoration, impervious cover	<i>Category</i> professional association	
Planning, Public Policy and Management, University of Oregon	BA/BS, MPA PhD	<i>Offering technical assistance</i>
<i>Primary target audience</i> university students	<i>Region</i> Eugene	<i>Offering training</i>
<i>Coastal issues</i> community development, land use planning	<i>Category</i> university	
Shoreline Education for		<i>Offering technical assistance</i>
<i>Primary target audience</i> volunteer interpreters "docents"	<i>Region</i> south coast	<i>Offering training</i>
<i>Coastal issues</i> marine mammals, marine birds, public environmental education	<i>Category</i> NGO	

<p>Society for Ecological assistance Restoration NW Chapter</p> <p><i>Primary target audience</i> restoration ecologists</p> <p><i>Coastal issues</i> restoration</p>	<p>Annual Conference</p> <p><i>Region</i> PNW</p> <p><i>Category</i> professional association</p>	<p><i>Offering technical assistance</i></p> <p><i>Offering training</i></p>
<p>Society of Wetland Scientists PNW Chapter</p> <p><i>Primary target audience</i> members of the the SWS, other environmental professionals working with wetlands</p> <p><i>Coastal issues</i> wetlands</p>	<p>Annual Conference</p> <p><i>Region</i> PNW</p> <p><i>Category</i> professional association</p>	<p><i>Offering technical assistance</i></p> <p><i>Offering training</i></p>
<p>Soil and Water Conservation District Program, Oregon Department of Agriculture</p> <p><i>Primary target audience</i> soil and water conservation district staff and leadership</p> <p><i>Coastal issues</i> water quality, manure management</p>	<p>Soil and Water Conservation District Training</p> <p><i>Region</i> statewide</p> <p><i>Category</i> state</p>	<p><i>Offering technical assistance</i></p> <p><i>Offering training</i></p>
<p>SWS Professional Certification Program, Inc.</p> <p><i>Primary target audience</i> members of SWS, environmental professionals dealing with wetlands</p> <p><i>Coastal issues</i></p>	<p>Professional Wetland Scientist</p> <p><i>Region</i> national</p> <p><i>Category</i> professional association</p>	<p><i>Offering technical assistance</i></p> <p><i>Offering training</i></p>
<p>The Coastal Society Cascadia Chapter</p> <p><i>Primary target audience</i> coastal management professionals and researchers</p> <p><i>Coastal issues</i> coastal hazards, tourism and recreation, salmon, community development and trade</p>	<p>coastal management workshops</p> <p><i>Region</i> PNW</p> <p><i>Category</i> NGO</p>	<p><i>Offering technical assistance</i></p> <p><i>Offering training</i></p>

The Institute of Tribal Environmental Professionals	various	<i>Offering technical assistance</i>
<i>Primary target audience</i>	<i>Region</i> national, mostly Southwest	<i>Offering training</i>
tribal air quality professionals	<i>Category</i> tribal organization	
<i>Coastal issues</i>	mostly air quality, wastewater, drinking water	
Tillamook County Performance Partnership		<i>Offering technical assistance</i>
<i>Primary target audience</i>	<i>Region</i> regional -Tillamook	<i>Offering training</i>
tillamook county landowners, county and city elected officials, county staff	<i>Category</i> regional	
<i>Coastal issues</i>	flood control, land and water quality	
University of Oregon Environmental Studies Program	BA/BS, MA/MS	<i>Offering technical assistance</i>
<i>Primary target audience</i>	<i>Region</i> Eugene	<i>Offering training</i>
university students	<i>Category</i> university	
<i>Coastal issues</i>	marine biology, geomorphology, human ecology, anthropology, landscape architecture	
Urban Watershed Institute, Clackamas Community		<i>Offering technical assistance</i>
<i>Primary target audience</i>	<i>Region</i> Portland Metro	<i>Offering training</i>
engineers, public works staff, land use planners, consultants, landscape architects, developers, contractors, park	<i>Category</i> community college	
<i>Coastal issues</i>	stormwater management, riparian function and restoration	
US Dept. of Agriculture Natural Resource Conservation Service,	Conservation	<i>Offering technical assistance</i>
	Technical	
<i>Primary target audience</i>	<i>Region</i> national	<i>Offering training</i>
landowners, farmers, state and local government, Federal agencies	<i>Category</i> federal	
<i>Coastal issues</i>	water quality, wetlands, fish and wildlife habitat	

US Dept. of Agriculture	Environmental	<i>Offering technical assistance</i>
Natural Resource Conservation Service, Enviro.	Quality Incentive Program	
<i>Primary target audience</i> agricultural landowners	<i>Region</i> national	<i>Offering training</i>
<i>Coastal issues</i> soil, water quality	<i>Category</i> federal	
US Environmental Protection Agency, Stormwater Program	EPA Stormwater Program	<i>Offering technical assistance</i>
<i>Primary target audience</i> storm water staff w/ less than one year experience	<i>Region</i> national	<i>Offering training</i>
<i>Coastal issues</i> non-point source pollution, water quality regulations, urban development	<i>Category</i> federal	
Watershed Stewardship Education, OSU Extension	Master Watershed Steward Training	<i>Offering technical assistance</i>
<i>Primary target audience</i> watershed groups, SWCD's, landowners, agricultural producers, nursery growers, foresters, planners, teachers, urban	<i>Region</i> statewide	<i>Offering training</i>
<i>Coastal issues</i> watershed and riparian processes, salmon, wetland function and restoration, water quality, working with groups	<i>Category</i> university	
Wetland, River and Watershed Professional Development PSU, School of	Environmental Professional Development Training	<i>Offering technical assistance</i>
<i>Primary target audience</i> environmental professionals, potential environmental professionals	<i>Region</i> Portland Metro, PNW	<i>Offering training</i>
<i>Coastal issues</i> wetland ecology, delineation, mitigation, watershed restoration, salmon restoration, water rights	<i>Category</i> university	

South Slough National Estuarine Research Reserve

Memorandum to the CTP Technical Committee

April 24, 2003

Introduction

This memorandum is intended to provide additional context for the market analysis, *Environmental Training Programs Serving the Oregon Coast: A Market Analysis of Existing Environmental Training Opportunities* (South Slough National Estuarine Research Reserve 2002). The market analysis was undertaken by the South Slough NERR to direct the first stages of development of a Coastal Training Program (CTP) under guidelines from the National Estuarine Research Reserve System (NERRS), the Estuarine Reserves Division (ERD), and the National Oceanic and Atmospheric Administration (NOAA). The market analysis was submitted to the ERD/CTP technical committee for review during the first quarterly submission period in 2003. On April 24, the technical committee requested additional information to clarify the market analysis.

The CTP technical committee also requested clarification in the description of the CTP advisory group, which was submitted for review with the market analysis. Questions about the advisory group description have been addressed in an amended version of the description, which is being returned to the technical committee for further review along with this memo.

Background

The South Slough NERR began formal planning for CTP in 2001 with the hiring of a coastal training coordinator. The coordinator developed survey instruments, conducted the market analysis, and prepared a draft report based on the results for submission to the South Slough NERR management commission and NOAA/ERD. Progress in completing the report was interrupted in early 2002 when the coordinator resigned. The departure significantly delayed completion of the market analysis. Several months passed before a new coordinator was hired. Training and job familiarization resulted in further delay, as did the need to complete other projects to meet grant deadlines. Ultimately the turnover resulted in most elements of CTP planning being delayed by as much as a year. For example, the CTP advisory group was selected in the fall of 2002 and met for the first time in February 2003. Participation of the advisory group was a critical, necessary element in developing the CTP strategy and needs assessment.

Scope of the market analysis

The market analysis examined training programs sponsored by universities, community colleges, non-profit and private organizations, professional associations, partnerships, tribes, federal, state, and local agencies, that might be applicable within the Lower Columbia bioregion. The bioregion includes the Oregon coastal zone south of the Columbia River and the California coastal zone north of Cape Mendocino. This region was chosen for analysis because it comprises the physio-geographic region typified by the South Slough NERR within the South Slough of the Coos River estuary. The environmental issues are generally similar throughout this area.

Training partnerships

The South Slough NERR has entered into partnerships with many organizations and state and federal agencies to provide training. Recent and current training partnerships have included: NOAA Office of Response & Restoration, NOAA Coastal Services Center, U.S. Coast Guard, U.S. Bureau of Land Management; University of Oregon's Oregon Institute of Marine Biology; Oregon departments of Land Conservation and Development, Fish and Wildlife, and the Division of State Lands; the Coos Watershed Association, and the Tillamook National Estuaries Partnership.

Analysis and conclusions

A striking feature of the market analysis is the picture it presents of a general lack of training programs available to coastal decision makers within the coastal zone. The South Slough NERR collected information on more than 60 organizations offering some kind of training or technical assistance. However, few of these programs are directed toward coastal target audiences and environmental issues. For example, the market analysis identified one training program that focused on storm water management for metropolitan areas, but which was not applicable to the mostly-rural coastal zone.

Reserve staff determined the market analysis offered virtually a wide-open field for developing a training program. Staff next set about determining an appropriate focus for training. Based on information in the market analysis, staff identified six general topics encompassing aspects of estuarine health and affected by coastal management decision-making and policies. The topics were:

- Restoring estuarine wetlands
- Development of marine reserves and Marine Protected Areas
- Maintaining water quality
- Managing the spread of invasive plants and animals
- Preparing for climate change
- Development of ecotourism (nature-based tourism) in the coastal zone.

The CTP advisory group met February 20, 2003 to review the market analysis. It examined each of these topics to determine its merits for training. Four topics were deemed relevant to coastal training needs as follows:

- Developing marine reserves and Marine Protected Areas
- Restoring estuarine wetlands, including, where appropriate:
 - Managing water quality
 - Managing the spread of invasive plants and animals

The remaining topics (preparing for climate change, development of ecotourism) were set aside for the present, although the advisory group noted these topics may become pertinent for training in the near future.

Marine Protected Areas (MPAs) are not specifically mentioned in the market analysis. However, the development of MPAs and marine reserves has taken on increased significance in Oregon since the market analysis was completed. MPAs provide the means by which to address several environmental concerns noted in the market analysis, including protecting threatened or endangered species, protecting critical habitat, and rebuilding fisheries to provide sustainable food supplies. In August 2002 the Oregon Ocean Policy Advisory Council recommended to the governor that Oregon develop a limited system of marine reserves to test and evaluate their

effectiveness in meeting marine resource conservation objectives. The CTP advisory group concluded that the development of MPAs was an appropriate training topic.

Restoration focus for CTP

Despite the relative dearth of coastal environmental training programs found by the market analysis, the CTP advisory group was able to identify one training program, the Watershed Stewardship Education Program (WSEP), developed by the Oregon State University Extension Service. With an accompanying publication, the *Watershed Stewardship Training Manual* (OSU Extension Service 2000), the WSEP offers a series of eight basic trainings and advanced trainings that build upon the basic trainings. One of the eight basic sessions is about estuary evaluation and enhancement. The trainings are targeted toward watershed groups, farmers, foresters, and urban residents. One WSEP delivery format qualifies a participant who completes all eight trainings as a Master Watershed Steward. Advisory group members representing OSU Extension Service recommended the format as a model for training.

Since the completion of the market analysis, another training resource has become available. This is the *National Coastal Ecosystem Restoration Manual* (OSU Sea Grant 2002). This manual includes chapters on forming effective groups; developing effective communications and decision-making skills; understanding watershed ecosystems and functions and related science, and applying best management practices. It targets landowners, farmers, watershed and forestry managers, homeowners, state and federal agencies and organizations, non-governmental natural resource organizations, and others who live or work in watersheds. This book is designed as a “self-help” style manual, with self-contained chapters and a thematic arrangement that provides a blueprint for developing training. The CTP anticipates partnering with OSU Extension and Sea Grant to use these materials.

The advisory group identified watershed councils as an important target audience for several reasons. One, in Oregon, watershed councils have traditionally emphasized restoration of upland riparian areas; less emphasis has been given to estuaries, where most urban and agricultural water quality impacts occur. Two, watershed councils are just now beginning to turn their attention to estuaries, but many of them lack experience in complex estuarine restoration issues. Three, in Oregon, watershed councils are built up at a grass roots level and involve local stakeholders. The watershed councils are strategically positioned: Not only do their members and leaders understand many of the issues, but they also understand the attitudes of their communities, neighbors and colleagues as related to restoration.

Appendix: Geographic scope of training providers identified in market analysis

Table 1 offers some description of the geographic scope of the training provider categories identified in the market analysis.

Table 1. Geographic scope of training providers

Trainer category	Training provider	Geographic scope of provider
Community colleges	Clackamas Community College	Clackamas County; Portland metropolitan area
	Southwest Oregon Community College	Coos County Southern Oregon coast
	Clatsop Community College	Clatsop County Northern Oregon coast

University programs	Oregon State University <ul style="list-style-type: none"> • Oregon Sea Grant • Hatfield Marine Science Center 	Coastal zone, statewide, national
	Portland State University	Statewide
	University of Oregon <ul style="list-style-type: none"> • Oregon Institute of Marine Biology 	Statewide Coos County, SSNERR
Federal programs	No specific coastal programs identified	
State programs	Various state agencies	State employees, professional associations Stakeholder training and support
Local partnerships	Coos Watershed Association Coos Soil and Water Conservation District	Coos County
Regional partnerships	Lower Columbia NEP Tillamook NEP Lower Columbia Estuary Study Taskforce	Coastal zone; local areas (i.e., Tillamook Bay; Columbia estuary)
Non-governmental organizations	Various (audience specific) Various (issue-specific)	Local, statewide, regional or national depending on group and issue
Private organizations	Environmental Law Education Center	Portland, statewide
Professional associations	Various	Undetermined
Tribes	No specific coastal programs identified	