

Oregon State University Hatfield Marine Science Center



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Strategic Plan



December, 2006

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Executive Summary

Like the OSU administration and many other units of the university, the Hatfield Marine Science Center has been engaged in developing a strategic plan to envision its future. This document reflects the contributions of a diverse group of stakeholders, representing various academic and research interests on OSU's main campus, HMSC's partner research agencies, and communities of interest.

The Hatfield Marine Science Center (HMSC) enters its 5th decade with a strong vision for the future, as Oregon State University's campus for research, education and outreach in marine and coastal sciences. Complementing and reinforcing OSU's commitment to serve the people of Oregon as one of America's Top 10 Land-Grant universities, the HMSC aspires to become one of the nation's leading marine laboratories, known internationally for advancing knowledge through interdisciplinary and collaborative research partnerships among academia, government agencies, industries, and communities.

Members of the HMSC work by a strongly shared set of beliefs. We value stewardship of the marine environment, research excellence, collaborative partnerships, effective communication and engagement, and making a positive impact on the community. These are our core values, which serve as continuing guideposts for our research, teaching, community outreach and involvement.

HMSC is the essential coastal link needed to achieve the goals of Oregon State University's strategic plan and its commitment to serve the people of Oregon and beyond, through research and education programs that address issues of high economic, scientific, and aesthetic value in marine and coastal systems. HMSC will focus on three key themes in the OSU Strategic Plan – Advancing the arts and sciences, Understanding the earth and its resources, and Managing natural resources – with linkages to OSU's nationally and internationally recognized research, teaching, and outreach programs in the marine sciences, oceanography, engineering, forestry, and science.

The combination of location, physical setting, and multi-agency presence at HMSC creates a unique scientific and learning environment that will help position OSU for new national initiatives and priorities in marine and coastal science. The breadth and depth of expertise in basic and applied sciences at HMSC create a place where vital research and contributions to the preservation and management of the global marine environment can take place. Intertwined with these strengths and assets are challenges which this plan addresses.

The unique missions, mandates, political forces, and funding requirements of each agency and OSU program at HMSC make long-term joint planning challenging. There are also educational and administrative hurdles that are the result, in part, of HMSC's distance from the Corvallis campus. And like all OSU programs, funding issues impact the ability to offer programs, to maintain and upgrade facilities, to obtain the latest technology, and to serve all the communities of interest that have a stake in HMSC's activities. Echoing these challenges, the following **strategic issues** have emerged, highlighting both the needs and untapped potential of HMSC as a key resource and asset:

- ***Preparing for National Initiatives in Marine and Coastal Science.*** Our nation is developing a new ocean agenda based on an influential report from the U.S. Commission on Ocean Policy, released in 2004. HMSC can be a key contributor to the critical actions proposed, but will require improved, state-of-the-art facilities. Together with the other coastal and marine programs of OSU, HMSC can help position Oregon to be a leader in responding to national ocean priorities.
- ***Education.*** Educational programs at HMSC serve diverse populations and needs, but current programs fail to realize opportunities. This plan identifies new and compelling hands-on programs that will make OSU graduates more competitive, contribute to national workforce needs, and increase scientific literacy for youth and lifelong learners.
- ***Identity and Visibility.*** Capitalizing on its signature strengths, HMSC must better define its identity and enhance its visibility, both within OSU and to external audiences. Higher visibility translates into increased funding opportunities in response to new national mandates and initiatives.
- ***Partnerships in Marine and Coastal Science.*** The collaboration of state and federal agencies, academic scientists, and maritime industries represents a defining characteristic of the HMSC and strengthens the ability of each to recognize and participate in new ocean initiatives.

Moving beyond the recognized strengths, assets, and challenges, a set of primary goals, strategies and actions are identified in this plan as key to achieving the HMSC vision. Broadly defined, these goals address four fundamental priority areas: 1) *Educational Opportunities*; 2) *Research Excellence*; 3) *Partnerships and Infrastructure*; and 4) *Community Relationships and Interactions*. The goals, with their supporting strategies, follow:

Goal 1. Create and expand opportunities for outstanding and compelling educational programs and a superior learning environment in marine and coastal science and resource management.

- Develop opportunities for undergraduate courses at HMSC that enrich existing programs.
- Increase opportunities for graduate studies at HMSC.
- Develop leading national and international programs in informal education and extension-based outreach in coastal and marine science.
- Create programs of continuing professional education for scientists, managers, practitioners, and educators.

Goal 2. Create and promote excellence in research and scholarship in coastal and marine sciences.

- Launch and guide innovative multi-disciplinary marine and coastal science research projects.
- Increase synergy and research cooperation among OSU, HMSC, partner agencies and industry partners.
- Identify and promote the visibility of signature strengths of HMSC research.

Goal 3. Improve partnerships and facilities to enhance cooperation and success of OSU, partner agencies, and other stakeholders.

- Develop effective multi-agency agreements and cooperation and attract additional marine and coastal agencies.
- Maintain and enhance resources, facilities and tools to support research, teaching, and outreach
- Foster an intellectual and professional climate that is collegial and supportive of missions, people, and diversity of partner agencies/groups.

Goal 4. Develop HMSC - community partnerships for integrated and collaborative marine resource science, management, education and research.

- Promote understanding of utilization and sustainability of marine resources
- Engage community leaders as educators in professional development
- Involve community, industry, and NGOs in development of research directions and activities
- Develop and maintain political, economic and social support for HMSC mission

This plan will require actions by the OSU administration to enable HMSC to achieve the ambitious goals outlined herein. With new ocean initiatives at the national level, the outcomes anticipated from the plan will lead to new funding opportunities and accomplishments, including research results that inform public policy and have significant economic impact. Signature educational and research programs will follow the needs and missions of OSU and the agencies that comprise the HMSC. Fulfillment of this plan will elevate the visibility and reach of OSU's marine and coastal programs while addressing national priorities for ocean and coastal management needs.

HMSC History, Programs, Partner Agencies, and Stakeholders

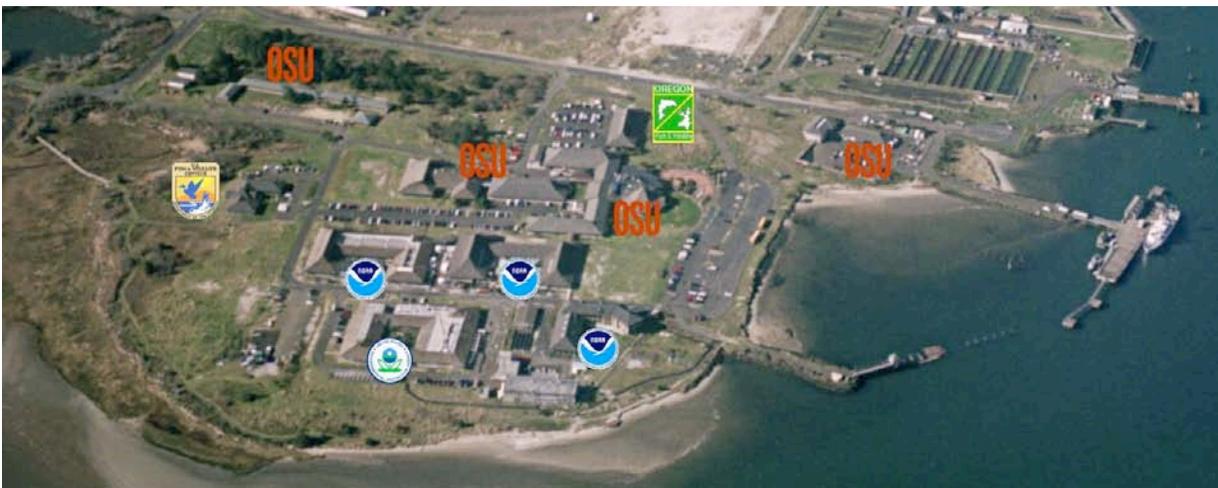
History

Since its birth in 1965 as Oregon State University's marine research station and public aquarium, the Hatfield Marine Science Center (HMSC) in Newport has grown to become a world-class hub of marine science research, education and outreach. With some 300 employees representing OSU and federal and state agencies, HMSC plays an integral role in marine and estuarine research and instruction, as a laboratory facility serving resident and visiting scientists, and as a base for oceanographic research.

Buildings on the 49-acre campus include modern research and teaching laboratories supporting investigations in marine biology and ecology, oceanography, botany, microbiology, zoology, geochemistry, genetics, marine fisheries, and aquaculture. A seawater system allows experimental research in tanks and laboratories. HMSC also features a popular visitor center and facilities for public education programs, a 20,000 square foot research library, on-site housing, and a ship support building and docking facilities for oceanographic research vessels (Newport is home port to the UNOLS vessel *Wecoma* and the 54' coastal vessel *Elakha*).

Partner Agencies, Programs

Five federal and state agencies have research labs and offices at the Newport campus, fostering collaborative research between OSU and partner agencies. Shared facilities provide opportunities for information exchange and synergistic activities among scientists and staff from different programs and disciplines.



Hatfield Marine Science Center

Oregon State University

- Coastal Oregon Marine Experiment Station (COMES)
- Cooperative Institute for Marine Resources Studies (CIMRS)
- Marine Mammal Institute
- OSU Extension Service
- Oregon Sea Grant
- Ship Operations (COAS)

National Oceanic and Atmospheric Administration (NOAA)

- Alaska Fisheries Science Center (NMFS)
- Northwest Fisheries Science Center (NMFS)
- Pacific Marine Environmental Laboratory (OAR)

U.S. Department of Agriculture (USDA)

- Agricultural Research Service

U.S. Environmental Protection Agency (EPA)

- Pacific Coastal Ecology Branch

U.S. Fish & Wildlife Service (USFWS)

- Oregon Coast National Wildlife Refuge Complex

Oregon Department of Fish and Wildlife

- Marine Resources Program

See Appendix 3 for more on these programs

Stakeholders

At the foundation of planning for the future is a recognition and understanding of the role of stakeholders both within and outside the HMSC. These stakeholders include not only students, faculty, researchers and staff from OSU and agencies represented at HMSC, but also the OSU main campus administration, colleges, departments, programs and institutes, and Extension. Local community stakeholders include HMSC volunteers, local government, marine resource industries and conservation groups, the Oregon Coast Community College, the Oregon Coast Aquarium and Lincoln County School District, all of which partner with the HMSC in different ways. Other stakeholders, more external to HMSC operations but still bearing influence, include state and federal government (agencies and elected officials), as well as the media and general public. HMSC's substantial budget and large number of employees make it a strong economic contributor to Oregon's central coast region, and OSU's innovation agenda brings promise of even more growth. Thus, all of these partnering entities, whether internal or external to HMSC operations and administrative structure, have a stake in HMSC's future.

Stakeholder representatives comprised the body of participants on the HMSC Strategic Planning Team (Appendix 4), which was responsible for developing this plan. In addition, this plan benefited from review of earlier versions as well as from extensive stakeholder meetings (Appendix 5).

HMSC Mission Statement

The Hatfield Marine Science Center is Oregon State University's campus for research, education, and outreach in marine and coastal sciences. Through its partnerships, HMSC improves scientific understanding of marine systems, coastal processes and resources, and applies this knowledge to social, economic, and environmental issues.

As a leading marine laboratory in the Pacific Northwest, HMSC has the expertise, technology, and responsibility to address important issues of high economic, scientific, and aesthetic value in marine and coastal systems. Its locality, ready access to the ocean and richness of partners – agencies, industry, and constituencies – create a physical and intellectual campus known for multidisciplinary research, education, and outreach that is world-class and international in scope. Hands-on educational opportunities train the marine science leaders of tomorrow, and outreach transfers knowledge to the public sector using new and compelling approaches. The HMSC is the essential coastal link needed to achieve the goals of Oregon State University's strategic plan.

HMSC Vision

The Hatfield Marine Science Center, as a key component of OSU's internationally recognized coastal and marine programs, will be the leading marine laboratory in the nation for collaborative approaches to marine and coastal issues by creating partnerships among academic institutions, government research agencies, industries, and communities.

The Hatfield Marine Science Center is internationally recognized for its interdisciplinary approaches to marine and coastal issues and serves as a national model for academic-government-industry collaboration in research, education, and outreach. HMSC embodies OSU's commitment to serve the people of Oregon, the nation, and the world by promoting knowledge-based conservation, management, and sustainable use of coastal and ocean resources as well as stimulating the economic development of coastal communities. The essential qualities that promote this vision include:

- Unique integration of location, collaborative culture, and engaged communities to attract diverse groups (students, scientists, educators, public, agencies, industry, foundations) and promote productive partnerships;
- Research infrastructure and expertise to improve our basic understanding of coastal systems, processes, and natural resource integration;
- Innovative programs with a global audience that engage the public, educate students, train future leaders in integrated coastal science, policy and management, and promote lifelong learning;
- Seamless integration of research, education, and outreach to meet the needs of a diverse constituency; and
- Understanding Oregon's diverse coastal resources by exploring the continuum of ecosystems from the headwaters of coastal watersheds to the deep sea.

Core Values

The faculty, students, and staff of HMSC strive to work by a strongly shared set of beliefs. These core values serve as continuing guideposts for our research, teaching, community outreach and involvement. OSU's core values of accountability, diversity, integrity, respect, and social responsibility are the standards for all members of our academic community, and provide the foundation on which HMSC's own core values stand:

- **We value stewardship of the marine environment.** Our efforts focus on fostering respect, understanding and stewardship of the marine environment and its resources.
- **We value scholarship and research excellence.** Our research is based on the principles of cutting edge exploration, scientific rigor, and professional integrity.
- **We value collaborative partnerships.** Our research, teaching, and outreach is collaborative, emphasizing strong partnerships with agency scientists, industry, community, and with OSU faculty integrating across academic disciplines.
- **We value making a positive impact on the community.** Our professional and personal contributions must positively impact the social, economic, and environmental conditions of the communities we serve.
- **We value effective learning and engagement.** Our access to marine and coastal environments and communities is central to hands-on learning. Our scholarship and research must be communicated in an effective and timely manner to each other and the communities we serve.

HMSC's Role Within Oregon State University

As Oregon State University's portal to the Pacific Ocean, HMSC is a campus that serves OSU's diverse and dispersed programs in marine science, bringing them together for effective collaboration and higher national and international visibility. Its unique research capabilities and partnerships enhance the capabilities of other elements of OSU, contributing to the multidisciplinary themes. The presence of state and federal agencies on the HMSC campus, sharing facilities and collaborating with university scientists on oceanographic, biological and ecological research activities, creates opportunities for innovative cooperative research initiatives that can inform public policy and become a mark of distinction for OSU.

The educational programs at HMSC, available to all levels from lifelong learners and youth (K-12) to graduate school, are enhanced by facilities and access to environments unavailable elsewhere. OSU benefits greatly from the relationships that HMSC cultivates with diverse partners and constituencies, from resource agencies and coastal industries to members of the public, creating a clear identity that associates OSU with the Oregon Coast.

OSU Colleges, Departments and Academic Units Involved at HMSC

College of Agricultural Sciences

Agric. & Resource Economics
Fisheries & Wildlife
Food Science & Technology

College of Oceanic and Atmospheric Sciences

Oceanography
Marine Resource Management

College of Science

Botany & Plant Pathology
Math & Science Education
Microbiology
Zoology
Biology Program

College of Veterinary Medicine

Biomedical Sciences

Honors College

Honors Thesis Students

OSU Extension Service

HMSC's Role Within National Priorities

The recently released report of the U.S. Commission on Ocean Policy calls for a new ocean agenda and a doubling of the nation's investment in marine and coastal research and education. This report comes on the heels of a similar set of recommendations issued by another expert panel examining the state of the oceans in 2003. The privately funded Pew Oceans Commission report, "America's Living Oceans: Charting a Course for Sea Change" points to a number of alarming indicators of health of marine ecosystems and fisheries.

The reports have together captured the attention not only of environmental organizations, fisheries management bodies, and maritime industries, but also significantly the interest of lawmakers. Not since the Stratton Commission's landmark 1969 report "Our Nation and the Sea" has the United States government focused so much attention on assessing the state of the oceans and on crafting national policy in response to the range of research and resource management needs identified. It will be the most influential document affecting marine and coastal policy in over three decades.

While the Stratton Commission report is credited with having directly fostered the creation of the National Oceanic and Atmospheric Administration and the Environmental Protection Agency, the impact of the US Commission on Ocean Policy's report is likely to be greater on existing agencies and institutions leading current scientific research and resource management activity. With its diverse capabilities and agency partners, HMSC is uniquely positioned to capitalize on strengths that will enable OSU's marine and coastal enterprise to take advantage of future growth in the field.

U.S. Commission on Ocean Policy Recommended *Critical Actions* Pertinent to HMSC

- Improve the federal agency structure by strengthening NOAA.
- Develop a flexible, voluntary process for creating regional ocean councils, facilitated and supported by the National Ocean Council.
- Double the nation's investment in ocean research...
- Implement the national Integrated Ocean Observing System...
- Improve ocean-related education through coordinated and effective formal and informal efforts.
- Strengthen coastal and watershed management...
- Reform fisheries management by separating assessment and allocation, improving the Regional Fishery Management Council system, and exploring the use of dedicated access privileges.

HMSC Strengths, Assets & Challenges

Strengths

The linkage to OSU's nationally and internationally recognized research, teaching, and outreach programs in the marine sciences, oceanography, engineering, forestry, and science are the foundation of HMSC's current and future success. The breadth and depth of the research conducted at HMSC by OSU and partner agency scientists informs resource management and helps bridge the gap between science and policy, providing numerous benefits to Oregonians and the nation. The continuing support of government agencies, the local community, and industry partners makes HMSC a nexus for cutting edge marine and coastal research and learning.

Essential components of HMSC's strengths are:

- **Breadth and Depth of the Marine and Coastal Research Enterprise.** HMSC researchers conduct world-class interdisciplinary marine research with industry and agency partners. HMSC researchers are a scientifically diverse group of internationally recognized scholars and practitioners whose contributions play a vital role in the preservation and management of the marine environment, with obvious economic benefits to the state and region. Current research is broad-based (including fish behavior, population dynamics and modeling, pathogens and diseases, genetics, oceanography and biogeochemistry) and has considerable scope for growth. Scientific expertise, library resources, and research facilities allow a wide range of research in deep water, coastal, estuarine, and terrestrial watershed environments to be conducted for academic, agency, and industry needs.
- **Multi-Agency Partnerships.** The HMSC campus is a unique scientific community where OSU and agency scientists are co-located and work collaboratively to address marine and coastal issues. This multi-agency approach creates a rich scientific dialogue and research culture, cutting-edge interdisciplinary research models, and field work opportunities unlike any other university marine research location in the US. The long history of successful research partnerships and cooperation at HMSC provides a track record that meets the recommendations of the U.S. Commission on Ocean Policy report for enhanced partnerships.
- **Unique Teaching and Learning Opportunities.** HMSC's educational programs have a dramatic impact on the learning of OSU graduate and undergraduate students, K-12 students throughout the region, marine industry participants, and thousands of visitors to the Oregon coast each year. Academic programs emphasize 'hands-on' marine experiences that stimulate and educate. Students benefit from the significant expertise of courtesy faculty employed by the resident agencies. On-site classes and seminars, internships, research opportunities, experiences at sea, and job training are provided at HMSC. Informal marine education at HMSC is provided to K-12 students, adult learners, and the many annual visitors and local residents who come to the HMSC Visitor's Center.
- **Industry and Community Engagement.** The research and educational programs at HMSC have a critical economic and social impact on the local community. HMSC-based research projects help the marine, fishing, and aquaculture industries to better manage and protect regional and global marine resources while adapting to competitive pressures. The support of the local communities has been a sustaining element in HMSC's success over the years. Likewise, the support of the fishing and marine industries provides HMSC researchers and students with access to industry settings and expertise.

Assets

The combination of location, physical setting, and multi-agency presence at HMSC is unique among marine science research facilities. Coupled with excellent research and teaching facilities, HMSC provides significant advantage to scientists and graduate students conducting marine research. The HMSC Visitor's Center is an important regional resource for informal marine education. Even more than the physical assets, it is the collaborative and energetic

research culture and learning environment that underpins the world-class science conducted at HMSC.

Key HMSC assets include:

- **Research and Teaching Facilities.** HMSC's facilities for research and teaching are recognized as a major component of program success. The Guin Library at HMSC has gained well-deserved recognition nationally for the quality of its collection, the expertise of its professional library staff, and its inspiring atmosphere. The research infrastructure includes a reliable 800,000-gallon seawater system, extensive marine experiment facilities and analytical labs, and excellent staging for oceanographic work. Modern research vessels and dock facilities, deep-water instrumentation, and animal quarantine facilities provide the capacity required for cutting-edge marine science.
- **Location and Physical Setting.** HMSC's location on the Oregon coast provides researchers and students with excellent field study areas in a variety of coastal habitats. This location has a relatively pristine estuary with good ocean access and egress. As a destination spot on the coastal corridor, HMSC's outreach serves a broad cross-section of the public. HMSC also benefits from the working port at Newport with interested and educated industry partners. As the marine research laboratory in the Pacific Northwest with the best access to the coastal ocean, HMSC is ideally suited to serve as a major logistics and infrastructure base for new ocean and coastal initiatives called for in the U.S. Commission on Ocean Policy report. With its partners from OSU and agencies, HMSC can play a central role in integrated ocean observation systems, cabled observatories, ocean exploration, and coastal and watershed management.
- **Visitor Center.** The HMSC Visitor Center is the hub of the informal marine and coastal education programs at HMSC. With interactive exhibits and displays that explain basic and applied research conducted by OSU and agency scientists, the Visitor Center provides an invaluable outreach function, highlighting the value and impact of this research. Staffed by professional educators, volunteers, and by professional technical and administrative staff, the Visitor Center is a destination for many Oregon K-12 field trips, local residents, and visitors to the Oregon coast. More than 150,000 visitors and 12,000 school age children took advantage of its innovative and informative programs in 2003.
- **Working Environment.** The working environment at HMSC is friendly and collegial. This promotes the sharing of scientific information across disciplines and organizations. The research culture values multi-disciplinary approaches to complex scientific and social/economic questions. The learning atmosphere at HMSC allows faculty, researchers, and students to work across disciplines in a relaxed and informal setting atypical of most campus-based academic programs.

Challenges

HMSC faces several unique challenges as well as issues faced by other units of OSU. Educational and administrative challenges result, in part, from HMSC's distance from the Corvallis campus and organizational structure. The federal and state agencies co-located with OSU programs at HMSC are a critical asset. Yet the unique missions, mandates, political

forces, and funding requirements of each agency and OSU program hinder long-term joint planning. And like all OSU programs, funding issues impact the ability to offer programs, to maintain and upgrade facilities, to obtain the latest technology, to respond to opportunities for research funding, and to serve all the communities of interest that have a stake in HMSC's activities.

Below, we broadly describe the challenges faced by HMSC. They may be distinguished as short-term challenges internal to OSU (i.e., those issues over which OSU can exercise control), and those which are longer-term, often external. The former represent issues that should be addressed immediately and in several cases will be required to effectively implement the vision of this strategic plan.

Administrative Planning and Coordination. Coordinating administrative planning between OSU's main campus in Corvallis and the Newport marine science campus is a prominent challenge. As a university designated center, HMSC is administratively placed under the Research Office; HMSC is unlike other centers, institutes, and programs in that it has facilities and a mission that includes major components of education, outreach, and community interactions. HMSC is a resource that cuts across many OSU colleges, programs, and research endeavors, but there is a tendency for HMSC to be used simply as a facility that serves as an extension of many main campus programs rather than as a partner or distinct University asset. Some programs at HMSC represent a very small segment of colleges or departments on campus, and thus the HMSC lacks a strong voice to promote the diversity of programs and opportunities unique to HMSC. Greater attention should be paid to coordination of research,

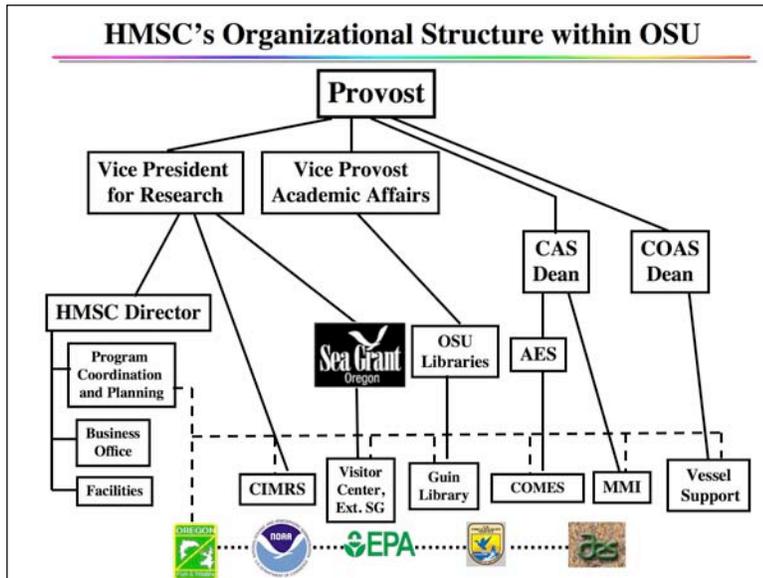


Figure 1

teaching, and outreach programs between the Corvallis and Newport locations. HMSC's capacity to assist in these three key university missions is not being fully realized. There is a perception that colleges and programs are competing for scarce resources when in fact better coordination and collaboration would create access to new resources and thereby greater research, educational, and outreach opportunities. The breadth of HMSC's mission and the unique opportunities it presents raise the question of where it should report administratively.

The administrative structure of OSU elements within HMSC also presents challenges. The organizational structure at HMSC is presently a matrix, with several elements reporting to different units in Corvallis (Figure 1). While the HMSC Director's office serves a program coordination and planning function, authority and decision-making for many important and long-range initiatives resides with different units in Corvallis, where conflicting objectives and priorities can present impediments to a shared vision of HMSC's future.

Educational Opportunities at HMSC. Administrative and location factors represent challenges for HMSC’s educational programs. HMSC is not an academic unit, and is thus dependent upon campus departments to develop and conduct its undergraduate and graduate education program (*Figure 2*). On-site staff to coordinate and foster these programs has been lacking since 1998, when the former associate director for education retired and the position was not filled due to budgetary constraints. The dashed lines in Figure 2 acknowledge the role of an academic coordinator, position filled in the two years that this plan has been in review. The lack of this function exacerbates the distance between the Corvallis campus and HMSC and creates disconnects in planning and delivery of formal educational programs. Distance also requires that special attention be paid to the travel time and cost for Corvallis-based faculty and students to fully participate at HMSC in research, internships, and educational offerings; these costs, along with the lack of on-site support, have led to courses being cancelled or curtailed.

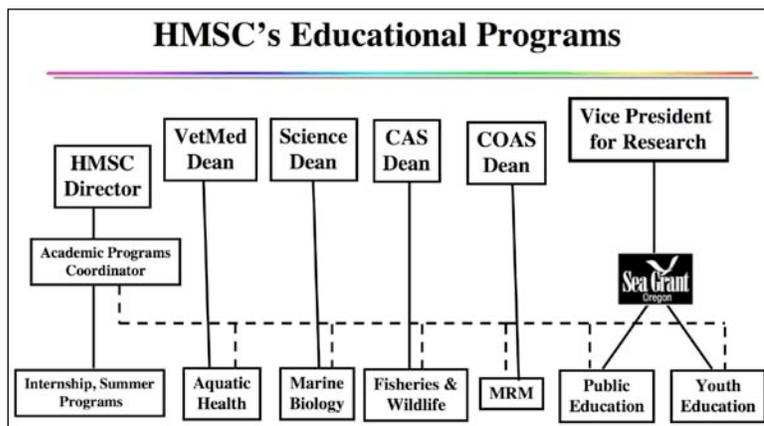


Figure 2

Although HMSC has state-of-the-art distance education tools, some of the key ‘hands-on’ benefits of HMSC require faculty and students to be present at the HMSC campus. OSU undergraduate course offerings are not adequately using HMSC’s educational resources; specifically, students in invertebrate zoology, marine biology and ecology, environmental sciences, and other marine disciplines would benefit from exposure to the unique resources of HMSC. At the University of Oregon, for example, biology majors are encouraged to take advantage of the educational resources of the Oregon Institute of Marine Biology in Charleston, and some 40% of UO biology graduates have spent at least one term in residence there. The equivalent figure for OSU biology majors taking advantage of HMSC is closer to 10%, despite HMSC being less than half the distance to the main campus. HMSC also experienced a 25% decline in student credit hours in its formal education programs during the period from 1998 to 2003. We hold a strong belief that OSU’s marine science education should return to the philosophy of promoting the hands-on benefits that HMSC can provide, including access to live animals and the habitats they occupy, practical internships with agencies, and linkages with maritime industries. At the graduate level, more faculty at HMSC would increase course offerings and capacity to mentor the research of resident graduate students. The capacity and quality of housing for resident students and visiting faculty at HMSC may become a limiting factor.

In the arena of informal education, the HMSC’s distant location from population centers is a challenge in attracting visitors—and encouraging participation, support and funding—for our informal, lifelong learning programs as well as for the K-12 youth educational programs. Future growth could be enhanced by further cooperation with our neighbor, the Oregon Coast Aquarium and its larger attendance and diverse constituency.

Agency Relationships. The five state and federal agencies co-located at HMSC (NOAA, ODFW, USDA, USEPA, USFWS) each operate programs under different mandates and requirements from their respective agencies and funding sources. The degree of collaboration and coordination among these agencies and with OSU's programs could be improved through more frequent co-planning activities. This may also increase the opportunities for all agencies and programs to create new joint research programs that can attract national attention. It is clear that synergies develop from having multiple agencies at a single location, and OSU should take leadership in demonstrating the benefits that accrue to both the parent institutions and the individual scientists who reside here.

Funding. Maintaining and increasing HMSC's regional, national, and international reputation requires that continual investments be made in research and educational programs and facilities. The recently released report of the U.S. Commission on Ocean Policy calls for sweeping changes in U.S. ocean policy, including a doubling of the federal investment in ocean and coastal research and significant improvements in marine education over the next five years. As a key component of OSU's internationally recognized coastal and marine programs, the HMSC will play an important role in positioning OSU's research, educational, and outreach activities to respond to these changes at the federal level, particularly given its strong linkage to on-site agency partners. This will require investments to maintain and enhance HMSC's facilities, infrastructure, and technology to retain and enhance our competitive advantages. Additional effort will need to be directed at state, federal, and foundation sources for facilities and technology funding. The local community and government agencies will have an important role to play in helping make the case for the required level of investment and support for HMSC. In addition to federal funding, HMSC will need to increase its efforts in external fund raising with the support of the OSU Foundation as part of the upcoming capital campaign.

Enabling Conditions for the HMSC Strategic Plan

HMSC is OSU's portal to the Pacific Ocean and its coastal environments and communities. The mission and vision formulated for the HMSC can help bring OSU's diverse programs in marine science together for effective collaboration and higher national and international visibility, creating distinct advantages for OSU. This will require many steps, and the thematic goals and strategies will require an ambitious implementation plan. HMSC exists in a complex landscape across its diverse stakeholders, both internal and external to Oregon State University, and is evolving to function in a more campus-like manner. To accomplish the elements of this plan, certain "enabling conditions" will need to be implemented in the near term by appropriate decision makers within OSU. These will serve as a first step to address the plans and accomplishments described in this strategic plan.

Administrative Structure and Relationships: Principal entities at HMSC will work to streamline and improve internal administrative procedures and communication at HMSC. The goal is to maximize efficiencies in resource use and in achieving the key goals of this strategic plan. Administrative structure at HMSC (*Figure 2, page 12*) was fragmented and lacked a mechanism for effective coordination of initiatives, impeding cooperation and leading to internal competition. As a result of the development of this strategic plan, OSU has developed

a “HMSC-OSU Leadership Team,” encompassing the OSU elements of HMSC to enhance communication and provide greater understanding and cooperation. This team includes the HMSC director, the superintendent of COMES, the associate director of Oregon Sea Grant, the director of CIMRS, the director of the Marine Mammal Institute, the librarian at Guin Library, and a resident faculty representative of COAS. In the future, should additional OSU elements locate at HMSC, they will be asked to participate in this group. It will meet regularly to address issues facing HMSC and to improve coordination, cooperation, and communication. Members of this group are responsible to communicate information about HMSC to their administrative lines at OSU. The HMSC director is responsible to communicate issues and information to the Research Office, Academic Affairs, and more widely through the HMSC Administrative Advisory Committee.

Academic Programs: Specific actions related to HMSC’s educational programs will be addressed in the goals and strategies section and most are longer-term in nature. A key enabling condition required to accomplish the educational goals of this plan is refilling the academic coordinator position at the HMSC (*see Figure 2, page 12*), which has been vacant since 1998; this was accomplished in 2005 while the strategic plan was in review, using funds from the Research Office. This position is responsible for education and internship program development, implementation of several components of this plan, and limited teaching. We anticipate the total investment required for this position at approximately \$75k annually (including OPE) and request full funding for the first three years and 75% thereafter. After that time, we anticipate that 25% of the academic coordinator’s time would be covered by funding returned from student credit hours and grant support, particularly in the area of distance education courses. HMSC-based coordination and delivery of instructional programs will provide integration of dispersed marine science programs in Corvallis and take advantage of unique access to field and laboratory experiences. This position will be key to the success of the HMSC educational initiatives, to coordinate coursework, to undertake limited teaching, and to seek federal and foundation funding for new college-level education programs.

Opportunities for OSU’s graduates

“The graying trend in the existing federal and academic ocean workforce adds to the urgency of training new ocean professionals. Projections of federal retirements indicate that just over 30 percent of federal employees will leave the workforce in the next decade. This trend will result in the loss of a great deal of the intellectual power and creativity that has expanded our understanding and improved management of the marine environment. The nation will require a human resource base capable of building on advances of the past to solve the problems of tomorrow.”

U.S. Commission on Ocean Policy. An Ocean Blueprint for the 21st Century. Final Report. Washington, DC, 2004. (Chapter 8, p. 136)

Resource Streams for HMSC’s Diverse Programs: As a Center, most resources for the operation of the HMSC administration arise from the Research Office and from returned overhead. The HMSC director reports to the Vice President for Research (*Figure 1, page 11*). Unlike most other centers, institutes, and programs, the HMSC’s mandate goes beyond research, and serves many campus-like functions. It has physical facilities, includes programs in education and outreach that cut across existing colleges, and is OSU’s connection to the diverse communities on the Oregon Coast. This leads to inappropriate expenditure of OSU Research Office funds on functions that are not associated with research, and inadequate funds to support the infrastructure needs of education and outreach functions.

An examination of how to appropriately support the HMSC's education and outreach programs should be developed to assure that these programs are able to thrive and meet the goals, strategies, and objectives as outlined in this plan. As examples, resource streams from Academic Affairs could support the growth and facility requirements for education programs at HMSC. Likewise, resource streams from Extension and Sea Grant could support those elements associated with outreach and informal education. A possible additional resource might be user fees for non-research space use, used at many other marine laboratories. The goal is to enhance and develop these programs at the HMSC while assuring that the Research Office is allocating its limiting resources in appropriate ways.

To support HMSC's graduate and undergraduate educational programs, a specific business model should be developed, managed, and supported by Academic Affairs. HMSC is not an organized academic unit, but as outlined in this plan aspires to elevate marine science education at OSU, enhancing the student experience and leading to better retention and graduation rates. Thus, enhanced educational programs at the HMSC will require support, for teaching FTE, teaching equipment and supplies, and other costs that will cut across the several colleges and departments with coursework at the HMSC. Success of this plan will result in new student credit hours and should increase support to all elements associated with the HMSC. A proposal to address certain financial aspects of this plan, submitted to the Provost in February, 2005, is included as Appendix 6.

HMSC Strategic Issues

The HMSC has a distinct set of strengths and assets that can be applied to cement its future both in the context of both OSU and the national and international community marine and coastal sciences communities. Its mission and vision complement and strengthen the capability of other OSU units and align with their strategic plans. We present here four *strategic issues* that focus our thinking as a prelude to the identification of goals and strategies that will achieve our vision for the HMSC.

Strategic Issue 1. Preparing for National Initiatives in Marine and Coastal Sciences

As noted earlier, the report of the U.S. Commission on Ocean Policy will be a structuring force in the national enterprise in marine and coastal programs for the coming decades, and OSU must be properly positioned to address the opportunities that arise. HMSC can be a key contributor to several of the "critical actions" the Commission report recommends, including the integrated ocean observing system, enhancing formal and informal education, strengthening the link between coastal and watershed management, and reforming fisheries management. And strengthening its partnerships with ocean and coastal

Improving infrastructure for marine and coastal sciences

"The future success of ocean and coastal research in the United States will depend on the availability of modern ships, undersea vehicles, aircraft, laboratories, and observing systems, as well as the continuous development and integration of new technologies into these facilities... A renewed commitment to funding the purchase, maintenance, and operation of these facilities will be essential."

U.S. Commission on Ocean Policy. An Ocean Blueprint for the 21st Century. Final Report. Washington, DC, 2004. (Chapter 27, p. 412)

federal agencies as well as maritime industries, HMSC can be a national leader in helping to meet broader objectives. This strategic plan is developed with these enhancements clearly in mind.

In preparing for these initiatives, the entire HMSC enterprise will benefit from improved, state-of-the-art facilities. A cohesive plan, cutting across the entire HMSC campus, is needed to effectively address management and development needs for facilities and infrastructure. All HMSC groups must address this issue to meet long-term needs and remain competitive in the research and education environment. As an example, maintenance and development of the shared seawater system is crucial to much research at HMSC, yet is often handled in an ad hoc manner. Plans to address housing and teaching facilities, analytical instrumentation, small boat facilities, and the requirements for future research are needed; this will make the HMSC highly competitive for the kinds of federally funded infrastructure improvements called for in the U.S. Commission on Ocean Policy report. An approach to sharing resources that crosses institutional and agency bounds will cement many of the partnerships in a meaningful way and leverage HMSC's competitive advantage for new initiatives in research, education, and outreach.

Strategic Issue 2. Education

Educational programs at HMSC serve diverse populations and needs -- from graduate and undergraduate students pursuing marine science degrees and adults seeking specialized professional development, to K-12 school groups and visitors taking advantage of informal learning opportunities. HMSC's educational programs for undergraduate and graduate students can fill a unique, hands-on niche that complements the marine and coastal education they receive in Corvallis. It also makes them more competitive in the job market and for graduate school and addresses future needs in workforce development in the US. The low numbers of students currently at HMSC, however, demonstrates that current programs fail to realize opportunities, largely due to inadequate support of faculty, students, programs, facilities and housing. HMSC-based coordination and delivery of instructional programs can provide integration of dispersed marine science programs in Corvallis and take advantage of unique access to field, laboratory, agency, and industry experience at its location. The success of educational initiatives such as enabling students to spend an academic term or year in residence at HMSC relies on cooperation from relevant departments on campus as well as improvements in facilities and housing. Peer institutions offer successful models for implementation of each of these components. Opportunities for coursework and research internships can provide a capstone for the education of future leaders in ocean science and resource management.

Education and workforce development – the agency role

“NOAA should establish a national ocean education and training program...to provide diverse, innovative ocean-related education opportunities at the undergraduate, graduate, and postdoctoral levels. ...NOAA should support fellowships and traineeships at the graduate and postdoctoral levels that emphasize interdisciplinary approaches and real-world experiences outside the university setting....”

U.S. Commission on Ocean Policy. An Ocean Blueprint for the 21st Century. Final Report. Washington, DC, 2004. (Recommendation 8-13, Chapter 8, p. 140)

HMSC's other educational programs have the potential to serve as examples across the U.S. Informal education programs will be enhanced by active research in how people learn, using the Visitor Center as a social laboratory while we increase scientific literacy and help cultivate a stewardship ethic for the marine environment, as called for in the U.S. Commission on Ocean Policy report. Professional education, particularly in the areas of aquatic animal health and fisheries management, can combine with distance education techniques to provide new opportunities for extending HMSC's educational reach.

Awareness, scientific literacy and lifelong learning

“Innovative partnerships with media outlets or industries that deal with the public may offer new means to broaden the visibility of ocean issues and increase public awareness. Informal education facilities and the academic community should work closely together to facilitate the rapid transfer and translation of the latest scientific discoveries into publicly accessible displays, materials, and programs.”

U.S. Commission on Ocean Policy. An Ocean Blueprint for the 21st Century. Final Report. Washington, DC, 2004. (Chapter 8, p. 144)

Strategic Issue 3. Identity and Visibility

By capitalizing on its signature strengths, HMSC can do much better to define its identity and enhance its visibility, both within OSU and to external audiences. Higher visibility translates into increased funding opportunities, especially from state and federal entities with an agency presence at HMSC. Increased interactions with national and international science communities, congressional and state legislators, local and regional industries, and other communities of interest are all beneficial, and the HMSC Visitor Center is a key asset in heightening the visibility of HMSC and OSU with the public, as is the growing relationship with the Oregon Coast Aquarium.

Improving the engagement between HMSC and the community of marine resource-based industries can deliver substantial benefit to the vitality of the economy in Oregon's coastal communities. Better communication with the local community can correct misperceptions of the university as operating in isolation, of HMSC's agencies as regulators, and strengthen existing relationships and partnerships. With science as a foundation, HMSC has the credibility to help reduce the polarization of communities over natural resource management issues. We should strive to develop a natural partnership with OSU's Institute for Natural Resources to use science to inform policy on marine and coastal issues facing Oregon and the Pacific Northwest. With the construction of the adjacent Newport Events and Convention Center and the assistance of OSU's Conference Services, the HMSC can also become a site for professional conferences and scientific meetings.

As a nexus for marine science programs at OSU, HMSC helps raise the stature of the university as a whole and enhances OSU's profile in national reviews and assessments such as the National Research Council review of doctoral programs. Just as the name recognition of marine labs such as Scripps and Woods Hole has served to enhance the reputation of their universities, so can "Hatfield" become recognized as a symbol of the excellence for which the OSU name is known.

Strategic Issue 4. Partnerships in Marine and Coastal Science

Partnerships are a defining characteristic of the vision articulated in this strategic plan. The U.S. Commission on Ocean Policy report has a broad focus on improving partnerships in marine science. Existing and strengthened partnerships with state and federal agencies allow OSU faculty and students (in Newport and Corvallis) to recognize and take advantage of unique opportunities. Federal competitive grants encourage (and sometimes require) integrated collaboration, the benefits of which extend beyond the synergy of members' contributions on any particular grant. A collaborative environment attracts talent, makes better use of educational opportunities and provides better support for infrastructure needs. It also helps raise the institution's visibility and credibility and creates a sense of belonging to a community of scholars and educators.

HMSC's partners in industry and the community also create opportunities for the future. Maritime industries play a role in both research and educational partnerships. Local communities are important supporters of HMSC's programs and gain from its membership in the community. And with all partners combined, the opportunities to reach out to diverse groups – including tribes and under-represented groups – can increase accessibility and provide significant benefit in terms of increased scientific literacy and improved understanding of ocean and coastal resource issues.

Opportunities in strengthened partnerships

“... to ensure the highest return on the nation's investment in ocean research, exploration, and marine operations, a national strategy is needed. The strategy should coordinate and prioritize basic and applied research supported by federal agencies, increase partnerships with the academic and private sectors, promote enhanced ocean exploration, and coordinate federal marine operations to reduce redundancies.”

U.S. Commission on Ocean Policy. An Ocean Blueprint for the 21st Century. Final Report. Washington, DC, 2004. (Chapter 25, p. 374)

Thematic Goals, Expected Outcomes, Strategies, & Key Actions

Among the many goals that guide research and education activities at HMSC, four primary goals are identified in this strategic plan as areas deserving special focus in the development of strategies and actions to achieve our vision. Broadly defined, these goals address four fundamental priorities for HMSC:

Educational Opportunities (Goal 1. Create and expand opportunities for outstanding and compelling educational programs and a superior learning environment in marine and coastal science and resource management.)

Research Excellence (Goal 2. Create and promote excellence in research and scholarship in coastal and marine sciences.)

Partnerships and Infrastructure (Goal 3. Improve partnerships and facilities to enhance cooperation and success of OSU, partner agencies, and other stakeholders.)

Community Relationships and Interactions (Goal 4. Develop HMSC - community partnerships for integrated and collaborative marine resource science, management, education and research.)

For each goal, a set of strategies and action items provide some specific recommendations for moving towards achievement. Also articulated here are expected outcomes for each goal, which serve to guide and measure progress.

Goal 1. Create and expand opportunities for outstanding and compelling educational programs and a superior learning environment in marine and coastal science and resource management.

Strategies

- 1A Develop opportunities for undergraduate courses at HMSC that enrich existing programs.
- 1B Increase opportunities for graduate studies at HMSC.
- 1C Develop leading national and international programs in informal education for youth and lifelong learners and extension-based outreach in coastal and marine science.
- 1D Create programs of continuing professional education for scientists, managers, practitioners, and educators.

Outcomes

- Course offerings and college students at HMSC will triple by 2009-10.
- Expanded research project and internship opportunities for students will triple the number of students taking advantage of mentored, credit-earning experiences at HMSC by 2009-10.
- Increased access to marine science education and improved marine and coastal science literacy in underrepresented groups.
- Oregon State University becomes nationally recognized for innovative programs addressing “free-choice learning” for youth and lifelong learners, continuing education, and professional development needs in marine and coastal sciences.
- Resident instructional faculty will increase to 2.0 FTE by 2009-10.
- Innovative short courses broaden educational opportunities.

Strategy 1A - Develop opportunities for undergraduate courses at HMSC that enrich existing programs.	
<i>Action Items</i>	<i>Sponsors / Responsible Parties</i>
Increase resident teaching FTE at HMSC (with funding from E&G) for coastal and marine science.	OSU academic units
Support academic programs coordinator at HMSC	VP for Academic Affairs
Create a Marine Science Minor, Option or Certificate Program (within existing undergraduate majors) <u>with</u> residency, independent research, project, or internship at HMSC.	OSU colleges/academic units; HMSC lead
Explore opportunities to develop an inter-disciplinary B.S. degree in marine and coastal sciences.	CAS; HMSC; COS

Convene an OSU-wide forum, with community and agency participation, on undergrad marine science and management programs.	HMSC; VP for Academic Affairs
Lead the development of field-oriented summer courses in marine and coastal sciences.	HMSC; Extended Campus
Develop relationships with partner academic institutions, including visiting professors.	HMSC
Recruit additional (non-OSU) undergraduates to new and extended programs (e.g. education programs, summer internship programs) with opportunities for underrepresented groups.	HMSC; CAS; COS
Further develop OCCC relationship with dual enrollment.	OSU; OCCC
Examine combined OSU/UO/PSU alliance for statewide programs in marine science.	OSU academic units
Promote and develop opportunities for other universities, community colleges, tribal colleges, and underrepresented groups to take advantage of HMSC educational opportunities.	HMSC; OSU colleges/academic units
Increase international marine science learning opportunities for OSU students and bring foreign students to HMSC.	HMSC; VP Academic Affairs (International Office)

Strategy 1B - Increase opportunities for graduate studies at HMSC.	
<i>Action Items</i>	<i>Sponsors / Responsible Parties</i>
Increase resident graduate faculty at HMSC.	OSU academic units
Support academic programs coordinator at HMSC.	VP Acad. Affairs
Offer graduate courses on year-round basis at HMSC; examine dedicated term for MRM students.	COAS; CAS; COS; C Vet Med
More fully engage courtesy faculty in teaching, advising, and supporting graduate students.	Agencies; OSU academic units
Increase agency and industry fellowships, traineeships, and marine resource related summer jobs for graduate student education.	Agencies; OSU academic units; Industry
Obtain external financial support for graduate education in marine and coastal science and resource management.	OSU Foundation; Development Office; MRM; HMSC
Increase international marine science research opportunities for OSU grad students.	HMSC; VP Academic Affairs (International Office)

Strategy 1C - Develop leading national and international programs in informal education for youth and lifelong learners and extension-based outreach in coastal and marine science.	
<i>Action Items</i>	<i>Sponsors / Responsible Parties</i>
Create a national site for free-choice learning, based on coastal and marine themes for audiences that choose how and when to learn.	OSG; HMSC; NOAA; OCA; COS; CAS; COAS; Extended Campus

Increase physical capacity and staffing for youth education and life-long learning at HMSC.	HMSC; OSG
Increase involvement and participation by agencies and academic units with Visitor Center, youth, and life-long learning educational (outreach) programming that improves science literacy.	OSG; NOAA; EPA; USFWS; ODFW; ARS; NMFS; OSU academic units
Improve library resources for informal education.	OSU libraries; OSG
Increase extension-based educational programming around coastal, aquatic, and marine issues and opportunities, including coastal community development.	OSG; OSU Extension; OCCC; Oregon Coast Aquarium; College of Veterinary Medicine
Expand youth and lifelong learning opportunities for diverse, under-represented, and underserved audiences.	OSG, HMSC

Strategy 1D - Create programs of continuing professional education for scientists, managers, practitioners, and educators.	
<i>Action Items</i>	<i>Sponsors / Responsible Parties</i>
Evaluate productive areas for program expansion (professional Ed, certificate programs, agency scientists, Distance Education).	HMSC; Agencies; COMES; OSU academic units; Extended Campus
Develop curriculum for fisheries management training.	COMES; NOAA
Develop distance learning courses that contribute to OSU Extended Campus programs.	HMSC; OSU Extended Campus
Offer professional development workshops (Aquaculture, Aquarium Sci, Vet Med).	OSU academic units; OCCC; OCA
Increase use of HMSC for scientific/professional meetings.	HMSC; COMES; CIMRS; Agencies; OSU academic units; OSU Conference Services
Strengthen scientific / research seminar series.	HMSC; Agencies

Goal 2. Create and promote excellence in research and scholarship in coastal and marine sciences.

Strategies

- 2A Launch and guide innovative multi-disciplinary marine and coastal science research projects.
- 2B Increase synergy and research cooperation among OSU, HMSC, partner agencies and industry partners.
- 2C Identify and promote the visibility of signature strengths of HMSC research.

Outcomes

- Increase extramural funding to OSU's HMSC programs from \$9.3 million in 2002-3 to \$11.6 million in 2009-10.
- Increase HMSC publications with multi-partner authorships by 40% from 2002-4 to 2009-10.

- HMSC Visiting Scientist program attracts researchers from around the country and abroad, increasing 3-fold by 2007-8.
- Annual forum with faculty participation from several academic disciplines leads to proposals for new multi-disciplinary research projects.
- HMSC is a key partner in the integrated ocean observation science by 2009-10.

Strategy 2A- Launch and guide innovative multi-disciplinary marine and coastal science research projects.	
<i>Action Items</i>	<i>Sponsors / Responsible Parties</i>
Hold forum (HMSC community and targeted OSU academic units invited) to identify future research programs and funding opportunities.	HMSC; Agencies; OSU VP for Research
Hold forum on cooperative fisheries science information.	HMSC; OSUES; Industry & Agencies
Create multi-PI research (common interest) discussion groups.	HMSC
Identify and organize new multi-disciplinary research opportunities and programs.	OSU Research Office

Strategy 2B - Increase synergy and research cooperation among OSU, HMSC, partner agencies, and industry partners.	
<i>Action Items</i>	<i>Sponsors / Responsible Parties</i>
Encourage HMSC community events to be hosted by partner agencies on the HMSC campus.	HMSC; Agency heads
Increase sponsorship of conferences related to coastal and marine science and management issues of interest to OSU faculty and students, HMSC faculty and students, agency and industry partners.	OSU; Agencies; Industry partners; Int'l/Nat'l Societies & Agencies
Clarify and streamline mechanisms for collaborative research.	Agency heads
Sponsor research forums - to heighten awareness and build interest - visionary, socially relevant.	OSU VPR; HMSC; Agencies
Develop active visiting scientist program and international partnerships.	HMSC

Strategy 2C - Identify and promote the visibility of signature strengths of HMSC research.	
<i>Action Items</i>	<i>Sponsors / Responsible Parties</i>
Develop and promote signature strengths in marine and coastal science with agency and OSU academic units.	HMSC Executive-level group (OSU, Agencies)
Modify HMSC web site to include investigator interests, capabilities, publications.	HMSC
Modify HMSC web site to include listing of lab capabilities and resources, and highlighting strengths.	HMSC

Develop a communications plan to produce summaries of research conducted at HMSC (written for lay audiences) and disseminate via website and press outlets.	HMSC; OSG; University Advancement
Promote international stature of Guin Library.	OSU Libraries; HMSC
Improve/expand dissemination of HMSC newsletter.	HMSC
Develop the Visitor Center and other educational venues as a social laboratory on lifelong learning to increase science literacy and showcase HMSC's research.	OSG; HMSC

Goal 3. Improve partnerships and facilities to enhance cooperation and success of OSU, partner agencies, and other stakeholders.

Strategies:

- 3A Develop effective multi-agency agreements and cooperation, and attract additional marine and coastal agencies.
- 3B Maintain and enhance resources, facilities and tools to support research, teaching, and outreach.
- 3C Foster an intellectual and professional climate that is collegial and supportive of missions, people, and diversity of partner agencies/groups.

Outcomes

- OSU and partner agencies are more highly competitive for federal research funding in marine and coastal science.
- Effective, multi-agency cooperative operating agreements
- Greater transparency in facilities and instrumentation accessibility.
- Improved relations among partners at HMSC.
- Improved visibility and marketing of HMSC.

Strategy 3A - Develop effective multi-agency agreements and cooperation, and attract additional marine and coastal agencies.	
<i>Action Items</i>	<i>Sponsors / Responsible Parties</i>
Clarify and document existing relationships among all HMSC components.	HMSC; Agencies
Implement new, mutually beneficial agreements for the HMSC community.	HMSC; Agencies
Create opportunities for new partnerships and additional on-site agencies with marine and coastal focus (e.g., USGS, DOGAMI).	HMSC; Agencies, OSU Administration

Strategy 3B - Maintain and enhance resources, facilities and tools to support research, teaching, and outreach.	
<i>Action Items</i>	<i>Sponsors / Responsible Parties</i>
Assess current status and needs (master plan) and make comparable to other OSU units.	HMSC; Agencies; OSU Colleges

Develop HMSC master plan for space, facilities, and technology, including new facility requirements for research and educational initiatives.	HMSC; Agencies
Seek external and internal funding and public/private partnerships for facilities and library improvements.	HMSC; Agencies; OSU Libraries
Expand and enhance HMSC residential living facilities, amenities to improve environment.	HMSC; OSUF
Improve small boat docking facilities, seawater system, and access to Yaquina Bay.	HMSC; OSU, Agencies

Strategy 3C - Foster an intellectual and professional climate that is collegial and supportive of missions, people, and diversity of partner agencies/groups.	
<i>Action Items</i>	<i>Sponsors / Responsible Parties</i>
Improve HMSC-wide communication (e.g., by disseminating news about grant awards and publications; social events).	HMSC; Agencies
Improve comprehensive understanding of unit missions, activities, plans and ideas.	HMSC, Agency Leaders
Document benefits of multi-agency and institutional presence at the HMSC and value to components on site.	HMSC; Agencies

Goal 4. Develop HMSC - community partnerships for integrated and collaborative marine resource science, management, education and research.

Strategies

- 4A Promote understanding of utilization and sustainability of marine resources.
- 4B Engage community leaders as educators in professional development.
- 4C Involve community, industry, and NGOs in development of research directions and activities.
- 4D Develop and maintain political, economic and social support for HMSC mission.

Outcomes

- Broader, practical education for HMSC students.
- Increased community awareness and understanding of HMSC research and education activities as reflected in newspaper coverage and public attendance at events
- Increased private and foundation support and endowments.
- Strengthened relationship with Congressional representatives provides support for increased funding of HMSC research projects that address national priorities for ocean and coastal management needs.

Strategy 4A Promote understanding of utilization and sustainability of marine resources.	
<i>Action Items</i>	<i>Sponsors / Responsible Parties</i>
Consider developing “SEATAUQUA” or elderhostel-like program featuring integration of the arts and sciences.	HMSC, Agencies, Sea Grant

Establish HMSC external advisory council.	HMSC and Community
Serve as honest broker to promote understanding of the science behind controversial issues (e.g., marine reserves).	HMSC, Agencies & Main Campus
Develop series of coastal “town hall” meetings to discuss the future of marine science and natural resource management and implications to the Oregon coast and Oregon citizens and businesses.	COMES, HMSC, CAS, Sea Grant, Extension Sea Grant
Establish HMSC Speakers’ Bureau to provide speakers for local events and publicize the work of all components of HMSC.	HMSC, Agencies

Strategy 4B - Engage community leaders as educators in professional development.	
<i>Action Items</i>	<i>Sponsors / Responsible Parties</i>
Identify needs for professional development and engage community/industry/NGO experts as special topic educators (e.g. fisheries management, tourism).	Advisory Councils (of HMSC, COMES, Sea Grant); Selected Community/NGO/Industry groups
Partner with community in curriculum development and delivery.	Advisory Councils (of HMSC, COMES, Sea Grant); Selected Community/Industry
Partner with OCCC and Oregon Coast Aquarium in training activities, e.g., for volunteers.	HMSC, OCCC, Oregon Coast Aquarium

Strategy 4C - Involve community, industry, and NGOs in development of research directions and activities.	
<i>Action Items</i>	<i>Sponsors / Responsible Parties</i>
Identify research topic areas.	Advisory Councils (of HMSC, COMES, Sea Grant); Selected Community/NGO/Industry groups
Develop Community Science Forums— topics and panels in which members of communities of interest can brainstorm with scientists and resource managers on problems and challenges in marine science – pose new hypotheses and new (cooperative) projects.	Advisory Councils (of HMSC, COMES, Sea Grant); Selected Community/NGO/Industry groups
Develop a Cooperative Fishery Research Organization/Program focused on applied technology (sensors), systems analysis, gear design and environment interaction, and fishermen behavior.	Advisory Councils (of HMSC, COMES, Sea Grant); Selected Community/Industry Organizations (e.g., SAFE)

Strategy 4D - Develop and maintain political, economic and social support for HMSC mission.	
<i>Action Items</i>	<i>Sponsors / Responsible Parties</i>
Promote HMSC in OSU's capital campaign to increase private funding.	HMSC, OSUF
Invite elected representatives and staff to HMSC to participate in community science and educational activities.	OSU, HMSC, HMSC Advisory Council
Encourage community leaders to support community partnership with Congressional/ State elected officers.	HMSC Advisory Council
Document/ communicate/promote these partnerships	HMSC; Sea Grant
Market HMSC image and programs to diverse audiences (local, state and national).	HMSC; Sea Grant; OSU Advancement; OSUF
Provide assistance in job placement for partners of faculty and students.	Community; HMSC Advisory Council
Explore affordable off-campus housing options for faculty and students (e.g. public-private partnerships with housing builders).	HMSC, community

Index of Acronyms Used

AES	Agricultural Experiment Station (OSU)
AFSC	Alaska Fisheries Science Center (NOAA)
ARS	Agricultural Research Service (USDA)
CAS	College of Agricultural Sciences (OSU)
COS	College of Science (OSU)
COAS	College of Oceanic and Atmospheric Sciences (OSU)
CIMRS	Cooperative Institute for Marine Resource Studies (OSU)
COMES	Coastal Oregon Marine Experiment Station (AES, OSU)
C Vet Med	College of Veterinary Medicine (OSU)
DOGAMI	Oregon Department of Geology and Mineral Industries
EPA (or USEPA)	U.S. Environmental Protection Agency
HMSC	Hatfield Marine Science Center
JPA	Joint Project Agreement (OSU-HMSC, NOAA)
MMI	Marine Mammal Institute
MOU	Memorandum of Understanding
NGO	Non-Governmental Organizations
NMFS	National Marine Fisheries Service (NOAA)
NOAA	National Oceanic and Atmospheric Administration
NWFSC	Northwest Fisheries Science Center (NOAA)
OCA	Oregon Coast Aquarium
OCCC	Oregon Coast Community College
ODFW	Oregon Department of Fish and Wildlife
OIMB	Oregon Institute of Marine Biology (Charleston, part of U of O)
OSG	Oregon Sea Grant (OSU)
OSU	Oregon State University
OSUES	Oregon State University Extension Service
OSUF	Oregon State University Foundation
OSU VPR	Oregon State University Vice President for Research
OUS	Oregon University System
P.I.s	Principal Investigators
UO (or UofO)	University of Oregon
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service

HMSC Mandates

At the foundation of HMSC’s mission are a host of institutional “mandates”, as defined by the organization's charter and policies, OSU expectations, agency and funding contracts/MOUs, and federal, state and local laws. These mandates are recognized as important considerations in defining the vision for HMSC, its goals, strategies, and expected outcomes.

Mandate	Mandate Source	Key Requirements	Effects on HMSC
Conduct high quality research on marine and estuarine systems	OSU (AES, OSG CIMRS)	Facilities, funding, staff	Utilization of facilities
Support Oregon’s marine industries	OSU (AES)	Industry Liaison	Applied tendency
Collaborate with state and federal agency leaders to support the overall vision of the HMSC	OSU, Agencies, NOAA/OSU JPA	Collaborative Research	Develop partnerships
Assure safe and secure, modern scientific/educational facilities	OSU, NOAA/OSU JPA	Funding, personnel	Supports other missions
Work to foster constituent support for HMSC.	OSU, Agencies	Civic liaison	Greater support
Enhance connections between HMSC and OSU main campus	Vice President for Research, Provost	Travel, funding, facilities	Greater support within OSU
Offer innovative marine and estuarine education to benefit students	OSU	Facilities, funding, interest from OSU	Education programs
Provide high quality public outreach/education programs	OSU, OSG, Extension, Agencies	Appropriate facilities, personnel	Public interactions, visibility
Provide facilities to serve deep-water oceanographic research vessels	UNOLS NSF contract, COAS	Port facilities,	Requires coordination with COAS Ship Ops.
Support Oregon’s coastal communities and environment	OSU (AES, OSG)	Community liaison, personnel, facilities for research and education	Research and education required to support coastal communities
Sustainable economic development	OUS, OSU	Research and education	Applications of research
Support OSU Strategic Plan via activities	OSU	Plan alignment	Focus, collaboration
Marine Resource Management	OSU (AES)	Research expertise, education expertise	Research focus
Coastal Ecosystem Learning Centers	Coastal America MOU	Public education	National recognition
Public Education in Visitor’s Center	Port of Newport lease	Create community benefit	Public interactions, visibility

OSU and Agency Programs at HMSC

Collaborative research between OSU and federal and state agencies is a defining characteristic of HMSC. Below are provided the websites of OSU units and public agency programs located at HMSC. All of these programs and agencies have their individual mandates (listed in Appendix A-2), which are recognized as important considerations in defining HMSC's own mission and vision.

OSU Programs

Cooperative Institute for Marine Resource Studies (CIMRS)

<http://oregonstate.edu/groups/cimrs/>

Coastal Oregon Marine Experiment Station (COMES)

<http://marineresearch.oregonstate.edu/>

HMSC Visitor Center

<http://hmsc.oregonstate.edu/visitor/index.html>

Marine Mammal Institute

<http://oregonstate.edu/groups/marinemammal/>

OSU Vessel Support (COAS)

<http://www.coas.oregonstate.edu/index.cfm?fuseaction=content.display&id=235>

Sea Grant Extension Program

<http://seagrant.oregonstate.edu/extension/index.html>

Sea Grant Youth and Public Education

<http://hmsc.oregonstate.edu/visitor/learn.html>

Oregon Coast Community College

Aquarium Science Program

<http://www.occc.cc.or.us/aquarium/index.html>

State and Federal Agency Programs

The Oregon Department of Fish and Wildlife (ODFW)

<http://hmsc.oregonstate.edu/odfw/index.html>

National Oceanic and Atmospheric Agency (NOAA)

Pacific Marine Environmental Laboratory Vents Program

<http://www.pmel.noaa.gov/vents/>

Alaska Fisheries Science Center

http://www.afsc.noaa.gov/race/behavioral/default_fbe.htm

Northwest Fisheries Science Center.

<http://www.nwfsc.noaa.gov/research/divisions/fed/oceanecology.cfm>

The U.S. Department of Agriculture (USDA) Agricultural Research Service

The U.S. Fish and Wildlife Service (USFWS) Coastal Refuge Program

<http://oregoncoast.fws.gov/>

U.S. Environmental Protection Agency (USEPA) Pacific Ecology Branch

<http://www.epa.gov/wed/>

HMSC Strategic Planning Team

A critical element to the completion and credibility of a strategic plan are the members of the committee that craft it. Members of the committee included four faculty from Corvallis (representing CAS, COAS, and the College of Science (2)), four faculty/group leaders from HMSC, two scientists from partner federal agencies, one graduate student, and two members of the Newport community. All are sincerely thanked for hard work and important contributions.

George Boehlert, Director, HMSC
Matteo Costamagna, Newport
Robert Duncan, COAS Assoc. Dean of Student Programs
Dan Edge, Chair, Department of Fisheries and Wildlife
Tom Hurst, NOAA Alaska Fisheries Science Center
Bob Jacobson, Newport
Chris Langdon, Professor, Fisheries and Wildlife
Frank Moore, Associate Dean of Science
Jim Power, Environmental Protection Agency
Jay Rasmussen, Oregon Sea Grant, Extension
Clare Reimers, COAS, CIMRS
Rob Suryan, HMSC Graduate Student
Gil Sylvia, Coastal Oregon Marine Experiment Station
Virginia Weis, Department of Zoology
Tom Dowling, College of Business (Planning Consultant)
Ken Hall, HMSC Program Manager

Stakeholder Meetings

Earlier drafts were reviewed and discussed with a variety of stakeholders to solicit input on the final content of this plan. During the months of March and April, the following groups were given presentations and discussions of the plan and its content:

College of Science, COAS
HMSC Agencies
HMSC -- All OSU
Newport Civic Leaders
Oregon Sea Grant
Lincoln County Community
HMSC Administrative Advisory Committee
HMSC Visitor Center Volunteers
College of Agricultural Sciences
COAS, COS, CAS Graduate Students

Supporting multidisciplinary, field-oriented coursework at Oregon State University

Summary: Developing signature, experiential coursework at off-campus locations is hindered by financial constraints. A model allocating tuition to promote and support these courses is proposed. The goal is to stimulate the development of unique, multidisciplinary coursework and educational outcomes consistent with the educational goals and metrics of OSU's strategic plan.

Introduction and Need

As Oregon's statewide university, OSU has widespread facilities and faculty that encompass functions in research, education, and outreach. The experience at these facilities includes internships, residential coursework, experiential education, and research for OSU's undergraduate and graduate students; these provide unique opportunities that often represent a capstone in the OSU educational experienceⁱ. Benefits of these programs include enhanced student success and competitiveness for jobs upon graduation as well as the visibility it brings OSU – with payoffs in student recruitment and retention. National trends in recruitment, retention, and graduation in science and engineering are alarming, and call for new educational approaches.ⁱⁱ Practical, hands-on courses that include field experience and interaction with practitioners and professionals are viewed as an important national need.ⁱⁱⁱ

Specific off-campus locations for OSU include the Hatfield Marine Science Center (HMSC), the Andrews Experimental Forest, and the Astoria Seafood Laboratory. An additional site could include the Malheur Field Station in eastern Oregon (up until 6 yr ago, OSU was a member of the consortium of universities involved in operation of this station). Although OSU-wide statistics on this topic are difficult to obtain, the past decade has seen a decline in the numbers of student credit hours in this kind of course. Student credit hours in OSU courses at the HMSC, for example, declined by 35% from 1993 to 2004^{iv}.

These types of educational offerings have been hindered by the relatively high cost of coursework. Class sizes are typically smaller, and costs for specialized laboratories, transportation, and instructors combine to serve as disincentives to those colleges or departments with an interest in these courses. Furthermore, incentives are not available to encourage faculty to develop new course or curriculum offerings, especially for interdisciplinary teaching programs. The current budget allocation model lacks appropriate incentives, and instead puts the onus on individual colleges or departments to find ways to fund them. This, in turn, makes it more difficult to achieve the OSU strategic plan's objective of new, multidisciplinary courses that cross traditional department or college lines. Adding fees to already burdened students (who face their own financial challenges) has not proven to be an adequate solution. The net result is declining numbers of colleges or departments willing to invest in developing and offering these classes; units responsible for the facilities lack the needed incentives to entice departments to put them to full use.

A model for funding these courses

We propose a new tuition revenue distribution model for courses offered at off-campus locations. Outside the normal budget allocation model, the proposed approach would mirror the summer school model; in that case, 86% of tuition resources are returned directly to the units incurring expenses for instructor salaries and other course-related expenses. The remaining 14% goes to Extended Campus, which administers summer session.

OSU should develop a similar model, applicable through fall, winter, and spring quarters, to promote and fund off-campus courses. Students would pay the same tuition and fees as on-campus courses (plus certain fees specific to the courses). To assure that all concerns are taken into account and that benefits to OSU's students are maximized, the details of the plan should be worked out by a multi-departmental campus committee.

Benefits to Oregon State University

This plan to enhance experiential learning addresses many aspects of the OSU strategic plan. It will clearly benefit the first goal, providing outstanding multidisciplinary courses, and the second goal, to improve the teaching and learning environment, with more undergraduate students participating in experiential learning opportunities. It is consistent with many of the metrics to achieve these goals. The plan is also consistent with educational goals of many sub-unit strategic plans, including those from the College of Science, the College of Agricultural Sciences, the College of Oceanic and Atmospheric Sciences, the College of Forestry, Oregon Sea Grant, and the HMSC. The OSU strategic plan calls for HMSC to "develop signature instructional, research, and outreach programs that build upon and benefit from [its] unique location, environment, facilities, and partnerships." The HMSC's strategic plan developed in response to this challenge highlights education as its first goal, and is consistent with the OSU strategic plan. Signature, or capstone residential courses¹ will be developed in the broad area of marine and coastal science, cutting across traditional departmental and college lines. The plan calls for a three-fold increase in courses and students over a four-year period, along with enhanced undergraduate research and internship programs.

From the broader educational perspective, such highly visible courses will benefit our students and OSU's reputation for quality education. It will encourage departments to consider new, creative opportunities at off-campus sites, including multidisciplinary, cutting edge courses. Creative programming combined with aggressive marketing will bring non-OSU students to take new courses, increasing tuition revenue to the University. It will also expose OSU students to more professionals, including agency scientists, courtesy faculty, and industry practitioners, increasing our students' competitiveness in the job market.

Options and issues:

The details should be worked out by a campus committee as noted above. They should identify the types of relevant courses that can qualify for the proposed model. For example, the courses should take advantage of the unique attributes of those locations (e.g., "benefit from unique location, environment, facilities, and partnerships"). It should also determine the details

of how revenue will be distributed and analyze potential financial costs to the university to balance against the benefits outlined here.

Strategy for implementation:

We propose developing the approach for implementation in Fall, 2005. A test has been approved for the Marine Biology course at HMSC in Spring 2005.

Endnotes

ⁱ “Total Immersion – Enhancing the OSU Student Experience.” OSU Perspectives, Vol. 1 (3). May, 2003.

ⁱⁱ “The Science And Engineering Workforce *Realizing America’s Potential*.” National Science Board, National Science Foundation NSB 03-69, 2003.

ⁱⁱⁱ a. *Transforming Undergraduate Education in Science, Mathematics, Engineering, and Technology*. NAS Committee on Undergraduate Science Education. National Academies of Science, 1999.

b. The Role of Biological Field Stations in Education and Recruitment into the Biological Sciences. Report of a Workshop. Organization of Biological Field Stations. 2004.

Authors: M.J. Klug, J. Hodder, and H. Swain.

^{iv} The decline was even greater in 2003, when the Marine Biology course (BI 450/451) was cancelled due to financial constraints. It was offered in 2004 with funding from the Provost, and will be offered in 2005 with a variant of the model proposed here.