

Wells National Estuarine Research Reserve Coastal Training Program Strategic Plan 2009 - 2012

Introduction

The Coastal Training Program (CTP) of the Wells National Estuarine Research Reserve (Wells NERR) holds the vision that people act to sustain the coastal resources of the Gulf of Maine based upon knowledge of the value of those resources and the impacts of their actions on what they value. The Coastal Training Program promotes community based protection, stewardship and conservation of the life supporting systems in the Gulf of Maine ecosystem by supporting collaborative knowledge networks engaged in adaptive management and civic science (Feurt, 2007 & 2008; Meffe et al., 2002; Lee, 1993). The Coastal Training Program informs and engages coastal managers in knowledge creation and exchange. In some cases, CTP functions as a tool of adaptive ecosystem management by facilitating the assessment and evaluation of the outcomes of decisions, actions and policies. Sustaining the coastal ecosystems upon which society depends is the ultimate outcome envisioned for these efforts.

The Wells NERR CTP acknowledges and respects the critical role that local and regional decision-makers, businesses and citizen's play in determining the character and condition of Maine's coastal areas. Decisions about land use, infrastructure development and maintenance, and public health and safety are influenced by regulations, policy, planning documents, scientific findings and requirements of professional practice. Developing effective CTP programs requires awareness that underlying the seemingly pragmatic decision making process is a complex system of human values, attitudes and motivational forces. Research has provided national (Kempton, et al. 1985) and local (Feurt, 2007) evidence for shared values associated with protecting commonly held resources like air and water, providing habitats that support biological diversity and sustaining resources with a commitment to intergenerational equity. The Wells NERR CTP is designed to use the collaborative potential of shared values, the pride associated with a diverse system of professional practice and commitment to community and place as a resource for coastal management that protects, restores and sustains interconnected natural and social systems. The Wells Reserve CTP Strategic Plan is in alignment with the Wells NERR Management Plan. The alignment is expressed through the vision, goals and objectives described below. Annual work plans prepared for staff associated with CTP track progress toward achievement of Wells NERR Management Plan goals for CTP.

Vision, Goals, and Objectives

Vision

People act to sustain the coastal resources of the Gulf of Maine based upon knowledge of the value of those resources and the impacts of their actions on what they value.

Goal

Promote community based management, stewardship and conservation of the life supporting systems in the Gulf of Maine ecosystem by supporting collaborative knowledge networks engaged in adaptive management and civic science.

Objectives

1. Support increased engagement of diverse communities of practice in the management, stewardship and conservation of life supporting systems in the Gulf of Maine ecosystem.
2. Assess the science, technology and information needs within the collaborative knowledge network served by the Wells NERR CTP.
3. Use formally developed planning documents¹ to guide priority setting, generate environmental outcomes and monitor progress toward goals.
4. Facilitate the translation and application of scientific research findings and the communication of research needs within the coastal management and research community.
5. Facilitate dialogue, analysis and deliberation about the application of scientific research, management implications and policy formulation relevant to adaptive ecosystem management.
6. Evaluate research translation and application for contributions to measurable environmental outcomes.

Program Implementation

The Wells Reserve CTP applies the theory, principles and practices associated with community based ecosystem management (Meffee et al., 2002) to the design, implementation and evaluation of trainings, projects and technical assistance in response to the dynamic needs of region. The ADDIE process for program design and evaluation is used to monitor the needs and market for CTP services (Molenda, 2003; NOAA, 2002). CTP services include conferences, workshops, meeting facilitation, action planning, technical assistance and project evaluation. CTP services are provided in situations characterized by both collaboration and conflict. Collaborative Learning (Daniels and Walker, 2001) strategies are applied to enhance stakeholder participation, take advantage of diverse expertise and focus actions on making progress to achieve shared management goals.

Results of the original Market Analysis and Needs Assessment (Krum and Feurt, 2002) suggested two primary training themes for the program:

- I. Land and resource conservation
- II. Pollution, runoff, and water quality.

Nine training topics were selected to receive priority consideration (see Table 1.). During the first six years of the program, training evaluations, Advisory Board interactions and interviews with key stakeholders continue to support these themes and issues with one critical addition. Climate change and associated impacts on biodiversity, sea-level rise and community resiliency has emerged as a nationally significant issue. The role for the Wells NERR CTP in regional adaptation to and mitigation of climate change impacts will develop during this next strategic

¹ Municipal Comprehensive Plans, Watershed Management Plans, Natural Resource and Conservation Plans and state planning documents provide guidance for priority issues and contain considerable areas of overlap. Mission statements and goals for organizations provide documentation for widely shared goals and specific action strategies to reach those goals. The Wells NERR CTP identifies shared goals and objectives across institutions and programs and capitalizes on those articulated goals to develop relevant training and technical support.

planning period. Climate change has implications for each of the nine training topics identified in Table 1.

1	Balancing growth and economic development with quality of life, recreation, agriculture, forestry and wildlife habitats
2	Assessing cumulative impacts of planning decisions on natural resources
3	Conservation of wildlife habitat
4	Conservation of wetlands, marshes and vernal pools
5	Economic and tax implications of land conservation
6	Water quality in rivers, streams, ponds
7	Use of Best Management Practices for water quality protection
8	Stormwater runoff impacts: sediment, pesticides, fertilizers, impervious surface
9	Ecological concepts, and scientific fundamentals, information and resources

CTP objectives are accomplished through conferences, workshops, meeting facilitation, strategic action planning, technical assistance and project evaluation. Events are collaboratively planned and implemented with partner groups to increase access to resources and diverse audiences. A suite of less formal but equally effective CTP strategies includes membership in working groups addressing specific coastal management issues; participation on advisory boards of partner organizations; consultations with CTP audiences; and attendance at municipal meetings providing technical assistance. The Trainings and Technical Services Plan for 2009- 2011 appears in Table 2 below.

Research during the first six years of the program identified a role for collaborative knowledge networks as a mechanism for accomplishing the goals of CTP (Feurt, 2008 & 2007). The Wells NERR CTP has facilitated the formation of two regional Watershed Councils comprised of municipal staff, local, state and federal water managers, regulators and policy makers, local NGOs, water districts and community groups. The Watershed Councils have evolved from a primary focus on implementing Wells NERR generated Watershed Management Plans to a broader multi-town, cross watershed group. The Watershed Councils focus on shared water issues identified in town Comprehensive Plans, and driven by the realities of the diversity of professional practice associated with water management at the municipal level. Expertise is distributed into eight general categories within the group (see Figure 1.). The theory and practice of Collaborative Learning (Daniels and Walker, 2001) is used to access group knowledge and apply that knowledge to group generated priorities (Feurt, 2008 & 2007). This non-traditional approach to CTP is evolving through adaptive management and evaluation. Three CICEET grants have been awarded from 2005 – 2009 to support research to develop and adapt this approach of community based ecosystem management.

The CTP program is managed by the CTP Coordinator who works collaboratively with the CTP Associate, Stewardship Coordinator and GIS Specialist to develop and deliver CTP Training, Technical Assistance and services. This team communicates regularly to collectively manage Wells NERR CTP events and to integrate the research, monitoring, stewardship and education activities that have objectives relevant to coastal decision-makers.

Table 2. Training and Technical Services Plan for 2009 – 2011

Training & Workshops	2009	2010	2011	Notes
GIS and GPS Training	X	X	X	Provided by GIS Specialist and in collaboration with UNH GIS and UNE
Maine Land Trust Conference	X	X	X	In collaboration with the Maine Land Trust Network
Implementing Low Impact Development (LID)	X	X	X	
Science Symposium	X	X	X	Annual workshop with Rachel Carson NWR
Maine Beaches Conference	X		X	In collaboration with Maine Sea Grant
UNH Stormwater Center	X	X	X	
Science Communication	X			In cooperation with the Integration and Application Network of the U MD
NOAA CSC Course on Community Resiliency/Adapting to Climate Change		X		
Ecosystem Management for Better Environmental Outcomes	X	X	X	Facilitate interdisciplinary systems approach for improved outcomes
Conservation Strategies for Land Trusts	X	X	X	Coordinated by Stewardship Coordinator to address specific needs
Riparian Buffer Management	X	X		Part of a grant funded by PREP
Green Lawns Clean Water – Alternative Lawn Care Practices	X			In collaboration with Kennebunkport and UNE
Sanford Conservation Plan Workshop	X			CICEET funded project with town of Sanford
Source Water Collaborative Workshop	X	X	X	Collaboration with Maine Source Water program and EPA
Maine Coastal Waters Conference	X			In collaboration with Maine Coastal Program
Watershed Council Workshops	X	X	X	3 Watershed Councils

Technical Assistance & Services				
Watershed Council Support	X	X	X	Convene and facilitate meetings, provide technical support, facilitate grant funding for projects
Land Trust Support	X	X	X	Provide technical support, GIS mapping, facilitate grant funding for projects
Municipal Support for land use, water quality and LID	X	X	X	Provide technical support and consultation
Ecosystem-based management support	X	X	X	Provide technical support and consultation on EBM and Collaborative Learning
GIS, GPS and spatial analysis	X	X	X	Provide technical support and consultation
Public participation and key pad polling	X	X	X	Provide technical support and consultation
Science Translation & Communication	X	X	X	Provide technical support and consultation
Link NOAA Climate Change Science and Products to Maine Communities	X	X	X	Facilitate two way linkages with NOAA Scientists and Maine communities

Partners

Laudholm Trust, Maine Coastal Program, Maine Sea Grant, the Southern Maine Regional Planning Commission and Maine NEMO² have been involved with CTP since its inception at the Wells NERR and are represented on the Advisory Board. Additional partnerships have been created with: Maine Drinking Water Program, Maine Healthy Beaches, Maine Department of Environmental Protection, Maine Department of Inland Fisheries and Wildlife, Rachel Carson National Wildlife Refuge, the Mount Agamenticus to the Sea Conservation Initiative, the US Forest Service, the Piscataqua Region Estuary Partnership (PREP, formerly the New Hampshire Estuary Program) and the Casco Bay Estuary Project. Existing partnerships will be strengthened and new partnerships will be developed as opportunities for collaboration become available. Partnerships will be expanded to include groups with expertise and interests specifically aligned with targeted training and outreach efforts. Building upon the existing efforts of partner organizations will provide synergies which strengthen CTP and our partners programs.

Beginning in September 2007 the CTP Coordinator assumed a faculty position in the Department of Environmental Studies at the University of New England (UNE) where she directs the Center for Sustainable Communities (CSC). Integration of the UNE Center for Sustainable Communities and the Wells NERR CTP will provide benefits to both organizations whose shared missions support sustainable community based ecosystem management in the coastal communities of southern Maine. Through association with the UNE Center for Sustainable

² NEMO is Nonpoint Education for Municipal Officials

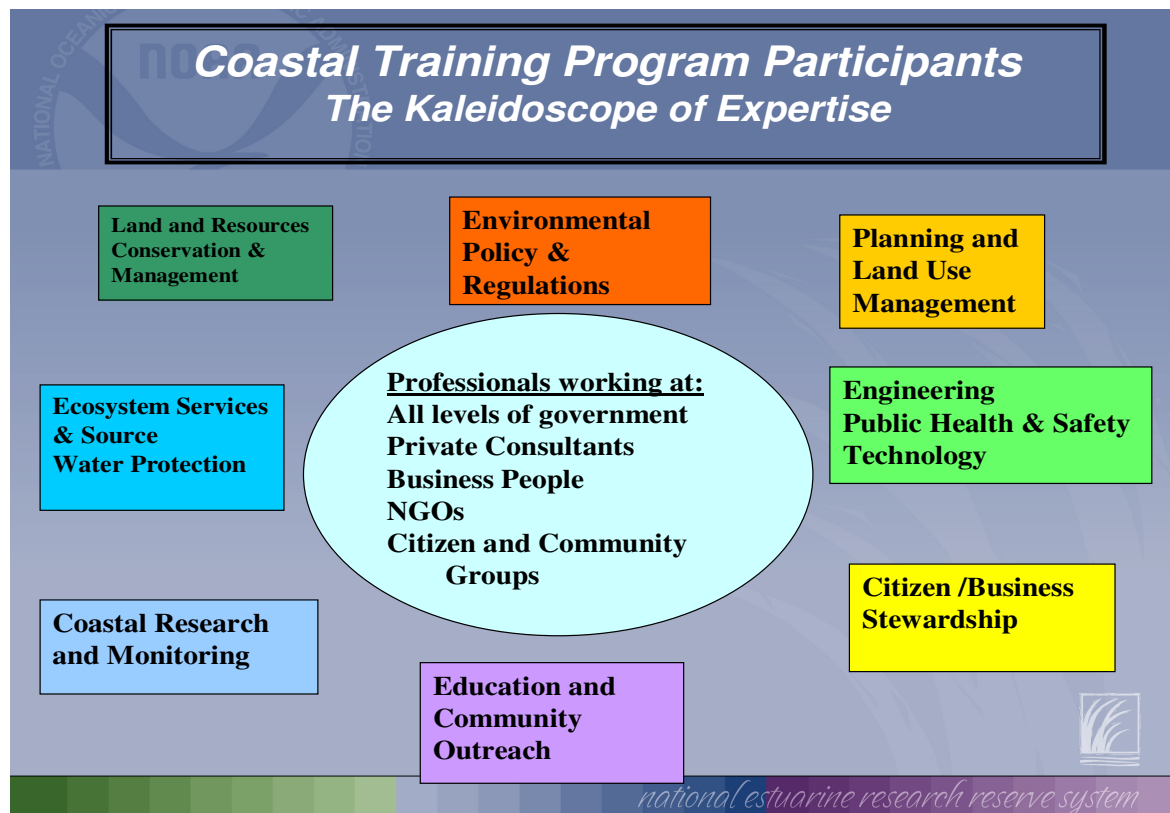
Communities, students working as Environmental Communication Technicians support the Wells NERR CTP by providing research assistance, developing web content for the Reserve SWIM website and providing data management support for CTP activities. Students from UNE will also work collaboratively with communities to provide CTP services such as technical assistance workshops and outreach materials.

Audiences for CTP Services and Programs

The Market Analysis and Needs Assessment (Krum and Feurt, 2002) identified municipal officials as the dominant target audience for the Wells NERR CTP. This remains the primary audience for this strategic planning period. This audience represents diverse roles and job descriptions, including elected officials, paid professionals, and professionals and community members serving on volunteer town boards. Research documenting the structure and function of the system for protecting water in Southern Maine is incorporated into the design, implementation and delivery of the Wells NERR CTP (Feurt, 2007 & 2008).

Paid professionals included in the municipal audience include Town Managers, Planners, Code Enforcement Officers, Public Works and Highway Managers, Town Engineers, Water and Wastewater Managers, Clam Wardens and Harbor Masters. Included in the municipal audience are those volunteers serving on Planning Boards, Site Plan Review Boards, Conservation Commissions, Town Councils or as Selectmen. Volunteer boards are in many cases the backbone of the decision-making process at the local level. In addition to municipal audiences, the Market Analysis and Needs Assessment identified land trusts, watershed and river associations, open space planning committees, and state and federal employees as audiences for CTP. Training development uses a systems approach to facilitate collaboration among these audiences as they tackle complex environmental issues from diverse organizational perspectives. The eight functional categories, representing a kaleidoscope of expertise, addressed by the Wells NERR CTP are displayed in Figure 1 (Feurt, 2007 & 2008).

Figure 1. The Southern Maine System of Professionals Protecting Water
(Feurt, 2007 & 2008)



Training and Outreach Delivery Methods

The Wells Reserve CTP will employ a suite of services including conferences, workshops, meeting facilitation, action planning, technical assistance and project evaluation. Expert practices for adult learning, training design, diffusion of innovations, and social marketing will continue to be used to develop, implement and evaluate CTP (Daniels and Walker, 2001; McKenzie-Mohr and Smith, 1999; Molenda, 2003; NOAA, 2002; Rogers, 2005; NRC, 1996)

Projects such as the Regional GIS Center, Seacoast Watershed Information Manager (SWIM), and Watershed Councils illustrate the methods and evaluation of ongoing outreach strategies. The Wells Reserve is a part of a network of Regional GIS Centers. The GIS Center works with local land trusts, towns, and community organizations to increase their effectiveness and capacity to conserve natural resources. CTP host GIS trainings that complement the mapping and technical support services the GIS Center provides. The SWIM website is an interactive online resource providing southern Maine communities with water quality, water supply, land-use change information to improve decision-making in coastal watersheds. Users can contribute library entries, events for the calendar, comments for the forums, topics for the stories. SWIM is a potential resource for CTP events related to watershed management.

Integration

The Wells NERR CTP is integrated well with the Stewardship and GIS functions of the Wells NERR. Limited conveyance of Reserve generated science to decision makers is partially due to the nature of salt marsh ecology research that dominates the Wells NERR research agenda. Links between land use and watershed issues result in outcomes that influence salt marshes, but food web relationships are less easily translated into the municipal decision making arena. Potential exists for SWMP data and data generated through the ASSETS project to connect to municipal decision making if gaps in data format and synthesis can be accomplished through outside funding. Data analysis, synthesis and development of realistic management scenarios connected to outcomes are the biggest barriers to integrating CTP with some of the Research conducted on site. The Wells NERR CTP facilitates communication among scientists and managers through an annual symposium co-sponsored by Rachel Carson National Wildlife Refuge. This Research Symposium highlights current and on-going research at the two sites.

Evaluation

Evaluation is an iterative process incorporated into the *process* of development, marketing and delivery of training and outreach. CTP will be evaluated for its effectiveness in accomplishing goals and objectives identified in the Wells NERR Management Plan and Strategic Plan as well as those identified for the National Estuarine Research Reserve system. The CTP Performance Measurement System provides the guidance for system-wide evaluation of CTP. Biannual reporting documents Wells NERR performance. Program evaluation will continue to be an agenda item for regular CTP staff meetings and CTP Advisory Board meetings.

The dissertation research of the CTP Coordinator was a formative evaluation for the early stages of the Wells NERR CTP (Feurt, 2007). This research used qualitative research methodologies to understand and document the knowledge, values and attitudes of municipal decision makers working with water management in southern Maine, comparing this to the knowledge, values and attitudes of water program managers, regulators and outreach specialists working at the watershed scale. Findings from the research are used to design Collaborative Learning strategies to facilitate learning at the science to management interface. On-going evaluation research informs the design and application of training and communication strategies at the Wells NERR.

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