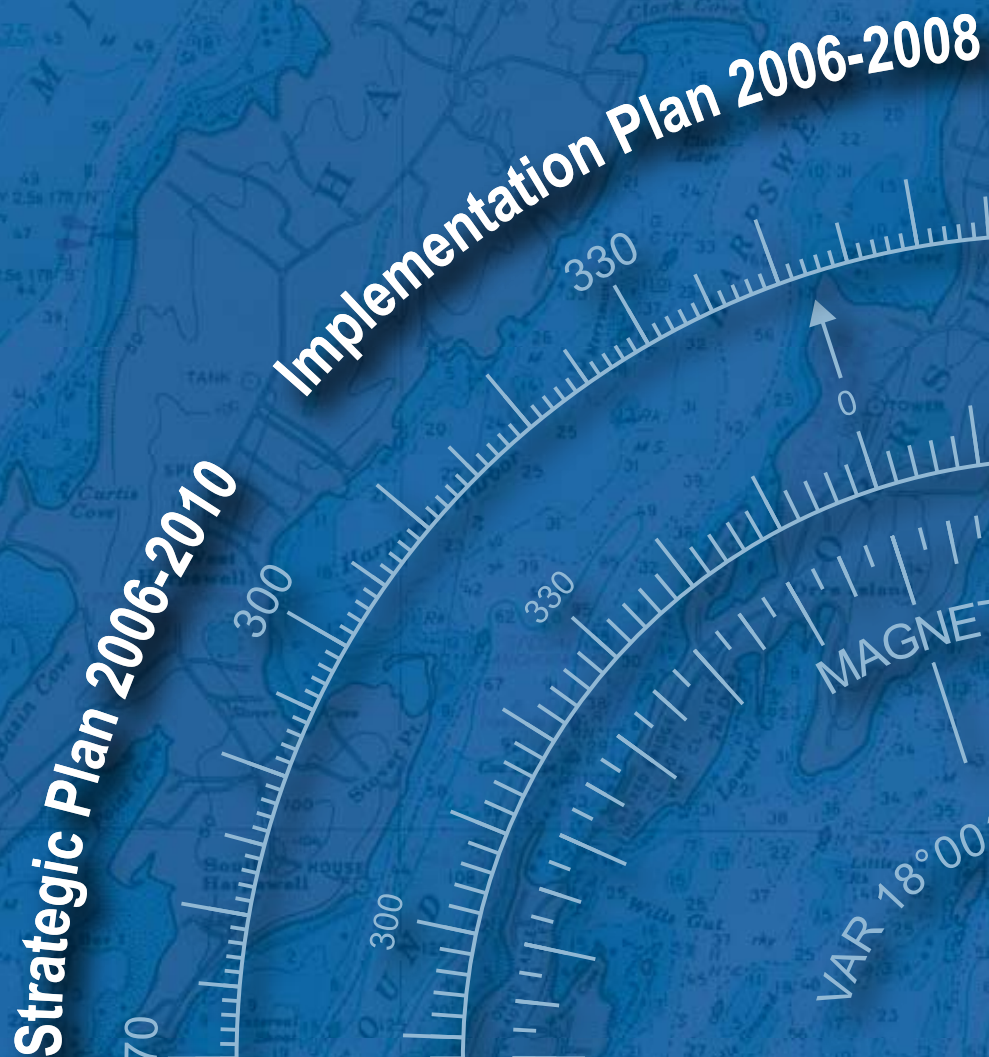


Setting the Course: *from Discovery to Action*

Maine Sea Grant College Program





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Cheryl Daigle

“To instill in people a desire to become stewards of our coast by balancing the ecological, social, and economic demands of their communities in ways that protect natural resources and promote their sustainable use.”

Introduction

Background: Finding Balance in the 21st Century

Everywhere we look in Maine, the nation, and the world, there are competing interests for our coastal resources—between those who want to develop the coast and those who want to conserve the environment, between those who recreate and have summer homes on the coast and those who depend on a working waterfront for their livelihoods, between fixed gear fishermen and those who use mobile gear, between those who harvest wild fishery stocks and those who grow fish and shellfish, between state and federal regulators and fishermen who would like to have some say in regulating their local fisheries—and the list could go on, as there are myriad other users competing for the Maine coast.

Today, we are more aware that everything in the natural world is connected. Forests, farms, cities, and rivers in the watershed are connected to coastal bays, estuaries, and deeper waters offshore. Species influence their habitat and vice versa. The earth's atmosphere interacts with ocean waters in complex ways. As humans, we are inextricable from our environment, and human wellbeing and the wellbeing of our coasts and oceans are interdependent.

Since humans and anthropogenic sources of pollution have the largest impact on our oceans and coastal waters, encouraging the state's citizens to become stewards of these waters is an important mission. In Maine, which is renowned for its relatively pristine environment, water quality at swimming beaches has become increasingly threatened by leaking septic systems and sewer lines, as well as by other sources of nonpoint source pollution. Bacterial contamination, mainly from pets, wildlife, and livestock, has been detected in several of Maine's rivers, closing productive areas to clam harvesting. Much of this pollution is a direct result of the burgeoning development of the coast, a phenomenon that is not unique to Maine. But there is good news, too. Now that we know what the problems are, we can develop ways to prevent and remediate them. In addition, the cadres of volunteers who monitor the state's coastal waters on a regular basis are paying close attention to water quality and other coastal issues. An informed citizenry is critical to bringing about change.

People care about and appreciate things that they understand. In order for people to understand things, information must be gathered and shared with communities. Sea Grant is uniquely positioned to provide science-based information and learning opportunities to communities so that people will understand the value of our natural resources, be aware of the threats they face, and want to do something about it. This is one of our major goals, and the thread that runs through the various sections of the 2006-2010 strategic plan: **to instill in people a desire to become stewards of our coast by balancing the ecological, social, and economic demands of their communities in ways that protect natural resources and promote their sustainable use.**

Mission Statement

This strategic plan will guide the Maine Sea Grant College Program from February 2006 to January 2010 as we follow our mission to play a leadership role in ocean and coastal research and education, and to promote sustainable development, ecosystem-based management, and stewardship of ocean and coastal resources. Our success over the next four years will be measured by our ability to positively impact the lives of people in our coastal communities, the Northeast region, and the nation. The plan will be revised along the way as we face new issues, opportunities, and challenges; evaluate the effectiveness of our programming; and receive ongoing feedback from stakeholders.

Our Mission: to play a leadership role in ocean and coastal research and education, and to promote sustainable development, ecosystem-based management, and stewardship of ocean and coastal resources.

Guiding Principles

At Maine Sea Grant, we strive to...

- ✧ attain excellence
- ✧ be creative and innovative
- ✧ take the initiative and be kinetic
- ✧ find balance and facilitate harmony
- ✧ respect the diverse fabric of community
- ✧ inspire stewardship and lifelong learning
- ✧ recognize and work towards sustainability
- ✧ encourage discovery and application of knowledge

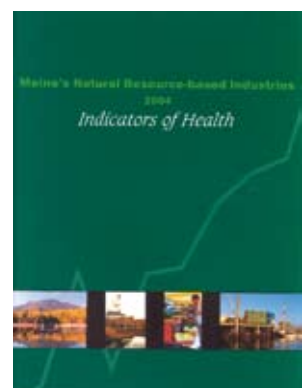
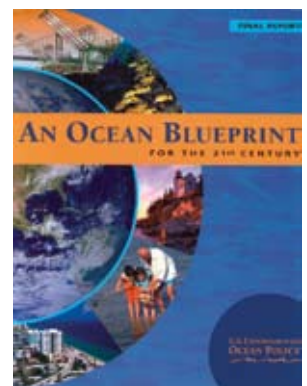
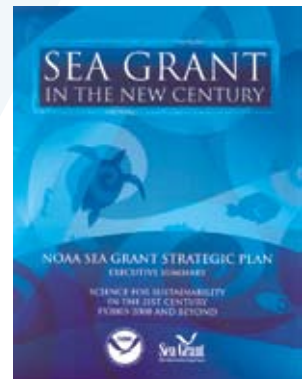
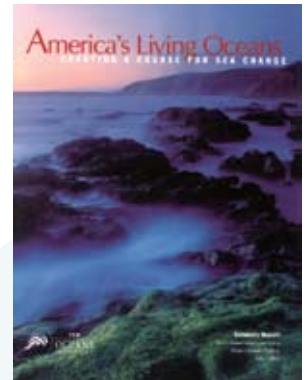
How the Plan Was Created

We started the process to develop this strategic plan by holding a two-day staff retreat where we could brainstorm what the plan should contain and discuss how to differentiate it from the previous one. In thinking about how to ensure that our strategic plan is relevant to the state, region, and nation, we decided to take a look at several reports created in the last few years that recommend actions pertaining to our ocean and coastal resources. Before the retreat, some staff members were tasked with reviewing the report, *Maine's Natural Resource-based Industries 2004: Indicators of Health*, an outgrowth of the 2003 Blaine House (Governor's) Conference, to bring some recommendations to discuss with the group on fisheries, aquaculture and tourism (the natural resource categories in the report of interest to Sea Grant).

At the retreat, we developed a list of other national, regional, and state publications that could help us in the needs assessment phase of our plan. These included the NOAA Sea Grant Strategic Plan 2003-2008, *Sea Grant in the New Century*; the final reports of the Pew Oceans Commission, *America's Living Oceans: Charting a Course for Sea Change*, and the U.S. Commission on Ocean Policy, *An Ocean Blueprint for the 21st Century*; regional reports of the Gulf of Maine Council on the Marine Environment and the New England Fisheries Management Council; and state task force reports on groundfish, aquaculture, bay management, and tourism, as well as that of the Maine Economic Growth Council, *Measures of Growth in Focus 2005*, among others. What we learned from these documents is reflected in the section of the plan titled Relevance.

The 10 members of the Maine Sea Grant Marine Extension Team (MET), a collaboration of Sea Grant and University of Maine Cooperative Extension, work with stakeholders on a daily basis and, through their regular participation on various boards and committees of diverse constituent organizations, they represent community needs throughout the state. We incorporated this input, as well as that of their advisory committees and of other staff members, to select the issues to address in our plan. Since MET is a collaboration of Sea Grant and the University of Maine Cooperative Extension, we have also allied our activities as much as possible with theirs. Under USDA guidance, Cooperative Extension is involved in a long-range planning process from which staff members develop plans of work. County-based needs assessments were conducted, which resulted in a series of white papers. The MET was involved in developing the series of white papers on marine and coastal issues, which helped inform discussions leading to our strategic and implementation plans.

The first draft of the strategic plan, based on the information gleaned from the state, regional, and national reports and the input from local stakeholders, was sent to our 26-member Policy Advisory Committee, which represents diverse stakeholder groups in the state, for their comment and review.



Broad Goals

Following are the broad goals guiding our activities for the next four years and tenets, which underlie everything we do at Maine Sea Grant.

- ✦ Maine people use and enjoy Maine's coastal resources as stewards, in a manner that allows for future generations to have similar chances for livelihood and happiness.
- ✦ Natural resource management policies in Maine employ principles of ecosystem-based management, which result in healthy coastal communities and sustainable marine and coastal resources.
- ✦ Maine citizens and visitors understand and value the interdependence of healthy communities and healthy ecosystems and take action to ensure sustainability.
- ✦ Wild harvest and culture fisheries and the communities that depend on them are economically viable and environmentally sustainable.
- ✦ Maine citizens recognize Maine Sea Grant as a reliable provider of scientific information, technical expertise, and facilitation skills in helping to resolve coastal issues.

Tenets

- ✦ Maine Sea Grant provides formal and informal learning opportunities to engage stakeholders in marine and coastal issues.
- ✦ Maine Sea Grant provides unbiased support to help facilitate effective participation of stakeholders in natural resource management, and to integrate science and multiple perspectives into the dialogues that lead to new management strategies.
- ✦ Maine Sea Grant provides high quality scientific information that is used to understand, develop, and implement policies toward sustainable uses of coastal natural resources.
- ✦ Maine Sea Grant participates in the generation of information, facilitates collaborative problem solving, and engages stakeholders to promote sustainable natural resource management.



Dana Morse

Relevance

In developing our strategic plan, we have taken many steps to ensure that both the plan and our activities over the next four years are relevant to the state, region, and nation. At the national level, coastal and marine science and policy are recognizing the interdependence of a sustainable environment and economy. The 2004 U.S. Commission on Ocean Policy's final report, *An Ocean Blueprint for the 21st Century*, recommends that sustainability should be the number one principle that guides national ocean policy. The commission defines sustainability as meeting the needs of the present generation without compromising the ability for future generations to do the same. According to the 2003 Pew Oceans Commission summary report, *America's Living Oceans: Charting a Course for Sea Change*, the essence of sustainable development is using our planet's resources as if we plan to stay.

Achieving sustainability of our ocean and coastal resources will require that management policy move toward an ecosystem perspective. In its 2003-2008 strategic plan, NOAA states its first mission goal is to protect, restore, and manage the use of coastal and ocean resources through ecosystem-based management as a way to attain long-term sustainability of public trust resources. Ecosystem-based management is a fairly new concept in the management arena. NOAA defines an ecosystem as "a geographically specified system of organisms, their environment, and the processes that control their dynamics." This type of management is a more holistic approach to managing the vast array of living and non-living marine resources, as well as diverse ocean and coastal areas.

In the long term, economic sustainability of our coastal communities depends on ecological sustainability. Nowhere is this truer than in Maine, where coastal communities are founded on the natural resources of the coast and ocean. In an article in the Spring 2002 issue of *Journal of Environmental Education*, one of the stated goals of environmental education is to aid citizens in becoming environmentally knowledgeable and, above all, skilled and dedicated citizens who are willing to work, individually and collectively, toward achieving and/or maintaining a dynamic equilibrium between the quality of life and the quality of the environment.

That said, our role becomes one of providing science-based information and processes to coastal communities to help them act and plan for the future in sustainable ways that promote both healthy communities and vibrant coastal ecosystems. The bulk of Maine Sea Grant's work takes place on the local level. The Marine Extension Team provides resources and helps facilitate discussions so that community members can make their own decisions about natural resource use, and about changes in practices that need to occur if their communities are to be sustainable.

"NOAA defines an ecosystem as 'a geographically specified system of organisms, their environment, and the processes that control their dynamics.' This type of management is a more holistic approach to managing the vast array of living and non-living marine resources, as well as diverse ocean and coastal areas."

Tools

Management

Management at Maine Sea Grant is lean and efficient. All of the management team members participate in several administrative and programmatic initiatives simultaneously. Maine Sea Grant is administered by a full-time director (who also serves as extension program leader), a full-time associate director for outreach (who also supports office logistics and education programs), and a part-time assistant director for research (who is also a faculty member in the University of Maine School of Marine Sciences). A full-time fiscal officer manages the technical aspects of grants administration. These four individuals make up the Maine Sea Grant management team, which meets regularly to review staff proposals for new programmatic initiatives and to consider proposals for program development funds submitted by external applicants. Decisions are made by consensus. The management team also oversees the formal review process for proposals submitted for research funding and works together to set the overall Maine Sea Grant budget and strategic direction. A team approach allows each administrative unit to access support from the other units on specific programs to ensure that all components of Maine Sea Grant are well informed and represented. An administrative associate provides support to all elements of the program while the information technology coordinator provides IT support.

Within each of the administrative units (Research, Extension, Communications, Education) programmatic leaders hold regular staff meetings and conference calls to share information and to ensure that a team approach is utilized when possible and practical. Through this sharing of information and regular contact, the overall management of the Maine Sea Grant Program is informed and responsive to programmatic needs at all levels. Program field staff report to the main office in order to contribute to the annual report for the National Sea Grant Office and the University of Maine. Similarly, researchers funded by Maine Sea Grant are required to submit project updates and completion reports, depending on the status of their research projects. It is the responsibility of the management team to assemble impacts and outcomes from these reports to ensure that programs are properly evaluated on this basis and that funds are expended wisely.

“With an eye on local situations and an ear to regional trends, we are constantly making adjustments to programs in order to be nimble and responsive to the current needs we observe and to the future ones that we hear.”



Cheryl Daigle



Natalie Springuel

Maine Sea Grant has made great progress in the use of computerized databases for tracking program information. The fiscal officer has developed extensive skills in several database systems and provides support to some of the administrative units. An overall program reporting database houses all information on internal and external programs, including information on the goals of each project; the methods being used; budgets, impacts and outcomes; and other related information. Another database makes recruiting and coordinating reviewers for the peer review of research proposals more efficient, including systems for automated communication with reviewers and search functions. Other examples of the use of databases for programmatic initiatives include general accounting, conference support, mailing lists, and online client surveys.

Finally, the Maine Sea Grant management team is responsible for providing strategic direction and cultivating opportunities for program growth, new partnerships, and initiatives in emerging issue areas. In the final analysis, Maine Sea Grant recognizes that this is the most important task of program leadership. Through the process of strategic planning, program evaluation, and networking with colleagues and stakeholders throughout the state, the management team is responsive to the needs of the state while anticipating future needs for science and education related to emerging issues and our rapidly changing coastal communities. Maine Sea Grant has recruited a diverse Policy Advisory Committee (PAC) to help develop our strategic plan and to provide input on programmatic direction. In addition to active input from our PAC, many of our staff members participate on advisory and planning committees with dozens of other organizations in the state and region. Through these mechanisms, we gain insights into other needs when developing our programs. With an eye on local situations and an ear to regional trends, we are constantly making adjustments to programs in order to be nimble and responsive to the current needs we observe and to the future ones that we hear.

Research

“Each of our Sea Grant-funded projects receives additional support for outreach and education, to add value to the research investment and to help achieve greater success and impacts.”

A major tool of the Maine Sea Grant College Program is our research program. We support research that is relevant to the issues and needs of stakeholders in Maine and the northern Gulf of Maine region. Research in our program is accomplished in three ways, which are often interconnected: (1) competitively awarded research grants from both Maine research funds and national solicitations; (2) program development grants to investigators in the state and region; and (3) research activities of members of the Sea Grant Marine Extension Team (MET). Maine Sea Grant also conducts the research competition for grants from the Maine Oil Spill Advisory Committee (MOSAC) of the state’s Department of Environmental Protection. All research conducted with Sea Grant or MOSAC funds or by Sea Grant staff includes an outreach component to ensure that results are available to industry, governmental and non-governmental entities, and other interested individuals.

Maine Sea Grant has been running a successful and highly respected research competition annually since it was first designated a Sea Grant College Program with the University of New Hampshire in 1980. Since our separation from New Hampshire in 2000, we have continued this model; however, this year we switched to a biennial call for proposals. Our program honors the role of peer review in the evaluation of project proposals and we conduct this review with rigor and anonymity to ensure that funding decisions are based on the quality of the proposed research, and the relevance and impact of the potential discoveries.

In collaboration with the Maine Sea Grant Policy Advisory Committee, we establish priorities and provide guidance to researchers in order to recruit project proposals that will help to meet state and regional needs. Though our goal is to engage experienced scientists to assure the highest quality research possible, Maine Sea Grant is also interested in cultivating the skills of younger researchers and encourages their participation in the periodic request for proposals. Maine Sea Grant’s process for soliciting research proposals has two stages. In the first stage,

pre-proposals are reviewed by a panel of local stakeholders on the basis of their relevance to the state of Maine (or the region). Full proposals are invited back for projects which, if successful, would likely lead to some application of the findings. Full proposals are reviewed through peer review with mail reviews, principal investigator rebuttals, and a technical review panel, which provides input to the management team for funding decisions.

Maine is fortunate to have a large number of marine scientists at academic, nonprofit research organizations, and governmental agencies who conduct research with Sea Grant funding. The University of Maine, Bigelow Laboratory for Ocean Sciences,



Cheryl Daigle

Monitoring beach erosion.

and the Gulf of Maine Research Institute attract the most funding for marine research from Maine Sea Grant and other sources. A number of other academic institutions have faculty engaged in marine research, some with Sea Grant support. These include other public institutions, principally the University of Maine at Machias, University of Southern Maine, Marine Law Institute of the University of Maine School of Law, and Maine Maritime Academy. In addition, there are several private institutions, namely the University of New England, College of the Atlantic, and Bates, Bowdoin, Colby, and Unity colleges that have marine-related research capacity. Scientists at the Wells National Estuarine Research Reserve, Maine Departments of Marine Resources and Environmental Protection, and the Maine State Planning Office have received Sea Grant funding in recent years.



Testing a submersible mussel raft.

Cheryl Daigle

Maine Sea Grant has encouraged research proposals from natural and social scientists at institutions that have not traditionally received Sea Grant support. Frequently, program development grants are used to initiate a line of research by these investigators. It is noteworthy that the University of Maine at Machias, the University of Southern Maine, and the University of New England have recently expanded infrastructure and faculty to conduct marine research and education.

Members of the MET also conduct applied research, usually in collaboration with stakeholder groups, such as fishermen, industry, nonprofit groups, or state agencies. Extension staff time is often used as match to leverage additional funds for a project, for example through the Northeast Consortium, a program supported with other NOAA funds to engage fishermen and scientists in cooperative research. MET members also facilitate the research of others by helping to forge links between scientists and the private sector.

Each marine extension staff member is formally linked to several of our Sea Grant-funded research projects. The nature of the link varies, but it may involve participation in the research, facilitating the conduct of research with stakeholders, or assisting with the outreach component of the research. Extension staff have many of the contacts necessary to support the principal investigators and they, in turn, become more knowledgeable about Sea Grant-sponsored research and can be more effective at communicating the results of this research to the public. In this way, each of our Sea Grant-funded projects receives additional support for outreach and education, to add value to the research investment and to help achieve greater success and impacts. This also provides the opportunity for staff to practice the scientific method and to become better translators of science to the public.

Outreach

Outreach is probably our most effective tool because, by its very nature, outreach is about connecting and interacting with people. Although listed here as separate components of our outreach program, extension, communications, and education are integrated parts of the work that we do.



Richard MacDonald

Working with the Coast Guard to improve sea kayak safety.

Extension

As with management, Maine Sea Grant uses a team approach to extension. The Marine Extension Team (MET), a collaboration with University of Maine Cooperative Extension, consists of 10 professional staff who are based along the coast of Maine from Wells to Eastport. Other members of the program staff also participate in extension-related activities. MET members conduct informal education and extension programs, bringing science to users in the community and relaying their scientific needs to the University. Team members have individualized skills and have developed focus areas based on their experiences and the needs of their constituents. The team approach allows members to involve their particular section of the coast with a program or project that might be based in another part of the coast, thereby allowing each of the extension projects to have statewide application if needed.

Programming is often related to the application of science or technology to a complex coastal issue, such as the development of innovative, low-impact aquaculture gear or the testing and design of radar reflective materials for sea kayakers. Many programs engage coastal residents in some form of stewardship activity, such as monitoring beach erosion, water quality, or toxic phytoplankton.

Each MET member develops an annual plan of work based on many factors, including the current strategic and implementation plans; needs of local, state, and regional client groups; the availability of skills and resources; and the potential synergy with other programs both internal and external to Maine Sea Grant. Projects also have an evaluation plan in place so that staff and management can use a framework of goals, objectives, outcomes, and benchmarks to ensure that programming is effective and resources are expended wisely. Another tool that has been implemented for the MET is the recruitment of individual advisory committees. These committees of four or five individuals provide staff members with a sounding board for program ideas and broad perspectives to help troubleshoot challenging situations, thereby adding value and accountability to the programming. Individual advisory committees generally include representatives from science, management, industry, and local communities.

“Members of the MET must be attentive, responsive, and creative so that they can rise to new challenges...”

While it is critical that plans of work align with local, regional, and national needs, MET members conduct their work at the community level. The strategic plan should provide the general road map of goals and objectives for programming, based upon the best possible analysis of conditions and needs at the time the plan was created. However, our coastal communities are under tremendous pressures, and their needs are ever changing. Members of the MET (and indeed the entire Maine Sea Grant Program staff) must be attentive, responsive, and creative so that they can rise to new challenges and be able to revise their plans of work in order to accommodate new and emerging issues. Regular meetings of team members, individual advisory committees, and leadership provides opportunities for careful consideration of these types of pressures on staff members and allows the program as a whole to be strategic yet responsive.

Communications

The Communications office, which consists of a coordinator, information technology coordinator, science writer, and science publications designer, supports MET activities, as well as the management and research components of Maine Sea Grant. Communications staff members work closely with the 10 marine extension members to deliver technical information in many different formats. These include developing fact sheets, project reports, and guides; contributing to local and national publications; and writing and distributing press releases, brochures, and other informational materials. Communications staff members attend community meetings to advise on publication content and design, and take photographs of projects to support the text. For management, Communications produces program publications, such as the annual report, the strategic and implementation plans, and other reports required by the University of Maine and the National Sea Grant Office.

The information technology coordinator in the Communications office maintains the program's Web site, updating MET activities and research projects on a regular basis, and helps to design online surveys and other tools to evaluate our products and services. She also coordinates all technology needs of the program; manages the publications database; provides support and instruction to staff members on hardware, software, network and related areas. She coordinates the effort to integrate innovative technologies into the program, such as Web-based information gathering and electronic grant proposal submission and is a key participant in the strategic planning for the program's technological needs.



Edwin Remsburg

Education

In recent years, Maine Sea Grant has not had an education coordinator, but we developed the position in the summer of 2005 and will have a coordinator on board in early 2006. Most of the members of the Marine Extension Team conduct programming in the K-12 environment by visiting classrooms, hosting students and teachers in field locations, and conducting teacher-training workshops. By their experiential nature, extension programs provide exciting learning opportunities that can supplement core education curricula. The problem to date has been finding efficient ways to integrate the valuable extension and research-based programs of Maine Sea Grant and the University of Maine into the K-12 arena. The plan for the new education coordinator is to build systems that will enable more contact with students and teachers and to formulate program content so that it fits into curricula in ways that conform to national and state learning standards, while exposing students to the many exciting themes that are represented in our coastal communities.



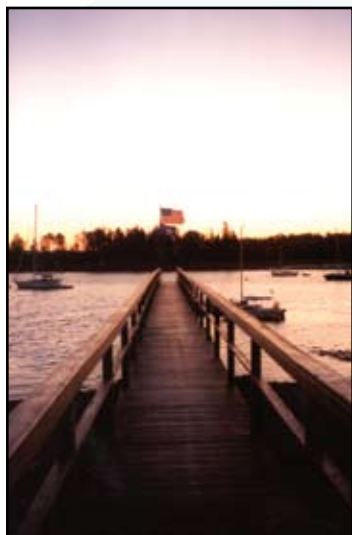
Alicia Mitchell

Providing field opportunities for high school students.

The education program will utilize Internet technologies and other innovative media to deliver content to students and teachers. There also will be an emphasis on exposing teachers to marine and coastal issues and to the scientific method by developing continuing education opportunities with researchers and Sea Grant staff. Closer ties with the agencies and colleges involved in managing our public school system and training tomorrow's teachers are needed and the education coordinator will address some of these needs. These efforts will provide the mechanism by which the research and extension programming already under way is delivered in the appropriate manner to young people and will add value to our investment while exposing tomorrow's decision makers to marine and coastal issues. Other innovative approaches will be used to complement the formal and informal education programming and provide linkages with our extension program. These include service learning (in which students or participants provide a service in exchange for free education, for example the Cooperative Extension Master Gardener program) and free-choice learning (in which individuals choose to participate in activities that, perhaps unintentionally, result in knowledge gain; for example, visiting museums and aquariums).

Crosscutting Issues

By paying attention to needs addressed by national, state and local partners, Maine Sea Grant can remain relevant to the issues of the day. More and more, these issues are requiring interdisciplinary collaborations that resist traditional boundaries, making it difficult for the Marine Extension Team to separate its work into theme areas, or “bins” as we frequently call them. Whenever we try to organize according to theme, we find that crosscutting issues force us to abandon our bins and work together to address the needs of our various constituencies. Over time, we expect that the divisions between theme areas will blur even more.



The Marine Extension Team works in four theme areas: fisheries, aquaculture, coastal communities, and ecosystem health. While the theme areas each have their own unique issues, all are being affected by the changes occurring along Maine’s coast. Therefore, instead of describing the various issues and activities of the four theme areas, which has already been accomplished in previous strategic plans, annual reports, and program brochures, we have chosen to highlight how coastal changes have brought together extension team members from different theme areas to work on current, crosscutting issues: community-based natural resource management, planning for the future of coastal communities, sustainable seafood, and stewardship through citizen science.

“Whenever we try to organize according to theme, we find that crosscutting issues force us to abandon our bins and work together to address the needs of our various constituencies.”

Here, we look at how these issues are affecting the state and how representatives of the different extension theme areas are responding as a team. Specific activities that address the needs related to these issues are discussed in the Implementation Plan.

Community-based Natural Resource Management

In recent years, as two national commissions have reported on the state of the oceans and single-species regulations to prevent overfishing have made headlines, ecosystem management has emerged as an alternative way to manage our ocean resources. As ecosystem-based management develops, communities have a role to play by participating in the research, stewardship activities, and decision-making process. Sea Grant is already working at the interface among scientists, policymakers, and the public and thus is optimally positioned to facilitate this participation, helping to create and ensure the use of the knowledge, tools, and skills needed for ecosystem-based management.

One example of local natural resource management is “bay management,” which considers nearshore coastal waters as a whole ecosystem—including ecological, economic, and cultural conditions—not in terms of isolated species or uses. Maine’s bay management study, initiated in 2004, encourages local input while recognizing that the state ultimately has responsibility for managing the waters in the public trust, those that lie within three miles of shore. Maine Sea Grant is represented on the Bay Management Steering Committee, which is examining the application of bay management principles to aquaculture and other activities. In 2005, several MET members helped to plan and facilitate five public meetings to receive input from citizens about nearshore water uses and conflicts. Insights from these workshops have helped inform the goals of this strategic plan.

Since the MET members are based where they work, they are in the right position to help coordinate bay management. They already know the stakeholders in the region, and have an awareness of each bay’s environment, natural resources, and community dynamics.

Planning for the Future of Coastal Communities

“Many fear the loss of a fishing-based culture as coastal communities shift towards an economy based on suburban and second-home development, and tourism.”

Throughout coastal Maine, industries have relied on waterfront infrastructure and the tradition of permissive trespass to gain access to the water. This historical access is being threatened by changes in land ownership and increasing diversity of water-dependent industries. Coastal communities and harbors are struggling to find the balance between newer businesses (schooners, kayakers, whale watchers, etc.) and traditional industries (lobster wharves, boatbuilding and other marine trades). As coastal real estate prices skyrocket and coastal landownership and attitudes change, the public is losing access to the shore. As a result, the overall size of the working waterfront is shrinking. Maine’s coastal communities under pressure face potential economic loss, including lowered income or lost jobs for coastal families who rely on the water. Many fear the loss of a fishing-based culture as coastal communities shift towards an economy based on suburban and second-home development, and tourism.

The state is working to address the connection between coastal development and diminishing waterfront access. In 2003, Governor John Baldacci’s Blaine House Conference on Maine’s Natural Resource-based Industries stated that the working waterfront (which includes aquaculture and other water-depen-



Touring shellfish aquaculture sites.

Catherine Schmitt

dent industries) is critical to Maine's coastal future. In their report on coastal access priority areas for boating and fishing, the Maine Coastal Program and Maine Department of Marine Resources state, "Clearly, public access is an issue that will not go away, particularly for the state's coastal waters, which support both recreational and commercial users. In fact, the need to address the issue will only become more pressing."

Policies and programs that maintain working waterfronts as viable contributions to the economy, including EPA's Smart Growth initiatives and those of other entities, are likely to be an important element in assuring the future of a viable ocean and coastal economy in Maine. A recent study by University of Southern Maine economist Charles Colgan found that activities associated with working waterfronts make larger and more long-lasting contributions to the Maine economy than coastal real estate development.

A study of 25 working waterfront communities by Coastal Enterprises, Inc. (Portland, ME) in 2002 found that communities need to share information about town and state actions to protect working waterfronts and access to waterfront protection tools. These communities include longtime residents and newcomers alike, but the audience for coastal access issues includes those forces outside of Maine's coastal communities that are driving the changes.

The increase in unplanned development, or sprawl, is affecting not only working waterfront communities and public access to the coast, but also the health of marine waters. The EPA-sponsored smart growth effort promotes development that serves the economy, community, and the environment. Smart growth balances economic development and jobs with environmental protection, and provides a framework for communities to make informed decisions about how and where they grow.

MET members working in Sea Grant's Coastal Communities theme area are well positioned to address these issues of coastal access, working waterfronts, and smart growth. But so are those involved in the program's three other theme areas: fisheries, aquaculture, and ecosystem health. Competing waterfront uses are threatening the survival of aquaculture and commercial fisheries, and the affiliated cultural aspects. Changing land uses and demographic shifts can affect ecosystem health. For example, what are the impacts on water quality from a harborside seafood processor versus a waterfront condominium development? Our diverse staff, working as a team, can help find innovative solutions and partnerships that build trust among coastal groups who do not usually interact or communicate.



Elsa Martz

Sustainable Seafood

Seafood consumption in the United States continues to increase each year. In 2004, Americans ate a record 16.6 pounds of fish and shellfish per person, up 2% from the previous year, according to NOAA Fisheries Service. As landings from Maine's inshore fisheries have declined, aquaculture is playing an emerging role in helping to produce the billions of pounds of seafood consumed every year in the U.S. Aquaculture-supplied seafood also reduces pressure on traditional fisheries, allowing more time for recovery efforts.

One of the aims of the Governor's Task Force on Maine's Groundfish Industry is to preserve the remaining elements of the commercial and recreational fisheries, consisting of both fishermen and shoreside infrastructure, so that the industry is prepared to take advantage of future abundance of fish populations. According to the task force's 2004 final report, "There are brighter days on the horizon if Maine's fishing fleet can survive to benefit from them. Federal regulators estimate that groundfish catches will triple over the next few decades, increasing in value from \$100 million to over \$300 million and creating hundreds or thousands of new jobs in Maine's working waterfront."



Cheryl Daigle

With the exception of lobsters, landings from Maine's inshore fisheries are at record lows. Declining stocks of groundfish, scallops, and sea urchins are forcing many to leave these fisheries. Survival will require continued access to and presence on the coast, but more and better information about fisheries resources is also needed. The U.S. Commission on Ocean Policy final report emphasized the value of cooperative research, both for building better relationships between scientists and fishermen and for improving data collection and understanding of fishery resources.

Maine Sea Grant has responded to the need for maintaining a safe and plentiful seafood supply while also sustaining the traditional economies of our coastal communities. The Marine Extension Team's efforts bring together experts to discuss ways to enhance fisheries, reduce bycatch, integrate science and research, connect fisheries to local communities, and communicate research results.

As the proportion of seafood produced through aquaculture increases, the potential for conflict among users and residents of the coast also increases. Aquaculture technology is advancing faster than the public's knowledge of the industry, demanding an educational and communications effort that parallels changes in the industry. MET members have responded to requests for information about local aquaculture farms and about how the public can be involved in the aquaculture leasing process. The MET has served as a liaison between researchers and the industry, helping to nurture an environmentally and economically viable aquaculture industry in the state.

Stewardship Through Citizen Science

Changing land use can cause local conflicts that divide communities trying to balance economic development with public resource protection. With the intensive multiple uses of the coast, Maine's citizens and community decision makers need quality-assured data and information in order to fully assess the impact of human activity on the coastal environment, and make management decisions that promote a healthy and sustainable Gulf of Maine. Trained volunteers engaged in monitoring programs can be a valuable source of information to their communities and state and federal agencies. In turn, the volunteers have a heightened awareness of local issues and can facilitate the local, voluntary adoption of best management practices, leading to measurable improvements in local environmental quality. In Maine, citizen scientists are enhancing coastal stewardship through a variety of volunteer monitoring programs, including those on beach water quality, island intertidal habitat, beach erosion, and marine invasive species.

Another form of stewardship results when commercial fishermen are involved in scientific data collection and applied research projects. For many years, fishermen have participated in Maine Sea Grant-sponsored research programs, as well as those funded by the Northeast Consortium. These efforts have proven to be an effective way of collecting meaningful data while engaging the regulated community in stewardship activities.

MET members are leading many of the stewardship programs in the state and work with fishermen in applied research projects on an ongoing basis. Since water quality is fundamental to all these stewardship activities, it is a good example of the crosscutting, or interdisciplinary, nature of current coastal issues. Although water quality was traditionally included in the ecosystem health theme area, it affects fisheries, aquaculture, and coastal communities equally. Therefore, our programs in these theme areas are inter-related and activities are coordinated to promote clean water.

“In Maine, citizen scientists are enhancing coastal stewardship through a variety of volunteer monitoring programs, including those on beach water quality, island intertidal habitat, beach erosion, and marine invasive species.”



Catherine Schmitt

Monitoring the marine environment.

Implementation Plan 2006-2008

A. Community-based Natural Resource Management

1. **Objective:** By 2010, the number of representatives from key stakeholder groups, such as the commercial fishing, aquaculture, transportation, and conservation sectors engaged in regional management of coastal natural resources will increase by 50%.
 - a. **Strategy:** Marine Extension Team members will include multiple stakeholder sectors in their target audiences for workshops, applied research projects, and stewardship programs.
 - b. **Strategy:** Marine Extension Team members will convene meetings and provide facilitation skills to engage multiple stakeholders in the process of developing natural resource management policy.
 - c. **Strategy:** Maine Sea Grant will expand mailing and contact lists to include multiple stakeholder sectors so that they will have access to communications products.
 - d. **Strategy:** Maine Sea Grant will recruit members for its Policy Advisory Committee from multiple stakeholder groups to broaden the perspectives considered in managing the program and to provide opportunities for these representatives to interact in a professional and informative setting.

Measure: The number of new representatives from multiple sectors participating in Sea Grant-sponsored activities.



Natalie Springuel

2. **Objective:** By 2010, the number of communities participating in Maine Sea Grant-sponsored activities to foster public input in the development of natural resource policy will increase by 50%.

- a. **Strategy:** Maine Sea Grant will identify appropriate municipal contacts for inclusion in program announcements and in distribution of communications products.
- b. **Strategy:** Marine Extension Team members will build new relationships with community leaders in their region by inviting their participation in programs and committees.
- c. **Strategy:** Marine Extension Team members will identify opportunities to include municipal representatives in statewide processes for developing and implementing natural resource management policies.
- d. **Strategy:** Maine Sea Grant will engage K-12 teachers to assess their interest and need for curriculum support regarding ecosystem principles and community-based natural resource management.



Cheryl Daigle

Measure: The number of municipalities participating in Sea Grant-sponsored activities.

3. **Objective:** In each of three regions of Maine's coast, multiple towns will collaborate on natural resource management issues by 2010.

- a. **Strategy:** Marine Extension Team members in southern Maine, midcoast Maine, and eastern Maine will conduct a needs assessment to gauge the level of inter-town cooperation on natural resource management.
- b. **Strategy:** Based upon findings from the needs assessment, Marine Extension Team members will facilitate discussions between towns in their regions to encourage regional approaches to natural resource management.
- c. **Strategy:** Marine Extension Team members will participate in follow-up activities related to bay management and will facilitate community inclusion in regional bay management initiatives.
- d. **Strategy:** Maine Sea Grant will include social science investigators in recruiting for research projects on natural resource economics, governance and other sociological themes to provide a scientific basis for community inclusion in natural resource management.

Measure: Number of municipalities engaged in regional natural resource management initiatives.

B. Planning for the Future of Coastal Communities

1. **Objective:** By 2010, three coastal Maine communities will have identified and begun to implement strategies to achieve sustainability and resiliency.
 - a. **Strategy:** Maine Sea Grant will partner with other institutions to provide opportunities for communities to plan for their future.
 - b. **Strategy:** Maine Sea Grant will partner with municipalities and property owners to identify and implement appropriate mitigation strategies to improve community resiliency in the event of coastal hazards.
 - c. **Strategy:** Maine Sea Grant will provide facilitation support to several southern Maine towns as part of an EPA-funded Smart Growth demonstration project.
 - d. **Strategy:** Maine Sea Grant will create at least one communication tool to share results of the EPA- funded Smart Growth demonstration project.

Measure: Number of communities in Maine implementing community-based plans for their future.

2. **Objective:** By 2010, all coastal communities will have access to information about the status of public and private access points along the coast, and the tools available for the protection of the public's access to the shore.
 - a. **Strategy:** Maine Sea Grant will continue to support efforts to conduct relevant research and to collect and manage information about coastal access.
 - b. **Strategy:** Maine Sea Grant will cooperate with other partners to disseminate information about public and private access to the coast and to identify innovative methods for sharing this information with the public and with decision-makers.
 - c. **Strategy:** Maine Sea Grant will collaborate with groups interested in access-related issues to host workshops or forums to engage multiple sectors in discussions about preserving and maintaining coastal access points.
 - d. **Strategy:** Maine Sea Grant will convene meetings of water-dependent users to facilitate discussions about user habits and potential conflicts, and to identify cooperative agreements and tools to minimize conflict and enhance safety.

Measure: Number of communities for which coastal access information is mapped and available, and related change analysis.



Edwin Remsberg

3. **Objective:** By 2010, all coastal communities will have information about the multiple uses of their waterfronts.

- a. **Strategy:** Maine Sea Grant will work with partners to distribute the marine area characterization report to coastal communities.
- b. **Strategy:** Maine Sea Grant will work with partners to identify a mechanism to provide support to coastal communities to conduct marine area characterizations and to collect and manage information about their coastal assets.
- c. **Strategy:** Maine Sea Grant will coordinate the inclusion of multi-use working waterfront themes into K-12 education initiatives in coastal towns.

Measure: Number of communities that have conducted marine area characterizations and assessed their working waterfront assets.

4. **Objective:** By 2010, Maine's coastal tourism industry will have access to information that will help to maintain the ecological integrity of the coast while expanding opportunities for building client bases.

- a. **Strategy:** Maine Sea Grant will remain involved in statewide efforts to develop and expand nature-based tourism to ensure that ecologically sustainable practices are promoted.
- b. **Strategy:** Maine Sea Grant will identify ways to integrate tourism with other coastal activities and industries (such as aquaculture) and will facilitate cooperation to minimize conflicts between on-the-water uses.
- c. **Strategy:** Maine Sea Grant will research and provide information about sustainable and nature-based tourism models to planners and industry members in Maine.
- d. **Strategy:** Maine Sea Grant will produce materials promoting environmentally sound tourism for distribution to visitors and hosts.

Measure: Number of examples of environmentally sound tourism principles that are implemented by the coastal tourism industry.

C. Sustainable Seafood



Lynn Wardwell

1. **Objective:** Maine Sea Grant will fund or participate in two technological research projects annually to improve commercial fishing performance.
 - a. **Strategy:** Maine Sea Grant staff will remain involved in collaborative fisheries research in the region as sponsored by the Northeast Consortium, the Cooperative Research Partners Program, and other funding opportunities.
 - b. **Strategy:** Maine Sea Grant will continue to include commercial fisheries issues for consideration in the biennial call for research proposals.

Measure: Number of dollars attracted and expended annually on research related to the commercial fishing sector.

2. **Objective:** Maine Sea Grant will have at least one staff member participating in each of the active collaborative fisheries management initiatives in the state.
 - a. **Strategy:** Marine Extension Team members will attend and/or provide support to collaborative fisheries management initiatives such as those for lobster, clams, urchins, scallops, and seaweed.
 - b. **Strategy:** Maine Sea Grant will periodically produce fact sheets that link commercial fisheries needs with scientific discoveries to better inform discussions in the fisheries and to bring these issues to formal and informal education arenas.
 - c. **Strategy:** Maine Sea Grant will expand its collaborative fisheries management activities and will identify ways to encourage greater participation by commercial fishermen, particularly younger generations of fishermen, in science and management initiatives.
 - d. **Strategy:** Maine Sea Grant will participate in the evaluation of the role that Marine Protected Areas (MPAs) might play in commercial fisheries management and will disseminate findings to industry and agency partners.

Measure: Number of commercial fishing management initiatives that have Maine Sea Grant participation.

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3. **Objective:** By 2010, all sectors of marine aquaculture in Maine will have access to relevant research and technologies to develop and implement best management practices through Maine Sea Grant research and extension programs.
- a. **Strategy:** Maine Sea Grant will facilitate the development of multi-trophic aquaculture strategies by sponsoring research on innovative technologies and approaches and by convening workshops with participation from various components of the aquaculture sector.
 - b. **Strategy:** Maine Sea Grant will periodically produce fact sheets that link the information needs of the aquaculture industry with scientific discoveries to better inform discussions in the aquaculture sector.
 - c. **Strategy:** Maine Sea Grant will participate in local, regional and national events and dialogue in order to ensure that the aquaculture industry in Maine continues to integrate best available technologies and methodologies to help the industry to thrive in an environmentally sustainable manner.
 - d. **Strategy:** Maine Sea Grant will provide training opportunities and facilities for engaging growers in research and production activities such as the oyster gardening program and demonstration projects on the University of Maine lease site.

Measure: Percentage of aquaculture companies utilizing new technologies and best management practices.



Chris Bartlett

D. Stewardship Through Citizen Science

1. **Objective:** By 2010, 20% more of Maine's coastal towns and cities will be home to participants in one or more of the stewardship and citizen science programs offered by Maine Sea Grant.
 - a. **Strategy:** Marine Extension Team members who are conducting citizen science programs will expand the scope of their programs to increase the participation from as many coastal communities as possible.
 - b. **Strategy:** Maine Sea Grant will promote citizen science to all coastal communities through municipal government, local conservation committees, and other community groups.
 - c. **Strategy:** Maine Sea Grant will develop mechanisms for integrating citizen science programs into K-12 education in Maine's coastal communities.

Measure: Number of coastal towns with participants in stewardship and citizen science programs.

2. **Objective:** By 2010, citizens and natural resource decision-makers will have access to quality assured data that effectively informs decisions concerning coastal and natural resource management.
 - a. **Strategy:** Online, geospatially-referenced environmental monitoring databases will be expanded to stewardship and citizen science programs that are sponsored by Maine Sea Grant.
 - b. **Strategy:** Members of the scientific community will be recruited to join technical advisory committees, which will be convened as needed to evaluate each environmental monitoring program to ensure that the program is collecting valid and useful data.
 - c. **Strategy:** Quality control procedures will be instituted for all monitoring programs and information management strategies will be implemented to ensure that data are of high quality.
 - d. **Strategy:** Maine Sea Grant will promote the availability and use of environmental monitoring data to citizens and coastal decision-makers through electronic and print materials and through direct contact.

Measure: Number of coastal resource managers using environmental monitoring data to inform decisions.

3. **Objective:** Service learning principles (or free-choice learning) will be incorporated into at least two of Maine Sea Grant's stewardship and citizen science programs by 2010.

- a. **Strategy:** Marine Extension Team members will research the concepts of service learning in other parts of the country in order to identify models for incorporation into Maine Sea Grant's programs.
- b. **Strategy:** Maine Sea Grant will convene a workshop on service learning principles to promote this concept through other partner organizations.
- c. **Strategy:** The Marine Extension Team will work collaboratively to identify programs for service learning and develop and implement the projects.

Measure: Number of Maine Sea Grant projects that utilize service learning concepts.



Conclusion

The 2006-2010 Strategic Plan provides an overall vision for the future and will guide our efforts over the next four years. The 2006-2008 Implementation Plan outlines our activities to help accomplish the program's goals for the first two years. The strategic plan is intended to provide a framework on which to build our programming, not to constrain our activities. Our success will be measured by our ability to have a positive impact on the lives and livelihoods of Maine's citizens. To do so, we have attempted to create a flexible plan that depends upon developing and maintaining close working relationships with stakeholders. As a publicly supported institution, Sea Grant has a mandate to make a difference. To do this, we create opportunities for people to become informed and participate in their own ways in making a difference in their coastal communities. We welcome comments and input from anyone with an interest in the coastal issues of the state of Maine.



NOAA Sea Grant Performance Measures

NOAA now requires that Sea Grant programs report on three specific measurable outcomes that are part of NOAA's annual report. The three measures are listed below. Most of the objectives, strategies, and measures identified in the Maine Sea Grant Implementation Plan align closely with these NOAA performance measures. Progress on these NOAA measures will be tracked through the implementation of the Maine Sea Grant Strategic Plan (2006-2010) and reported to the National Sea Grant Office annually.

Measure 1: Return on investment from the discovery and application of new sustainable coastal, ocean, and Great Lakes products.

Measure 2: Cumulative number of coastal, marine, and Great Lakes issue-based forecast capabilities developed and used for management.

Measure 3: Percentage/number of tools, technologies, and information services that are used by NOAA partners/customers to improve ecosystem-based management.

Maine Sea Grant College Program

5784 York Complex

University of Maine

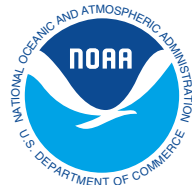
Orono ME 04469-5715

Voice 207.581.1435 · Fax 207.581.1426 · umseagrant@maine.edu

<http://www.seagrant.umaine.edu>



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