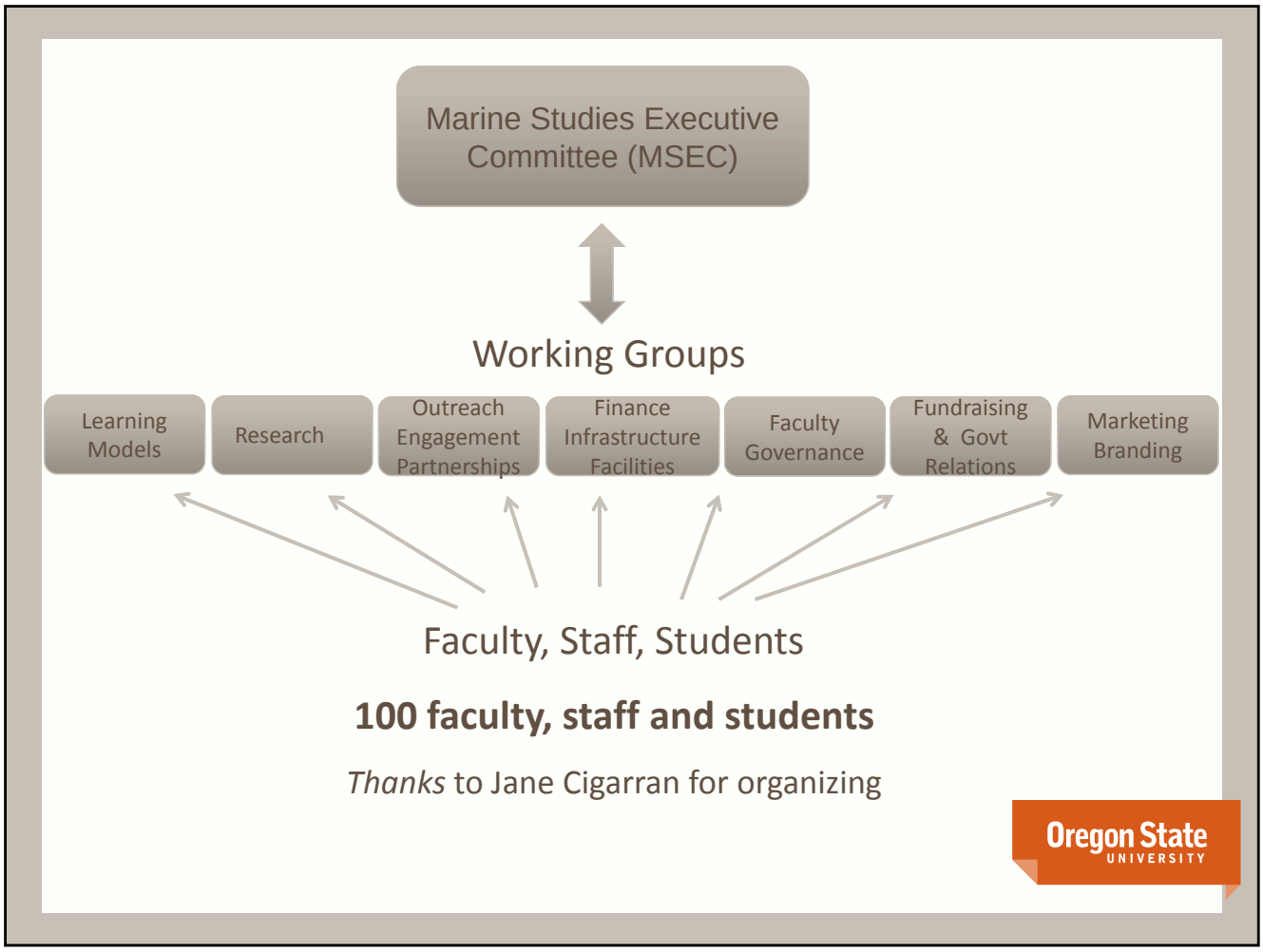
Marine Studies Executive Committee (MSEC)
Working Groups
Learning Models
Research
Outreach Engagement Partnerships
Finance Infrastructure Facilities
Faculty Governance
Fundraising & Govt Relations
Marketing Branding
Faculty, Staff, Students
100 faculty, staff and students
Thanks to Jane Cigarran for organizing
Oregon State UNIVERSITY

MARINE STUDIES INITIATIVE WORKING GROUPS

March 2015

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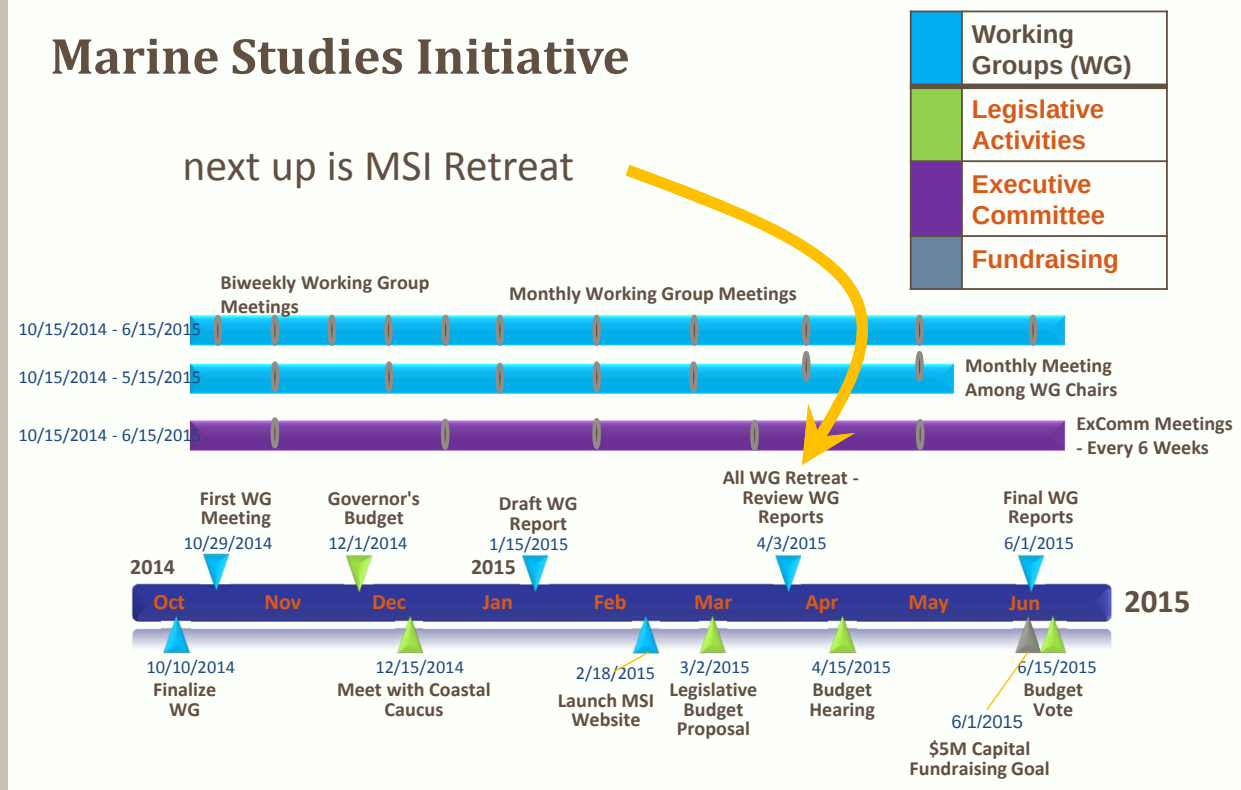
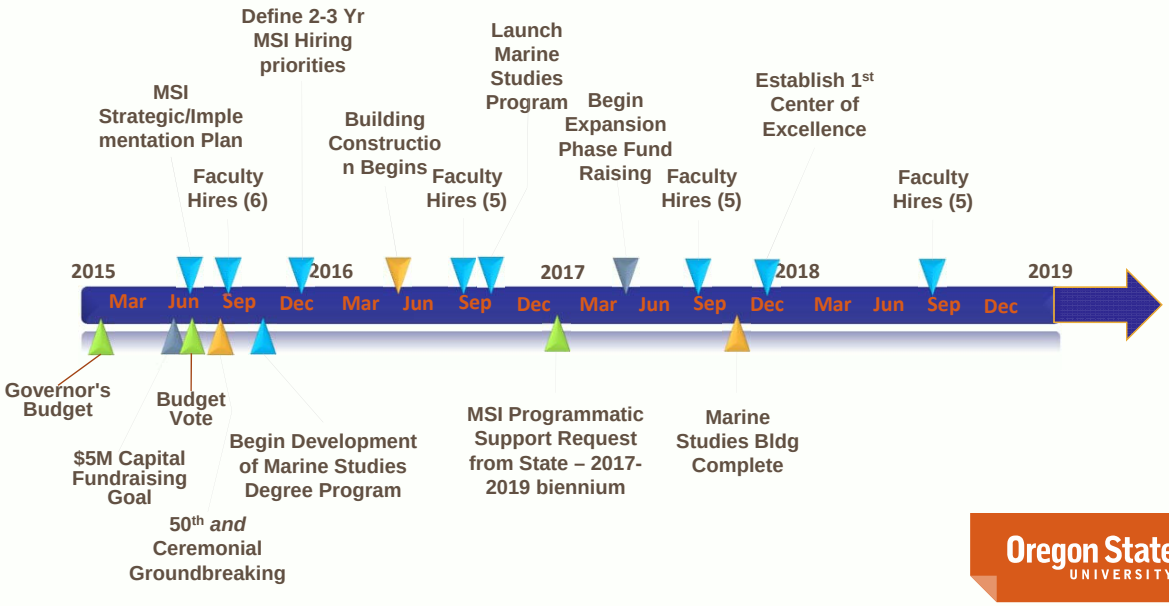
Marine Studies Initiative



Oregon State University

Marine Studies Initiative

3-4 year timeline



Oregon State UNIVERSITY

Oregon State University - **Marine Studies Initiative**

The ocean is key to life on our planet. It covers more than 70 percent of earth's surface, contains 97 percent of its water, and drives the planet's entire life-support system. The ocean impacts the economic vitality of Oregon's coastal communities, and drives weather and climate variability across Oregon, the nation and the world. Just as the marine environment lends itself to scientific study, the sea and the coast have inspired and provided resources to humans for millennia. Within this context, the **Marine Studies Initiative** will weave together the natural and social sciences in an exceptional education, research and outreach program to explore all facets of the marine environment (from the highest reaches of the mountain watersheds through coastal and open ocean environments, to the seafloor and tectonic plates below) and its dynamic connection to mankind while impacting the economic and social progress of coastal communities.

OSU is expanding its science and educational mission by reaching to the entire coast of Oregon through the development of the **Marine Studies Initiative (MSI)**.

> The **MSI** is a University-wide initiative that will target an unprecedented collaboration across all 11 academic colleges[1] of the University plus its outstanding Honors College and Graduate School to build a world-class academic and research program.
>
> The **MSI** is leveraging the strengths of OSU's Corvallis campus, the Hatfield Marine Science Center, and its Extension Service.
>
> The **MSI** will be based on an innovative educational model, giving graduate and undergraduate students access to a wide variety of disciplinary knowledge along with the tools to apply their knowledge in a collaborative, problem-solving, real-world approach. It will also take experiential education and research mentoring to new heights.

---

[1] **OSU Academic Colleges**

Agricultural Sciences
Business
Earth, Ocean, and Atmospheric Sciences
Education
Engineering
Forestry
Liberal Arts
Pharmacy
Public Health and Human Sciences
Science
Veterinary Medicine

MSI is unique in that it is an approach to learning, discovery and impact that capitalizes on a **thematic strength of an entire university** to apply the above core principals.

The **MSI** is a long-term commitment to elevate the distinction and impact of marine-related programs, faculty, students and facilities at both the Hatfield Marine Science Center in Newport and the OSU Corvallis campus, as well as other OSU centers of activity on the coast and throughout the state.

The foundational pillars of the **MSI** are structured after the University's primary goals (Strategic Plan 3.0) of: ***i***) providing a transformative education, ***ii***) promoting research, scholarly, and creative greatness, and ***iii***) advancing community value through outreach and extension, all by building on OSU's exceptional strengths in the marine sciences.

At the core of the **MSI** is the development of an undergraduate and graduate academic program that combines multiple disciplines focused on the marine realm, thereby creating novel thought and solutions by crossing disciplinary boundaries. Central to this goal is the development of a new **Undergraduate Degree in Marine Studies**. This transformational degree will make experiential learning central to the student's learning experience. Students graduating from this program will have an unprecedented breadth of tools needed to find employment across a broad sector of fields. They will have the capacity to make significant inroads to solving problems they may face professionally and as citizens and community members. There are a number of undergraduate and graduate degrees related to marine studies that currently exist at OSU, and students in these programs will be able to take advantage of experiential and transformative learning opportunities the **MSI** offers.

Similarly, the graduate program will be restructured to maximize the opportunities offered by such a transdisciplinary training and research environment. The distinctive research capabilities underpinning the **MSI** will position Oregon State University as a visionary pioneer and international leader for one of the most challenging issues facing the planet – how to sustain a healthy ocean and ensure health and prosperity for future generations. It will establish OSU at the leading edge of ocean institutions, and will distinguish OSU as a 21st century university pursuing a new pathway to the future of education, research and engagement.

Through the **MSI**, OSU will influence the national and international conversation and deliver high impact solutions on key issues regarding the marine environment – from resource extraction such as fisheries and energy, to critical issues surrounding climate change and ocean acidification, to commerce, marine engineering, tourism, the arts and more. It will also train the future educators in science and policy.

Vision Statement

Through its Marine Studies Initiative, OSU will lead the development of inclusive strategies for successful stewardship and use of our ocean and planet for today and for the future, relying on strong and open partnerships among a diverse set of stakeholders.

Mission Statement

The mission of the Marine Studies Initiative is to create an environment where students, faculty, citizens of Oregon and beyond, and governmental and industry partners can create a healthy future for our oceans and the planet. It is a program where 1) transdisciplinary teaching and research; (2) collaboration; (3) experiential learning; (4) problem solving; and (5) research experiences are the norm and where a better future is not just envisioned, but is created.

The **MSI** will:

- Provide an *education* that is based on:
  - Transdisciplinary collaborative learning
  - Highly experiential formats (habitat, agency, issue)
  - Built upon a problem-solving orientation
  - Inclusion in state-of-the art research and scholarship
- Create new levels of *collaboration* across the University and with the public and private sector
  - Bring together the natural and social sciences
  - Enable dialog with decision makers and stakeholders on complex issues of ocean health and stewardship and maritime economies
- Establish a seamless *partnership* between the OSU campuses (Corvallis and Cascades) and HMSC, as well as with other Oregon institutions of higher education
  - Explore new educational opportunities for students in Corvallis and Newport, as well as remotely throughout the state
  - Connect directly with community colleges to foster Open Campus and 2+2 opportunities for Oregon students
  - Create linkages with Oregon public universities so that students can seamlessly enroll in courses across institutions
- Build new approaches to *engagement* with the public and with industry
  - Engage with Oregon's coastal communities and businesses
  - Build an environment that fosters dialog at the intersection of science, values, and politics against a backdrop of uncertainty

  - Develop new knowledge services that can foster business and economic development
- Enable *discovery* through data-intensive science
  - Build local and global collaborations
  - Exploit real-time data streams and new statistical models
- Incorporate *flexibility* into the education and science culture
  - Recognize that unexpected issues will arise, requiring new scientific, scholarly and creative capabilities
  - Encourage entrepreneurship and dynamic approaches to problems
- Develop new opportunities for *global* partnerships
  - Study problems that have both a local and global component
  - Establish OSU as a world leader in this new approach to ocean stewardship and maritime economic development
- Help meet the Oregon Governor's 40-40-20 education goals
  - Expand access to rural communities along coast and inland to world class education programs
  - Increase capacity of OSU to accommodate growing student body through development of programs with direct coastal and state relevance

Program Development

Programmatic development in support of the **Marine Studies Initiative** requires a multi-faceted approach that:

- Builds on existing strengths within the University,
- Accommodates significant growth in the graduate and undergraduate academic program,
- Fosters expansion of student research capacity, and
- Builds cross-disciplinary linkages throughout the University and with non-OSU partners.

A planning structure has been established that engages University Leadership as well as faculty, staff and students in the program development process. Specifically, an **Executive Committee**[2] has been established with the following core goals (duties):

[2] **Executive Committee Membership**

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Dan Arp, Dean CAS
Scott Ashford, Dean CoE
Jack Barth, co-Chair, Assoc. Dean Res., CEOAS
Kevin Heaney, OSUF
Bob Cowen, co-Chair, Director HMSC
Toni Doolen, Dean University Honors College
Dan Edge, President Faculty Senate
Glenn Ford, VP Finance and Administration
Jerry Heidel, Director, Vet. Diagnostic Lab, CVM
Brenda McComb, Dean Grad School
Sastry Pantula, Dean COS
Shelby Walker, Director OSG

A. Provide a high-level venue for OSU's leaders to communicate about developments in the **Marine Studies Initiative**; these leaders will pass information about the **MSI** to their units through the University's College structure;
B. Simultaneously, open lines of communication *among* colleges as well as administrative sectors of the University to facilitate cooperation in building a sustainable program;
C. Establish a structure to achieving program development across all academic, administrative and functional components. This includes the establishment of Working Groups to address:
    i. Learning Models
    ii. Faculty Governance
    iii. Finance, Facilities and Infrastructure
    iv. Research
    v. Extension, Outreach and Partnerships
    vi. Fund Raising/Government Relations
    vii. Branding/Marketing ;
D. Develop the Charge to each Working Group and select Working Group membership from the University community (faculty, staff, students, and administrators);
E. Advise on progress toward establishment of the **Marine Studies Initiative**.

Working Groups will receive specific charges from the Executive Committee pertaining to the topic of purpose for each Working Group. In addition, Working Group members are expected to:

A. Provide active avenues of communication within home departments and colleges about developments in the **Marine Studies Initiative**;
B. Seek input from colleagues within relevant units (e.g. Departments, Colleges, Centers, Institutes, etc.) and from outside non-academic experts in developing recommendations pertinent to Working Group directives.

Key Programmatic guidelines:

I. Curriculum development is centered on a ***Marine Studies*** degree

A primary step in developing a truly innovative Marine Studies Program will be the development of a transdisciplinary, **Undergraduate Degree in *Marine Studies***. Within this degree structure, a variety of academic tracks can be envisioned that will reach broadly across disciplines, while instilling academic strengths and foci. The MSI also provides an opportunity to build on existing strengths in marine studies across OSU. Existing majors that are extended to MSI will also have the core principles of experiential learning, field and laboratory intensive instruction and research mentoring. There are also opportunities to build minors that span multiple disciplines centered on specific themes. The various academic programs can and will leverage e-campus and on-campus courses, with Hatfield (Newport) residency

opportunities (requirement) in junior or senior years for heightened experiential experiences.

- Marine Studies *Majors* are completely new cross-College (and Department) curricula that provide students with the highest, relevant exposure to disciplinary diversity, while maintaining rigorous training preparing the student for future educational tracks or direct employment. Development of Marine Studies Majors should strive to link multiple disciplines from both expected and novel perspectives.
- Development of Marine Studies *Minors* (7-9 course sets) intended to provide broad transdisciplinary training to students engaged in highly disciplinary majors. Marine Studies Minors are envisioned to offer courses from a diverse set of Departments from several different Colleges – with new courses designed to bridge the disciplines into a series of coordinated courses leading to significant capstone activities/courses.
- Integration with existing (largely within College) majors through establishment or refinement of an *Option(s)*. Such Major-related Options would enlist ~ 5-6 courses, potentially linked to a final *capstone* course. The goal is to use these sets of 'Emphasis' courses to build in greater transdisciplinary (across Departments and Colleges) training within the context of the above educational philosophy, while retaining the primarily disciplinary focus of the major.
- There are also opportunities to develop courses that meet core education degree requirements (Baccalaureate Core courses) based on the transdisciplinary theme of Marine Studies. While the challenge may be in how to assign the credits per BAC Core, such courses should have broad appeal and may serve as critical support for the more costly experiential upper division courses that will predominate in the Marine Studies curriculum.

The MSI curriculum will build on the strengths of the existing marine-related graduate programs at OSU. Classes and experiential training in marine studies will be coordinated across colleges. There also exists the potential to build new graduate degree program in marine-related themes.

Example themes (to start discussion, not intended to be fully inclusive):

- Marine Science –
  - Oceanography, Marine Biology/Ecology, Fisheries, etc.
  - Marine Mammals
  - Marine Genomics
- Big Data –
  - Meteorology/oceanography/satellite remote-sensing
  - Geospatial intelligence
  - Bioinformatics
  - Statistical and Mathematical Modeling and Data Analytics

        - Meta-analysis
            - Techniques – database management, linking meta-data
            - Applications across disciplines
    - Business/technology –
        - Innovation (instrument development and marketing)
        - Technical training (Marine Tech – operation and repair)
        - Maritime support – shipping, ports, …
    - Natural Resources/Ecosystem services –
        - Marine Conservation Science
        - Sustainability
        - Resource Economics
        - Literature and Art of environmental issues/Cultural media
    - Marine Engineering –
        - Renewable energy (wave, tidal, wind)
        - Humanitarian Studies/Marine Engineering
        - Environmental sensor development and maintenance
    - Resiliency –
        - Coastal Resource Science
        - Geo-hazards/Geoscience
        - Disaster Preparedness
            - Engineering
            - Community Preparation
    - Marine Policy –
        - Arctic Science and Policy
        - Communicating Marine Policy
    - Ocean Law and Science
    - Marine education –
        - Marine systems in STEM education
        - Free Choice Learning
    - Ocean and Human Health –
        - Pharmaceuticals from the sea
        - Coastal pollution
        - Red tides/toxins from the sea

II. Research, Outreach and Partnership Goals

With the expansion of an academic program centered on Marine Studies, there will be concomitant growth in the research and extension capacity of the University. The growth of marine-related research is key to providing experiential learning opportunities for MSI graduate and undergraduate students. Specifically, the research and scholarship activities of faculty hired to accommodate an expanded academic program will contribute to this capacity. However, to ensure the expanded capacity also meets strategic goals for building strong research and

scholarship teams, close coordination with research, scholarship and extension priorities as defined by the MSI program development will need to be addressed.

Some guiding goals for setting such priorities include:

- Develop new approaches to engage and collaborate the natural, physical, and social sciences around marine issues
- Build capabilities in data-intensive science and services, including real-time networks such as Ocean Observatories Initiative (OOI) and Integrated Ocean Observing System (IOOS)
- Enable new capabilities and facilities to support access to the sea, including ships and boats, autonomous vehicles, dive support, and the seawater system
- Establish new partnerships beyond the traditional federal agencies, including state agencies, other academic institutions, community colleges, foundations and the private sector
- Create "incubator" spaces providing access to facilities and resident expertise for early-stage academic and commercial endeavors
- Engage researchers, teachers, and graduate and undergraduate students in unique approaches to experiential learning around marine issues
- Develop international partnerships related to marine studies research and policies
- Engage educational (student, faculty, institutions [OIMB, Community colleges]) and community stakeholders (e.g., Oregon Coast Aquarium, OMSI, BLM, State Parks and Rec., local governments, NGO's, economic interests) to identify interests, issues and program opportunities. Look for unique social, environmental, economic and educational development opportunities.
- Determine the feasibility for Open Campus at non-CC locations (e.g., OSU's Port Orford facility, Astoria COMES center, web-based, define other possibilities) in addition to those based at CC's.
- Link programs where possible across Oregon educational institutions (e.g., community Colleges and universities)
- Expansively define the geographic scope and identity of MSC stakeholder groups. In addition to coastal counties, social, economic, environmental and educational interests from Portland, the Willamette Valley and other areas of the state need to be integrated into the MSC Outreach plan.
- Develop a robust communications and marketing strategy involving URM and other pertinent OSU units for the Outreach, Engagement and Partnerships Work Group effort.

III. Hiring Strategy/Faculty Funding Models

Faculty will be hired in support of the MSI curriculum, research, and outreach and engagement objectives. Hiring will be done at both HMSC and the OSU Corvallis campus. The advantages of faculty across OSU identifying themselves as Marine Studies Faculty will be explored. Faculty hires under Provost Hiring Initiatives will be coordinated across OSU colleges by the MSI leadership. While relevant deans will be engaged in the identifying hiring priorities, the proposed hiring model will follow a process to identify the best candidate, with the selected candidate ultimately based in the college best aligned with their specialty[3]. Individual colleges will also conduct hiring for the MSI via endowed chairs supported by private giving. The Provost may provide funds to match endowed chairs that meet MSI goals. It is anticipated that faculty hired and located at HMSC will conduct active research/scholarship programs that will attract robust graduate student participation with strong linkages to their home Departments and Colleges.

[3] A model for this hiring process exists within the Center for Genome Research and Biocomputing.

Marine Studies Initiative, Oregon State University

Learning Models Working Group Report

Executive Summary

Learning models within the Marine Studies Initiative (MSI) are based on the premise that the lives and careers of all people can be enriched through ocean literacy. The goal of the Learning Models Working Group (LMWG) is to create a unique environment that integrates marine literacy throughout OSU academic programs while expanding innovative marine education and training opportunities for students, professionals, and life-long learners. Through MSI learning models, OSU will be able to meet the marine education needs of an artist in residence on the coast, a doctoral student studying ocean climate modeling, a middle school science teacher looking to expose their class to marine education, or a working professional looking for specialized training - while also demonstrating to all students how marine topics and case studies might broaden their perspective, enhance their educational experience, and inspire creativity.

Oregon State University currently has a number of successful undergraduate and graduate marine-related academic programs and a notably strong and large pool of faculty involved in teaching and research in marine topics. OSU has roughly 185 faculty with marine expertise, offers 100 marine courses, and, in 2014, graduated 150 students with an undergraduate or graduate marine degree, option, certificate, or specialization. Although many of these degrees, courses, and programs are internationally renowned and highly regarded within their respective fields, they do not have a collective presence at OSU. Marine related degrees and courses are offered through multiple colleges and academic units and can therefore confuse incoming as well as matriculated students looking for opportunities to pursue marine studies at OSU. Furthermore, OSU marine education is heavily weighted toward natural sciences and engineering, leaving much room to expand into business, liberal arts, public health fields, and the social sciences. Lastly, only 20% of marine courses are offered at OSU's Hatfield Marine Science Center in Newport, highlighting opportunities for growth and expansion of marine educational opportunities on the coast. To meet the MSI academic goals, the LMWG has six overarching recommendations:

- Create a Marine Studies Office
- Expand and enhance marine-related courses in all colleges
- Expand and enhance undergraduate and graduate degree options, minors, and certificates
- Create an interdisciplinary marine studies undergraduate major and minor with emphases on liberal arts and social sciences
- Increase internship and international student opportunities across marine-related degree programs
- Continue to foster K-12, community college, professional, and noncredit education partnerships

Marine Studies Office staff and advisors will help incoming students navigate the various paths to marine education at OSU. MSI learning models will substantively enhance and expand current course and degree options. Baccalaureate core courses have the greatest potential to reach large numbers of students and generate tuition revenue to help support MSI. For example, a three quarter long, lower level series of marine baccalaureate core courses could be created to support students in the investigation of the power and influence oceans have on earth and all living things. From the arts to the natural sciences, oceans would be explored through questions, dialogue, inquiry, art, field trips and technology. This series of courses would intentionally highlight the different ways scholars view the ocean (from the social sciences, the arts and humanities, and the natural sciences) and would integrate intellectual and practical skills throughout.

Large opportunities for growth in marine studies at OSU include options, minors, and certificates within existing programs in addition to a new Marine Studies degree through the College of Liberal Arts. There is a rich human history in marine literature, art, and culture and some of the most pressing environmental issues will have the greatest effects on the ocean and densely populated coastal communities. The human dimension of marine ecosystem change is increasingly emphasized in all aspects of marine science and liberal arts.

Current graduates from marine science programs at OSU find employment within a wide variety of organizations, including government agencies, academic institutions, teaching professions, environmental consulting firms, health fields including veterinary medicine, and nonprofit organizations to name a few. Potential employers for MSI Marine Studies graduates will include these types of organizations as well as many others. Most importantly, however, is that MSI learning models will use ocean literacy as a framework for teaching students to be skilled, erudite, and articulate critical thinkers, prepared to pursue any career path they wish, while also contributing to society as informed citizens.

OSU currently does not have the staff to design and implement a truly revolutionary educational program that the MSI seeks to achieve. To accomplish this, pedagogical, curricular, and program development experts are recommended as next-step hires (including some with K-12 experience). Additionally, some new faculty hires might be at an administrative or Professor level to assist in providing guidance and leadership to MSI educational programs.

There are a variety of overarching topics that MSI may select as signature areas of distinction or centers of excellence, many of which would translate well into MSI learning models. For example, the topic of marine food production could be investigated through the question “Should I Still Eat Fish?” where students explore the natural and social sciences, economics, and politics of global fisheries and aquaculture. The LMWG has provided the foundation by which these types of innovative and transformative educational programs could be implemented at OSU. MSI learning models will help OSU fulfill its unique role as Oregon's land and sea grant institution and contribute to OSU’s three signature areas of distinction: (1) advancing the science of sustainable earth ecosystems; (2) improving human health and wellness; and (3) promoting economic growth and social progress.

Marine Studies Initiative (MSI) Research Working Group Report (draft)

I. Overview and Motivation for MSI Research

Thinking globally, acting locally. It's all about connections – how we connect to people, communities, and place with purpose and impact. Whether we live on the Oregon coast, Central Oregon, or Portland; or whether we live in the Great Plains or Zanzibar, we are all surprisingly and remarkably connected to the world's ocean and marine environment. For centuries oceans have provided jobs, goods, and services; inspired myths and legends; and captivated our sense of wonder through mystery and discovery. As much as oceans and the marine environment have shaped human culture, we have effected them.

The Oregon coast stands out for its mixture of unparalleled access to the beach and ocean and the natural beauty of its coastline. It offers one of the most aesthetic, diverse, and productive marine coastlines in the country (1). The coastal economy is significantly influenced by what happens in marine waters and the wellbeing of our freshwater systems. Hence, the ocean, and coastal marine environments, as well as all the inland factors that significantly influence them are a matter of economic and cultural importance to all Oregonians.

Imagine a world without the provisions, inspirations, and captivations oceans have invoked. What is, or could be, the problem? What does the science tell us? What are our options? Do the options change how we understand and experience the ocean and marine environments? Do the options diminish or enhance environmental, social, and economic outcomes – not only today but for future generations? When tackled superficially, these seemingly simple questions deliver deceptively simplistic answers.

Ocean and marine environments face unprecedented opportunities and threats. And, they are providing increasingly more complex policy and management problems. Sound decision making within this context requires a coordinated mix of publicly-engaged problem definition, integrating scientific knowledge with social and policy conditions, negotiating around uncertainty, iterative policy development, adaptive planning, and attentive monitoring. It is never a straightforward process, but one that taps into the knowledge base of all relevant stakeholders and uses all the knowledge we have, for all fields and disciplines that contribute.

The research arm of the Marine Studies Initiative (MSI-Research) is primed to rigorously tackle questions and challenges that exist in the intersections of sea, land, air, people, and culture. Because of the MSI's position within Oregon's public universities and its proposed headquarters on the Oregon coast, MSI-Research has great opportunities to bring together transdisciplinary research teams, stakeholders, and students to explore and convey complex ocean and marine issues in depth, with local and global impact.

The mission of MSI-Research is to create a *physical, philosophical* and *conceptual* infrastructure to foster scientific, political and socio-cultural research networks that advance our collective ability to accurately predict the outcomes of current human actions and model the future trajectory of our complex ecosystems. MSI-Research will be a keystone to knowledge discovery,

decision-making, strategic planning, education and Oregon's sustainability vision by focusing on data and prediction across three thematic areas enveloped by a mountain to sea perspective:

- ***Marine Systems Science*** – advancing the understanding and documentation of the status and trends of marine systems, and predicting how they will respond to rapidly occurring change
- ***Reliance on the Sea*** – ensuring sustainability of marine resources through study of safe seafood production, marine renewable energy, and the cultural resources and ecosystem services we derive from the sea.
- ***Global Change and Coastal Community Resilience*** – applying integrated approaches to understanding and facilitating the ability of coupled natural-human systems to foresee, respond, and adapt to future change

INSERT ONE OF THE RESEARCH SCHEMATICS

Achieving MSI's mission across its research themes requires an integrated spectrum of expertise. As such, MSI-Research will:

- go beyond the typical idea of interdisciplinarity to emphasize convergence – the merging of diverse disciplines to spur innovations from basic scientific discovery to its practical applications;
- explore the intersection of natural and human systems in the unparalleled *natural and socio-economic laboratory* of Oregon's coastal watershed, estuaries, and ocean systems;

enhance and expand OSU's success with initiatives that cultivate strong connections between computational/quantitative resources, engineering, technology, and earth and biological sciences.

1.http://www.eartheconomics.org/FileLibrary/file/Reports/Understanding_Oregons_Coastal_Economy_and_Environment.pdf (section above may need some editing)

II. Sustainability, The Future We Want: A Core Principle of OSU and the MSI

Sustainability demands supplying the needs of present generations without compromising the ability of future generations to meet their own needs (UN Report). Oregon State University is a national leader in sustainability; recognized by the Sierra Club, the U.S. Green Building council, The Princeton Review, the Kaplan College Guide, and the U.S. Environmental Protection Agency for its sustainability practices. The research endeavor at the MSI will continue this tradition of sustainability practice, but also help house the diverse array of current and future research addressing sustainability of marine resources and ecosystem services Oregonians depend on. Whether it is safe, sustainable seafood, clean water and energy, or access to ocean related recreation and cultural resources, OSU and the research endeavor at MSI are committed to defining and understanding the complex questions necessary to ensure a sustainable future for Oregonians and our ocean resources.

III. Convergence: An Approach to Emergent Research Themes for the OSU MSI

Convergence is an approach to problem solving that cuts across disciplinary boundaries, and a current focus of the National Academies of Science as a mechanism for tackling the most ambitious and pressing research issues (NAS report 2014). Convergence integrates knowledge, tools, and ways of thinking from life and health sciences, physical, mathematical, and computational sciences, engineering disciplines, and beyond to form a comprehensive synthetic framework for tackling scientific and societal challenges that exist at the interfaces of multiple fields. By merging these diverse areas of expertise under the Marine Studies Initiative (MSI) within a network of partnerships, convergence stimulates innovation from basic science discovery to translational application. It provides fertile ground for new collaborations that engage stakeholders and partners not only from academia, but also from national laboratories, industry, clinical settings, and funding bodies. The organizing principle of convergence as represented here is meant to capture two closely related but distinct research roles of the MSI: the convergence of expertise necessary to address a set of emerging marine research problems, and the formation of the web of partnerships involved in supporting such scientific investigations and enabling the resulting advances to be translated into new forms of innovation and new products. [footnote on source] Three emergent research themes the MSI will be well suited to address, and are pressing societal challenges are: 1. Marine Systems Science, 2. From Watershed to Sea, 3. Food from the Sea, and 4. Global Change and Resiliency. The MSI will provide the infrastructure and network supporting convergence of the existing OSU strengths to address these local and global challenges.

IV. From The Mountain Tops to the Ocean: A Stewardship of Place in Oregon

Vision

Watershed Science: Across OSU, researchers collaborate to address interdisciplinary and transdisciplinary water research issues including the impacts of climate change on snow, glaciers, ice sheets, and society, mountain watershed hydrology, and projects aimed to help policy makers and water managers seek solutions to complex water issues.

Water connects the land to ocean from the fresh rain and snow in the mountains carrying materials downstream, through the flowing creeks and rivers, to the oscillating estuaries and eventually to the salty coastal ocean, water completes this cycle frequently along the Oregon coast. Successful future approaches to ensure a sustainable future will cross social, economic and ecological boundaries from watersheds to the sea and will encompass local, regional, and global concerns. At the northern border of Oregon, one of the largest rivers in the United States, the Columbia drains the snow-charged Cascade mountains and flows into the Pacific Ocean. The Columbia and the other coastal rivers move approximately 91 trillion gallons of water to the ocean each year. These water ways fuel our region and are home to six species of Pacific salmon; they provide navigable waterways, clean power and a multitude of mariculture and harvest opportunities while nourishing the coastal ocean. The sustainability of these rivers and the adjoining coastal ocean are challenged by climate change, human population growth, and increasing demand for resources. Protection of the ecosystem services provided by the integrated mountain to sea landscape globally will require transdisciplinary research and convergence with enhanced communication within and across disciplines. OSU can lead this mission. OSU is home to a diverse and dedicated group of oceanographers, ecologists, geoscientists, engineers, mathematicians, economists, social scientists, writers, and artists who all believe in the future of our oceans, and work tirelessly to generate solutions and build capacity for the future via novel, convergent research spanning our mountain tops to our seas.

Areas of Distinction: The OSU mission for a healthy planet, healthy people and healthy economies

Oregon is home to a rich and bountiful agriculture; creative and innovative solutions to water management and water policy have originated here; some of the most sustainable fisheries in the world are managed in Oregon; and groundbreaking ocean exploration occurs here. In this productive natural setting, we are poised to create integrated solutions to sustain the diverse ecosystems, communities and economies at the confluence of the continent and the sea. But it's not just the work we do; it's how we do it. OSU is home to leading researchers in interdisciplinary studies across coastal ecosystems and fosters exemplary research partnerships address topics crossing relevant physical, biological, chemical, social, and economic aspects of issues of societal importance, including climate change, natural hazards, and resource exploration and utilization. Across this land and seascape we strive to not only collaborate with

other university researchers, we work with state and federal agencies, non-profits, and other stakeholders. Researchers at OSU have been recognized for their efforts to work with industry partners in forestry, fisheries, aquaculture, and a variety of other fields that benefit from healthy, sustainably managed resources. Collaboration is at the heart of this institution's mission *but a structural and intellectual convergence* will be needed to meet the needs of the future generations.

Continuing forward

In a changing climate, OSU aims to address broad issues of sustainability across social, economic and ecological boundaries from watersheds to the sea. Key challenges that will need to be met in order to enable the most effective research include

- Improved access to the sea, including ships and boats, autonomous vehicles, dive support, and enhancements to seawater system, and
- Physical space and funding for cross-disciplinary research to enable the path forward as we seek to addresses these new challenges

As these infrastructure needs are addressed , the MSI will be uniquely prepared to answer a number of the most significant global concerns facing coastal ecosystems. These issues include but are not limited to

- Defining the socioeconomic requirements for to facilitate coastal sustainability and resilience
- Development of accurate multi-trophic models of the impact of global change on coastal systems, e.g. predicting impacts of ocean acidification from microbes to animals
- Reduce risk of natural hazards and increase preparedness
- Derivation of new sources of renewable energy from the land and sea
- Assembly of the intellectual and technological requirements to build 'think tanks' that will focus on multivariate problems such as population connectivity of keystone marine species or preservation of watershed resources
- Incorporate native knowledge into existing models of ecosystem management and systems ecology
- Develop strategies to protect clean water for recreation and human consumption
- Harness the emergent power of big data in transdisciplinary research spanning genes to ecosystems

Molecules to Megafauna:

At OSU, we work from the microscope to the macroscope across watersheds to the sea. From understanding water chemistry and physical processes to learning how the planet's largest creatures ply those waters, we work throughout the Pacific Northwest and around the globe to meet the University's mission of Healthy People, Healthy Planet, and Healthy Economy

The inherent intellectual and scientific curiosity driving the above research foci will allow the MSI to predict and respond to the socioeconomic and ecological hazards that may face future generations.

Oregon State University
Marine Studies Initiative

Outreach, Engagement, and Partnerships Working Group
Draft Plan

January 15, 2014

Executive Summary

The Outreach, Engagement, and Partnership (OEP) Marine Studies Initiative Committee was charged with developing "engagement" concepts and recommended actions that if implemented would results in significant benefits to MSI and the state of Oregon. The committee was composed of a diverse set of representatives from within and outside Oregon State University (OSU). The Committee used the MSI vision and mission and a set of guiding principles to drive the committee's work. These principles were consistent with a "value proposition" based on developing mutually reinforcing benefits to OSU, MSI, and its partners, integrating OSU, Land Grant, Sea Grant and partner missions, aligning incentives, promoting coast wide needs and connectivity, and being innovative and forward looking.

The OEP committee searched for partnership opportunities by conducting more than twenty conversations with groups external to OSU representing educators, students, researchers, industry, communities, community colleges, and other higher educational institutions. The group looked at a wide range of strategies for facilitating educational and partnership strategies and considered a range of geographic scales with particular emphasis on the Oregon coast, but also including the broader state, region, nation, and globe. Arising from these conversations were some core concepts: for example, that the MSI should not be designed, implemented, or promoted as primarily an OSU initiative—but rather a "State of Oregon" initiative. The committee recognized that in some cases this would require tearing down existing institutional barriers and creating engagement strategies that blur the line between institutions, organizations, programs, educators, and students. The committee also recognized many of these initiatives will require significant resources and dedication by a broad range of University outreach, research, and educational organizations. In some cases, it will require that the higher levels of the University work with other Oregon educational institutions in order to align incentives, and resolve administrative and financial barriers that could impede MSI success.

The Committee developed a diverse set of ideas and concepts for creating and supporting partnerships and established four working groups to refine the most important concepts. The groups generated 18 concept papers within general partnership areas (industry, universities, communities, and community colleges), recognizing that there would be overlap among the OEP concepts groups across the groups, as well as with the other MSI committees. Each concept included basic ideas, goals, partners (core, associated), benefits (to MSI and partners), audience, required resources, timing and implementation, and connection with other MSI committee mandates. The 18 concepts generally fell into two categories: the first category were "integrative themes" around which partnerships could be established; the second category focused more on "process" by which partnerships could be established or enhanced. In shorthand, these two categories are the "what" and the "how" of outreach, engagement, and partnerships. An example of the first category is the emphasis on a marine technology center in which marine technology innovation and workforce could be cultivated. This center could be supported by internships and curriculum development (the "how").

Concepts discussed and developed by the OEP group include:

- Creating centers focused around
    - Marine Technology
    - Tourism
    - Fishing/Aquaculture/Seafood Industries
    - Other "Centers of Excellence"
- Connecting universities in a variety of ways including
    - Establishing joint graduate course
    - Expanding undergraduate opportunities
    - Visiting scientist/scholar programs
- Connecting with community colleges
    - Dual enrollment and degree articulation
    - Open Campus
- Establishing internships and apprenticeships
    - Can be embedded within the Centers
    - Can with industry, non-profits, state agencies, etc
- Supporting community-based presence on the coast
    - Business collaborative-supporting the needs of new or existing local businesses
    - Local "nodes" of university expertise and engagement
    - Supporting K-12 education

A few recurring themes arose from the concepts. The first is that these are initial attempts to define opportunities for the MSI to be expansive in its scope and realize the promise of a truly coast-wide initiative. While the team reached out to select partners and individuals during its discussions, these conversations were not exhaustive and additional effort to connect with partners needs to be undertaken as these concepts are further developed. Second, each concept attempts to identify what already exists, recognizing that these opportunities should build on current successes and existing infrastructure and networks. Detailed resource assessments of existing assets and additional needs should be determined as these concepts are more fully developed.

These concepts represent foundations for discussion. These ideas could be scaled up in terms of scope as well as geographic extent For example, providing opportunities for graduate and undergraduate students can transcend OSU/UO/PSU and connect to the other public, technical and regional universities (e.g., OHSU, OIT). Initiatives involving K-12 education could connect statewide through the regional STEM hub network, linking the coast to eastern Oregon. Establishing Centers of Excellence could connect national and international collaborators under the umbrella of a unifying topic. Many of these concepts could also link to national and international programs and institutions.

Additional opportunities for outreach and partnerships could be investigated, including examining connections with private education institutions, looking more closely at potential partnerships in the Valley and Eastern Oregon, and promoting external engagement in other elements of the MSI.

Exact metrics will be closely tied to program goals, which need to be determined more explicitly.

Marine Studies Initiative
Faculty Governance Subcommittee
Draft Report, 9 March2015

This committee was charged with developing or proposing administrative structure and faculty governance models that support the highly integrative research, education and outreach mission of the Marine Studies Initiative (MSI). We acknowledge that the concepts presented in our report are likely to be modified as other subcommittees report back with their proposals for curricula, research, outreach and engagement and facilities and infrastructure.

Process

Our committee met on four separate occasions to discuss issues and committee charges. We reviewed administrative structures and organizational charts for comprehensive marine research and educational programs around the country, in Australia and New Zealand, Japan and Europe (Appendix A). We invited nominations for faculty participation from other colleges not represented by the committee, but did not receive any nominations. We discussed some of our ideas individually with faculty that we interacted with (Appendix A).

Governance Principles

1. Develop governance structures that will facilitate, support and incentivize faculty who participate in the MSI's transformative educational models, transdisciplinary research and mentoring, engaged scholarship and coastal outreach and engagement.
2. Develop an organizational structure that effectively supports the MSI's unique programs.

Faculty Appointments

Faculty will become affiliated with the MSI in two ways:

1. Current OSU employees working on campus, at Hatfield Marine Science Center (HMSC) or elsewhere along the coast, who have research, education or outreach expertise that is aligned with the MSI will begin participating in the MSI. This is a model similar to OSU's multiple Centers and Institutes, as well as others at benchmark institutions, where faculty with common interests are supported by a governance structure designed to facilitate interactions among members.
2. Faculty will be hired specifically to support the MSI mission and goals. These faculty positions will primarily be tenure-track appointments, but fixed-term appointments will also be needed to support the MSI. Faculty positions specifically hired for the MSI will come from four sources:
    a. Provost hires where a faculty line is allocated specifically to participate in the MSI. The academic home of these faculty will be determined at the time a faculty member is hired following the model commonly employed by OSU's

Centers and Institutes and may include joint appointments among units. These FTE will revert back to the MSI when the position becomes vacant (unsuccessful promotion and tenure case, moved to another university or retired). Thus, FTE will not reside permanently in the academic unit(s)/college(s) where a person was initially hired should the position become vacant.

b. Colleges proposed and supported positions that align with both the college and MSI mission. These may be joint appointments among two or more units.
c. Endowed positions that are created via development activities associated with the MSI.
d. Fixed-term appointments from MSI base budget or from grants and contracts.

All academic rank faculty associated with the MSI will have academic homes in colleges/units on campus. This is the model currently employed by OSU Cascades, Agricultural Experiment Station, Extension and HMSC. This model provides a promotion and tenure process where faculty are evaluated by their disciplinary peers. Importantly, though, the evaluation by disciplinary peers will be based on parameters that allow for effective evaluation of transdisciplinary work and these parameters should be clearly defined in faculty position descriptions.

Joint appointments pose special challenges for faculty hired into more than one academic home. Joint appointments for faculty hired for the MSI may result in additional challenges for these faculty as they conduct transdisciplinary research and teaching in service to more than one academic unit. *We recommend that Memoranda of Understanding between academic units be established for each MSI faculty member with a joint appointment.* These MOUs should outline expectations for the faculty member's duties in each academic unit, and should outline the process by which promotion and tenure will be implemented. Details about which academic unit will lead the process and how the different units' Promotion and Tenure Committees and the unit leaders' input will be provided should be detailed in the MOU.

Leading faculty with transdisciplinary research and teaching appointments that differ from other faculty within an academic unit and who are located off the main campus poses unique challenges that may require additional training for effectiveness in leadership. *We recommend that the Senior Vice-Provost for Academic Affairs design and offer leadership training that specifically addresses leading units composed of faculty at different locations and with very different position descriptions.*

Position descriptions developed for faculty associated with the MSI should specifically identify and acknowledge the unique nature of these appointments and the expectations for accomplishments. Transformative educational programs of the type envisioned for the MSI requires a higher level of engagement in learner-centered models than typical educational programs and thus a lower teaching load should be expected per FTE. Likewise, the transdisciplinary research envisioned for the MSI is likely to result in grants and scholarly outcomes that typically will have multiple principal investigators or co-authors. Lastly, it must be acknowledged that transdisciplinary work requires more time, in effort and in terms of

securing publications and grants, as grants may come from non-traditional sources and 'research products' likely will take a variety of forms. When signing their position descriptions, MSI faculty will be committing to work in a highly transdisciplinary teaching and research environment. *These differences in accomplishments and norms from more typical academic appointments need to be embraced, supported and acknowledged in MSI faculty position descriptions, and specific outcomes for promotion and tenure should be identified.*

Position descriptions developed for specific MSI hiring initiatives should be thoroughly vetted among academic unit leaders and promotion and tenure committee(s) within the academic home(s) to ensure that everyone involved in these hiring decisions understand the purpose of the position and specific outcomes for promotion and tenure. *We recommend that the Provost Office monitor these hires in a manner similar to the recent Provost Initiative hires.* **Faculty Mentoring, Promotion and Tenure**

Faculty associated with the MSI will have academic homes in units on the OSU main campus. However, these faculty, especially those hired to specifically support the MSI mission, are likely to have appointments and expectations that are different from their academic home peers. These differences should be specifically identified in position descriptions at the time of hiring and *administrators will need to develop mentoring and career development support that will ensure faculty success*. Faculty mentoring programs should be designed to address multiple needs of support for MSI faculty and we propose that mentoring should follow the model proposed by Kerry Ann Rockquemore of the National Center for Faculty Development &Diversity (www.FacultyDiversity.org). Mentoring committees and programs developed for MSI faculty should include other MSI faculty in addition to peers in the faculty member's academic home. Likewise, Promotion and Tenure Committees evaluating MSI faculty should include other MSI faculty in addition to disciplinary peers in the faculty member's academic home. We recommend that the directors and/or VP be active members of the review process by providing a letter of support to the unit committee and the college review P&T committee reviewing the faculty. This letter should reinforce the role and expectations of faculty in the MSI.

Organizational Structure

We propose an organizational structure (Figure 1[*]) that will effectively support the unique mission and goals of the MSI—transformative educational programs, transdisciplinary research and outreach and engagement. Furthermore, the organizational structure needs to support faculty at multiple locations, a student body in residence at multiple locations (HMSC, main campus, Ecampus and global experiential learning locations) and an outreach and engagement program that is regional, national and international in scope. The structure we propose is similar to a

[*] Figure 1 will be provided with the next draft

branch-campus model but also addresses the multiple location nature of the MSI. This model assumes that the MSI will report directly to the Provost because of transdisciplinary nature of the enterprise potentially intersects all of OSU's colleges and something about undergraduate focus. We acknowledge that our model is likely to require modifications as other subcommittees prepare their reports and proposals. Our organizational structure proposes a series of positions that will be required to support the MSI (Table 1). The position titles we propose are hypothetical titles—the functions of the positions are more important than what they are called. We acknowledge that these positions will need to be scalable as the MSI expands in extent and enrollment. Our organizational chart and proposed positions include professional faculty only. Many of these positions will also need classified staff to support their efforts. The appropriate level of support will need to be developed following a clearer understanding of the structure.

Primary Recommendations (Additional Conversations that Need to Happen)

Our initial proposal will need to be refined following conversations with other working groups. In particular, the Learning Models, Research and Outreach and Engagement Programs working groups will provide additional insight to staffing and administrative issues identified during their conversations. In particular, the relationship of the MSI to the organizational structure of the HMSC needs to be discussed. HMSC will be the primary location of the MSI, but units and buildings on the main campus and other locations along the coast will be involved. Will HMSC evolve into and become the MSI or might the MSI be just one of several activities, institutes etc. that occur at the HMSC? The Budget and Finance working group may provide additional insight into available resources that might also inform our proposed administrative structure.

Strengths, Weakness, Opportunities and Threats

Strengths

- Proposed transdisciplinary educational, research and outreach enterprise is fundamentally different from other marine studies campus in the world, which tend to be somewhat more discipline focused.
- OSU already has substantial depth in faculty expertise related to MSI and experience with transdisciplinary collaborations.
- No new school, college, or department needs to be established.

Weakness

- Current faculty expertise related to MSI is distributed across multiple colleges resulting in crossed lines of authority and responsibility.
- MSI as envisioned requires engagement and commitment among some colleges that to date do not have broad connections to HMSC or coastal or marine issues, and there is no obvious structure towards ensuring/allowing their contribution.
- There is broad concern that OSU's Promotion and Tenure guidelines might not accommodate positions with the unique transdisciplinary teaching and research envisioned for the MSI.
- No new school, college, or department is established, yet a number of new support staff will have to be hired and supported. The mechanics of paying for those staff could be challenging.

Opportunities

- A unique transdisciplinary enterprise around marine studies is likely to attract substantial new resources from granting agencies, state and federal agencies, non-governmental organizations and foundation resources.
- Fostering new structures towards enhancing/ensuring dynamic, rigorous, meaningful transdisciplinary work at a research university.
- Diversifying faculty and the types of research that is conducted and valued provides a more diverse range of role models for OSU students and subsequent career paths for them to pursue.

Threats

- MSI as currently envisioned may be too expansive for the available resources that OSU is able to commit.
- Broad engagement of all (most) colleges at OSU does not occur and MSI becomes just another marine science campus.
- MSI is not located in university structure in an appropriate place.
- Current rewards structures promote activity/results (especially concerning issues of promotion and tenure) counter to what is needed for MSI to become successful.
- This Initiative doesn't necessarily request current faculty move from Corvallis to Newport, but we might have a hard time recruiting new faculty to live in Newport (or they could commute, which poses its own challenges.

Table 1. Position types required to support the Marine Studies Initiative.

Title (FTE)	Hiring order	Likely duties
VP for MSI	• 1	• Overall supervision and accountability of MSI • Vision • Leadership • Strategic Planning
Director of Academic Programs (0.25-0.5 FTE initially, assigned to existing MSI faculty)	• 1	• Coordination among academic programs engaged in MSI • Reporting and coordination with APAA; Academic Program Reviews, Outcome Assessment and Accreditation • Supervision of MSI advising and student support staff • Coordinate writing or writing of educational grants and contracts (i.e., STEM) • Student recruitment
Head Advisor (main campus) (1 FTE)	• 1	• Campus visit for prospective students interested in MSI academic programs • Placement advising of students interested in MSI academic programs • Supervision of advisors for BS of MI major • Coordination among advisors with other academic programs associated with MSI • Coordinate undergraduate scholarships
First Year Experience Advisor(s) (main campus) (1 FTE ~ 300 majors)	• 2	• Placement advising of students interested in MSI academic programs • Student Success Counseling
Advisor(s) (1 FTE ~ 300 majors)	• 2	• Typical advising duties associated with BS of MI major
Internship/Experiential Learning Coordinator(s) (1 FTE ~ 300 majors)	• 1	• Develop and advertise internship and experiential learning opportunities • Work with stakeholders to place students into programs • Develop and coordinate research opportunities for undergraduates • Reporting requirements associated with internship and experiential learning placement (i.e., how do students get credit?)
Director of Student	• 3	• Facilitate/coordinate housing at HMSC and

Support Services (FTE???---this might be an initial duty of 1 or several of the positions above, or coordinated with main campus		other MSI locations • Coordinate with Housing and Dining in providing residential support • Coordinate student support services (health care, disability access, counseling, recreation and extra-curricular activities)
Graduate Programs Coordinator (0.25-0.5 FTE)—initially, duties could be fulfilled by other adviser position(s) above	• 3	• Campus visit for prospective students interested in MSI graduate programs • Coordination among graduate programs associated with MSI including academic appointments and tuition remissions • Coordinate graduate scholarships and fellowships
Director of Research (0.25-0.5 FTE initially, assigned to existing MSI faculty)	• 1	• Coordinate, facilitate and incentivize transdisciplinary research • Coordinate grant submission and accounting with Research Office and Sponsored Programs • Coordinate with research entities related to MSI (i.e., CIMERS, COMES, MMI, CGRB, etc.)
Director of Outreach and Engagement (0.25-0.5 FTE initially, assigned to existing MSI faculty)	2	This position may report to VP for Outreach and Engagement—duties and reporting to be developed after conversations with OEP working group
Director/Manager of Facilities and Services	2	This positions and potentially several that report to it are currently associated with HMSC---additional conversations are need, especially with the budget and infrastructure working group to determine how the existing HMSC facilities will align with the MSI.

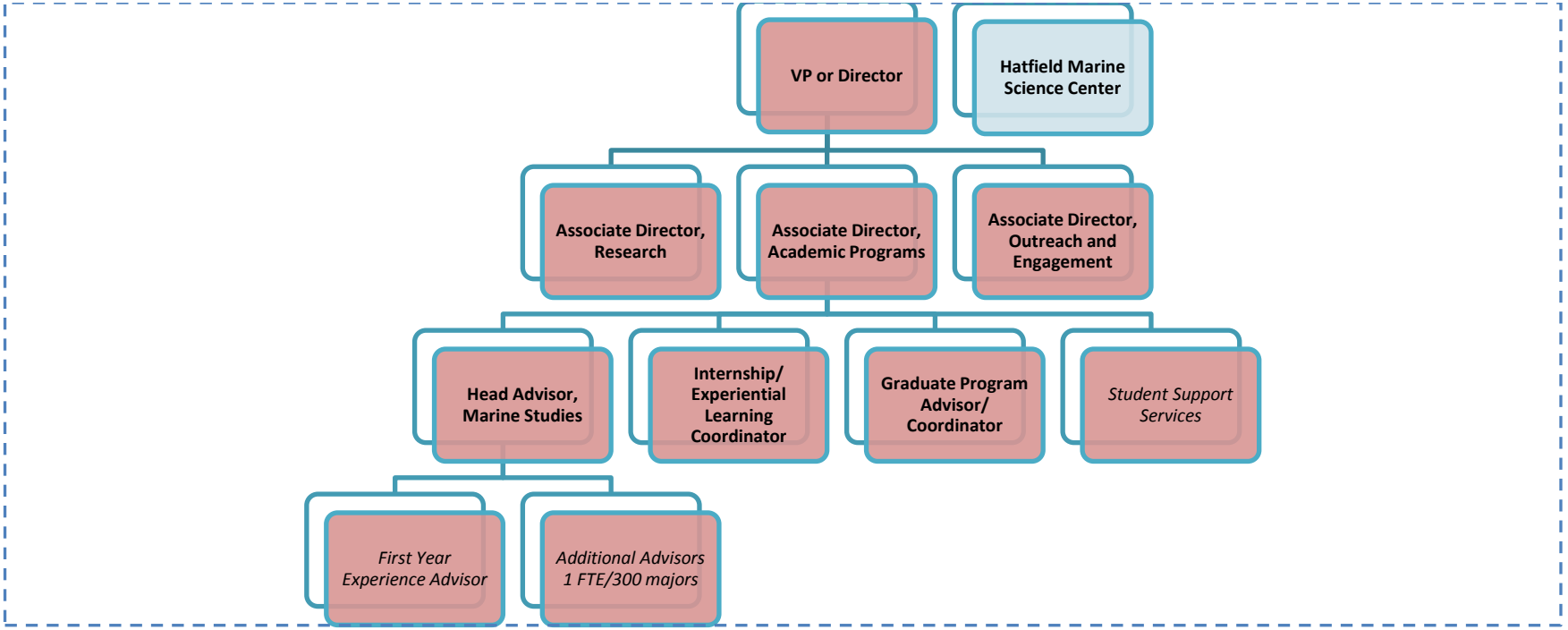

Figure 1. Proposed organizational structure for Marine Studies Initiative.

Appendix A.

a. *OSU faculty that were included in the conversations relating to the ideas presented in subcommittee work*. Working group members are designated with an *.

*Jack Barth
*Jana Bouwma-Gearhart
Steve Brandt
*Robert Cowen
*Dan Edge
*Sarah Henkel
Selina Heppell
*Yvette Spitz
Gil Sylvia
COEAS/OEB faculty

b. Non- OSU faculty that were included in the conversations relating to the ideas presented in subcommittee work.

Bryan Black,Texas A&M (phone conversation)
Julia Sigwart, Queens University of Belfast Marine Laboratory (phone conversation)
Simon Thrush, Institute of Marine Science, University of Auckland (email)
Ian Johnston, director of the Scottish Oceans Institute (email, no response yet)

c. *Web research into marine laboratory and interdisciplinary program mission, structure*.

- Subsample of the US marine laboratories available via http://marinebio.org/marinebio/careers/us-schools/

- Subsample of the non-US marine laboratories
  Portobello Marine Lab at the University of Otago
  The Leigh Marine laboratory at the University of Auckland
  Victoria University Coastal Ecology Laboratory
  CSIRO: Australia's Commonwealth Scientific and Industrial Research Organisation
  Australian Institute of Marine Science (AIMS)
  Sydney Institute of Marine Science
  School of Marine and Tropical Biology at James Cook University
  School of Marine Science and Technology at Newcastle University
  Plymouth Marine Lab
  Scottish Oceans Institute at the University of St. Andrews
  Scottish Association for Marine Science (SAMS)
  Seto Marine Biological Laboratory at Kyoto University
  Sugashima Marine Biological Laboratory at Nagoya University
  Ushimado Marine Institute at Okayama University
  Akajima Marine Science Laboratory

The three biology stations/observatories of Banyuls-sur-Mer oceanological observatory, Roscoff biological stations and Villefranche-sur-Mer oceanological observatory in France.

- Interdisiciplinary programs
  The University of Wisconsin–Madison
  Duke University
  The University of Southern California
  The Pennsylvania State University
  The Program In Individualized Studies at the University of Washington
  The Gallatin School of Individualized Studies at New York University
  The University of Alabama's New College
  The Interdisciplinary Studies Program at Michigan State

OREGON STATE UNIVERSITY
MARINE STUDIES INITIATIVE

FUNDRAISING WORKING GROUP REPORT

March 2015

Contents

I. Introduction

The Fundraising Working Group was convened to discuss and make recommendations around the efforts to secure private philanthropic support to advance the goals and objectives of Oregon State University's Marine Studies Initiative.

The initial fundraising effort on behalf of the Marine Studies Initiative will be a $65 million public/private initiative focused on facilities, research, faculty and students.

In addition, the university and the OSU Foundation have embarked on a 3-5 year Strategic Fundraising Initiative (SFI). The Marine Studies Initiative is one of three initial core elements within this larger initiative. Through the planning process for the SFI deans and leaders of 6 colleges and units have determined that MSI will be among their unit's fundraising priorities.

The charge to the Fundraising Working Group was to:

- Develop a message platform to guide the fundraising efforts for the Marine Studies Initiative
- Identify goals and fundraising priorities for the Marine Studies Initiative
- Identify strategies to advance fundraising success for the Marine Studies Initiative
- Identify possible challenges and obstacles to fundraising success for the Marine Studies Initiative

II. Members of the Working Group

The Fundraising Working Group consisted of the following individuals from OSU and the OSU Foundation:

- Mark Abbott, Dean, College of Earth, Oceans, and Atmospheric Sciences and Executive Dean, Division of Earth Systems Science
- Dan Arp, Dean, College of Agricultural Sciences
- Scott Ashford, Dean, College of Engineering
- Jack Barth, Associate Dean and Professor, College of Earth, Ocean, and Atmospheric Sciences
- Todd Bastian, Senior Director of Development, OSU Foundation
- Bob Cowen, Director, Hatfield Marine Science Center
- Bruce Mate, Director, Marine Mammal Institute
- Sastry Pantula, Dean, College of Science

III. Fundraising Message Platform:

The Fundraising Working Group developed the following message platform to guide and support all efforts made by the university, the colleges, or any unit engaged in securing private philanthropic support for the Marine Studies Initiative:

OREGON STATE UNIVERSITY
MARINE STUDIES INITIATIVE

Fundraising Message Platform

- **All life on Earth depends on the ocean.** The most significant challenge to the quality of life is how to balance the competing demands of society, environmental stability, and economic development.

- Oregon State University—through its **Marine Studies Initiative**—is uniquely qualified to provide global leadership for developing **bold new approaches** to tackle this challenge through its:
  - Distinctive and **holistic university-wide approach to teaching, research, and outreach activities with trusted partners** along the Oregon Coast, across the state, and globally
  - Internationally-recognized faculty and researchers committed to exploring the **scientific, societal, and economic aspects** of these challenges in the pursuit of solutions and more sustainable practices
  - New and **highly-experiential undergraduate degree program** in marine studies and new **state-of-the art teaching and research facility**
  - **Location in Oregon**—a state that offers a remarkable living laboratory with a vast coastline and diverse bioclimates, as well as an illustrious history as a first-adopter of pioneering sustainability legislation and practices.

- The synergies created by the Marine Studies Initiative will help:

- **Conserve and sustainably utilize** the oceans and marine resources
- Make coastal communities **safe, resilient and economically healthy**
- Mitigate the impact of **climate change, ocean acidification, and pollution**
- Improve **food security and nutrition**
- Develop new sources of affordable and reliable **energy**

❖ **Now is the time to act.** Join us in protecting and promoting the oceans by supporting the Marine Studies Initiative.

IV. Fundraising Goals & Priorities

Through the work of the University's **Fundraising Priority Setting Internal Working Group** meetings have been held with many of the deans and unit leaders to discuss their respective unit's proposed fundraising goals and priorities. Below, are the suggested areas of focus specific to the Marine Studies Initiative that have emerged from those respective conversations:

MARINE STUDIES FUNDRAISING PRIORITIES BY THEMATIC AREA

FACILITIES AND EQUIPMENT - $5.5 Million Goal

FACULTY POSITIONS & AWARDS - $5.25 Million Goal

SCHOLARSHIPS, FELLOWSHIPS & STUDENT AWARDS - $3.5 Million Goal

PROGRAM SUPPORT FOR STUDENTS & FACULTY - $5.75 Million Goal

V. Fundraising Strategies

A. Unit-Specific Strategies

Working in partnership with the Senior Directors of Development for OSU's four divisions each of the above mentioned unit deans and directors have helped inform the Marine Studies Initiative prospect list, through the development of anticipated solicitation amounts, solicitation teams, and possible areas of interest for each prospective donor to the project.

Monthly check-in meetings are being convened with lead faculty members and directors of development across the institution to help drive our in-person, cultivation and solicitation visits.

To date, nearly $7.5M has been raised towards our $20M goal (including $700,000+ specific to the building).

B. Leadership Gifts

The OSU Foundation in collaboration with University partners has identified 60 entities rated with the capacity to contribute $1M+ to the Marine Studies Initiative – of those entities approximately 20 have solicitation plans in progress for $1M+ gifts. Each of these solicitations are being staffed jointly between faculty, directors of development, and/or leadership from the University and leads with a specific ask for the building.

To date, we currently have 5 $1M+ gift conversations open for the Marine Studies Initiative, and continue to open additional proposals as conversations take place.

C. Private Foundations

Foundation Services has implemented a three-pronged strategy to help meet the goals of the match for the Marine Studies Initiative. The three parts of this strategy include research, dissemination, and proposal development.

Over the past nine months, Foundation Services has researched, identified, and vetted approximately fifty private foundations that could be significant partners in funding some aspect of the initiative. Of those fifty, eight to ten private foundations fund capital expenditures. Aaron Shonk, Director of Foundation Services, is working with Jane Lubchenco and Mark Abbott to set up visits with these private foundations, along with other private foundations that have a history and capacity to make significant grants in marine studies areas.

For private foundations interested in funding programs and research (i.e., not capital), Shonk worked with several college deans and the two co-directors of the Marine Studies Initiative to establish a process by which to roll out the remaining private foundations to faculty and departments within their respective colleges. Beginning in February, Foundation Services will begin disseminating five to six of these opportunities on a monthly basis through a listserv or directed e-mail.

In addition to the original fifty identified sources, a recent, more in-depth research project resulted in another seventy possible private foundations that may be interested in supporting Oregon State University's Marine Studies Initiative. Foundation Services is currently examining these opportunities more closely; its staff expects, at a minimum, twenty to twenty-five of these private foundations to be qualified for solicitation. (These private foundations are likely to be incorporated into the dissemination plan.)

At present, two foundations are actively considering two proposals totaling approximately $1 million in potential funding for marine studies-related research.

D. Coastal Community Challenge

Through the Coastal Communities Challenge we seek to raise $1 million towards our $5 million philanthropic goal required for the Marine Studies building. The Challenge will be comprised of 40 individuals and businesses from Oregon's coastal communities who commit to gifts of $25,000, either outright or over a five year pledge period.

To date, we have received 14 gifts towards this challenge and have an additional 5 discussions underway with potential donors to the facility.

E. Provost Faculty Match Program

Currently, the University is discussing the potential to establish a Provost's Faculty Match for endowed faculty positions, which stands to be structured similarly to the previous PFM held within the Campaign for OSU.

VI. Summary

In summary, this report details the Fundraising Working Groups' recommendations for priorities and strategies that the University and OSU Foundation will implement on behalf of our shared $65M fundraising goal for the Marine Studies Initiative.

Marketing, Communications and Public Affairs Strategies

- Short-term strategies and tactics: through June 30, 2015.
- Mid-term strategies and tactics: July 1, 2015 through June 30, 2017.

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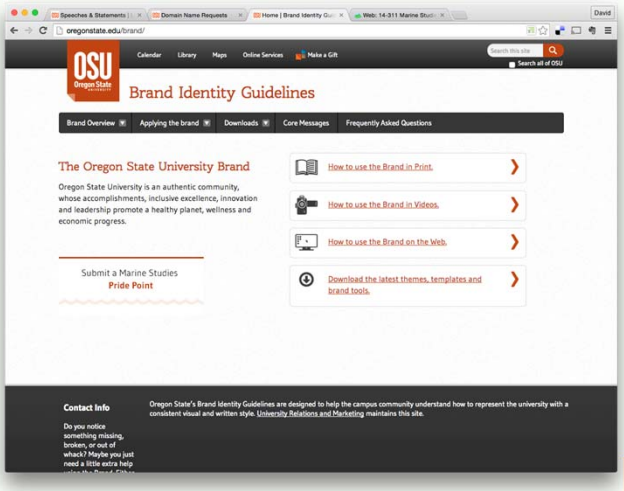
Marketing

- Complete MSI Message Platform and core messaging. (ST)
- Create MSI visual design templates. (ST)
- Create PowerPoint presentation and road show materials. (ST)
- Design and produce MSI brochure. (ST)
- Determine how faculty are engaged in marine studies. (?)
- Conduct public perception market research. (MT)
- Support on-going MSI marketing requirements. (On-going)

Oregon State UNIVERSITY

Marketing

- Create MSI narratives featuring colleges, faculty and students. (?)



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Communications – External

- Train MSI experts and OSU partners to effectively communicate with media. (ST)
- Promote importance of marine studies research and teaching with regular features and news releases. (On-going)
- Conduct editorial board visits and meetings with coastal journalists. (ST)
- Conduct editorial board visits and meetings with “inland” journalists. (ST)
- Conduct MSI media relations with national media. (MT)
- Support MSI communications requirements. (On-going)

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Communications – Internal

- Communicate importance of MSI and the variety of OSU marine studies research and teaching to faculty, staff and students. (ST)
- Regularly provide internal MSI updates. (MT)
- Assist with regular updates to OSU Board of Trustees. (ST)
- Support MSI communications requirements. (On-going)

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Events

- Support Hatfield Marine Science Center's 50th anniversary events. (ST)
- Link marine studies initiatives within all HMSC anniversary events. (ST)
- Hold marine-studies-related "Science Pubs" in Corvallis, Newport, Portland. (MT)
- Organize alumni speaker series to support MSI. (?)
- Support MSI event requirements. (On-going)

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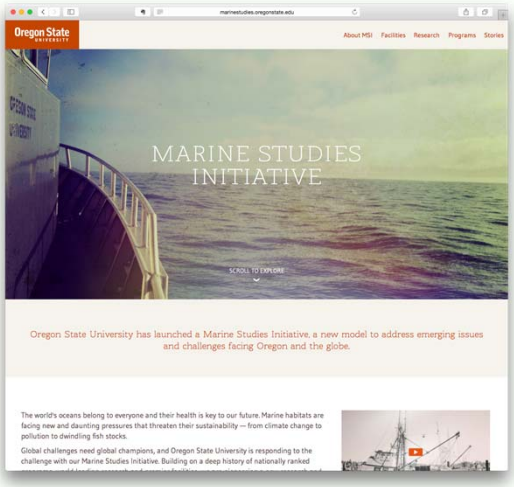
Web, Video and Interactive Communications

- Design and launch website to support MSI. (ST)



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Web, Video and Interactive Communications

- Create 2-3 minute compelling video about the global importance of marine studies and our oceans. (ST)
- Create links between MSI website and websites of OSU colleges and MSI-related units, such as Research Office, Foundation, Outreach and Engagement, etc. (ST)
- Support MSI web, digital and video requirements. (On-going)

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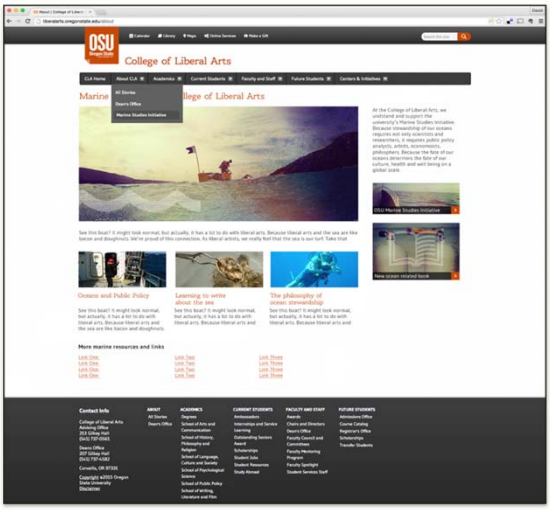
Web, Video and Interactive Communications

- Populate MSI website and other OSU websites with fresh and compelling marine studies information and narratives. (?)



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Public Affairs

- Complete MSI economic impact study. (ST)
- Utilize economic impact study internally and externally to support MSI. (On-going)
- Work with MSI leaders to maintain on-going SWOT analysis. (On-going)
- Utilize SWOT analysis to proactively address emerging issues and capture benefits of new opportunities. (On-going)
- Conduct public perception and influencers research. (MT)
- Support public affairs and engagement strategies identified by other MSI committees. (On-going)

Oregon State UNIVERSITY

MARINE STUDIES INITIATIVE

The world's oceans belong to everyone and their health is key our future

Oregon State University has launched a Marine Studies Initiative, a new model to address emerging issues and challenges facing Oregon and the globe.

The Marine Studies Initiative leverages Oregon State's international leadership and impact in marine sciences and natural resource management, teaching, research and community engagement. This effort will help sustain healthy oceans and ensure wellness, environmental health and economic prosperity for future generations. OSU will provide vital knowledge and unique experiential learning for students by expanding collaborative and innovative approaches to address the issues facing the world's oceans.

What is the initiative?

- The Marine Studies Initiative is a long-term, university-wide commitment.
- Oregon State University will expand its academic, research, outreach activities, partnerships and impact along the Oregon coast, within the lower Columbia River, across the state and globally.
- This interdisciplinary effort will cohesively involve each of Oregon State's 12 colleges, the university's Graduate School, the Hatfield Marine Science Center, the Marine Experiment Station and Seafood Lab, and OSU Extension, as well as other institutions of higher education, notably the state's coastal community colleges.

What will it look like?

- The Marine Studies Initiative will create a new framework of collaboration where students, faculty, government and industry partners can tackle challenges facing the ocean, coastal communities and people who depend on a healthy, thriving marine environment. Issues to be addressed include ocean acidification, rising sea levels and sustainable fisheries.
- OSU will create a new, highly experiential undergraduate degree program in marine studies and bridge OSU's Corvallis campus and the Hatfield Marine Sciences Center, including building a new state-of-the art $50 million facility.
- Academic and research programs will emphasize innovative and hands-on problem-solving.

What are the outcomes?

- The Marine Studies Initiative will increase understanding of coastal and ocean systems and promote sustainability on key issues including climate change, food security and safety, natural hazards, renewable energy production and natural resources management.
- It will enhance the economy and environment, which are greatly impacted by the marine ecosystem, including fishing and seafood industries, forestry and wood products, agriculture, tourism and hospitality, shipping, renewable energy, education, engineering and others.
- Innovative curriculum development and research will blend the natural and social sciences to include themes of marine science, big data, business and technology, natural resources and ecosystems, coastal resiliency and public safety, marine policy, ocean law and science, education and human health.

What is the target date?

- By 2025, the university will have 500 students-in-residence at the marine studies campus to attend classes, conduct research and participate in other experiential learning.

MARINE STUDIES INITIATIVE BULLETS

The world's oceans belong to everyone and their health is key our future

Oregon State University's Marine Studies Initiative is a new model to address essential challenges.

The Marine Studies Initiative leverages OSU's international leadership and impact in marine sciences and natural resource management, teaching, research and community engagement.

The Marine Studies Initiative is a long-term, cohesive university-wide commitment.

The Marine Studies Initiative will create a new framework of collaboration where students, faculty, government, higher education partners and industry partners can tackle challenges.

OSU will create a new, highly experiential undergraduate degree program in marine studies and build a new state-of-the art $50 million facility.

Innovative curriculum development and research will blend the natural and social sciences.

By 2025, the university will have 500 students-in-residence at the marine studies campus.

The initiative will enhance the coast and broader Oregon economy and environment.

University Marketing
Oregon State University, 102 Adams Hall, Corvallis, Oregon 97331-2122
T 541-737-3871 | **F** 541-737-8955 | oregonstate.edu/marketing

DRAFT – March 5, 2015

OREGON STATE UNIVERSITY'S MARINE STUDIES INITIATIVE

The world's oceans belong to everyone, and their health is critical to our future. Through its Marine Studies Initiative, Oregon State University is actively engaged in a university-wide commitment in research, teaching and outreach to benefit:

Our Oceans

By understanding and addressing climate change, ocean acidification, rising sea levels, sustainable fisheries and other challenges facing our oceans and coastal ecosystems.

Our Students

By providing innovative, hands-on, problem-solving academic programs in the natural and social sciences, both in Corvallis and in Newport.

Our Communities

By promoting economic prosperity along the Oregon coast and lower Columbia River through sustainable fishing, tourism, forestry, energy and other industries.

Our Partners

By collaborating across the university, with community colleges, government agencies and businesses to address essential challenges and emerging opportunities.

Our World

By leveraging OSU's international leadership and partnerships in marine studies to study and implement innovative solutions to address global challenges.

marinestudies.oregonstate.edu

Oregon State University
Marine Studies Initiative

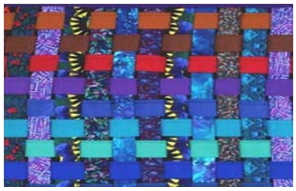
Overview Report of the Finance, Facilities, and Infrastructure Work Group

Section A: Infrastructure Overview & Planning
Section B: Financial Modeling

Section A: Infrastructure Overview & Planning

How do we define infrastructure?
What is it that the MSI infrastructure will need to support?
What does infrastructure success look like?
Where are we now?

Infrastructure:
the physical fabric that binds the natural, built and virtual environments that support the diverse communities engaged in our academic, service, and research missions



Envisioning MSI Infrastructure

- **Environmentally Sustainable**
  - Design inspiration from natural systems
  - Design response to local physical environments – HMSC and Corvallis
- **Financially Sustainable**
  - Long term life cycle cost, not lowest first cost, is the infrastructure design criteria
- **Unique/Special Opportunities**
  - Create and test laboratory and learning environments both physical and virtual
  - Utilize the local physical setting for learning and research
  - Maximize existing resources including research vessels and community
- **Collaborative & Inclusive**
  - Involve all OSU people and programs
  - Interact with other educational institutions and activities
  - Work with community, industry, federal, state and global partners
- **Beneficial**
  - Develop local, regional, global solutions to human and natural challenges
  - Address the needs and questions of our local and statewide, national, and global communities
- **Inspiration**
  - Inspired place making which inspires the daily work and social lives of students, faculty, staff, and visitors

Elements of MSI Place

- **Supportive environment**
  - Encourages life and work balance
  - Serves graduate and undergraduate students,
  - staff, faculty, partners, and visitors
  - Enhances the FLOW & EXCHANGE of ideas and people
- **Robust virtual infrastructure**
- **Immediate access to marine and estuarine ecosystems**
- **Accessible and inclusive for all students, faculty, staff, visitors**

MSI Infrastructure Guiding Principles

- **Support** experiential learning through deep engagement with place, people and inquiry
- **Demonstrate** that learning is social and transformative
- **Involve** all audiences in marine studies through the MSI infrastructure
- **Develop** a functional and resilient infrastructure through
- **Integrate** environmentally sustainable practices with innovative strategies
- **Embrace** collaboration
- **Create** a transformative and inspired experience for all learners
- **Enable** and motivate partners

Ideal Infrastructure for Students - Summary

- **Immersion in the coastal environments**
  - Scientifically
  - Educationally
  - Collaboratively
- **Learn to understand and engage**
  - As stewards
  - As scientists
  - As educators
  - As citizens
- **Build and Support Community**
  - Design a collaborative social life infrastructure
  - Support food, short and longer-term student and faculty housing (with pets!), and identify transportation needs (within and beyond the MSI space)
  - Support health and wellness, childcare, and recreational (indoor and outdoor) infrastructure for students, staff, and faculty
- **Access to Key Educational Tools**
  - Student access to facilities
  - Wired classrooms to bring experiments/experiential learning opportunities to the classroom to limit environmental impacts.
  - Research Equipment Availability for independent projects
  - Tank space that can access soft water systems
  - Enhanced flexibility in laboratories to support access to soft water systems.
  - Create E-campus courses to offer full schedules to prevent students from traveling to Corvallis
  - More opportunities/courses/certificate for Leadership in Integrative Marine Science and Studies

Ideal Infrastructure for Faculty and Staff - Summary

- **Physical access to coastal environments**
  - Seawater labs
  - Estuaries
  - Communities
  - Beaches
  - Nearshore
  - Offshore
- **Virtual access to data and information**
  - Local data
  - Telepresence
  - Big data
  - Historic record
  - Library
- **Participants in vital communities**
  - Design a collaborative social life infrastructure
  - Support food, short and longer-term staff and faculty housing (with pets!), and identify transportation needs (within and beyond the MSI spaces)
  - Support health and wellness, childcare, and recreational (indoor and outdoor) infrastructure for faculty and staff

Ideal Infrastructure for Our Communities and Partners - Summary

- **Common Ground - Collaborative**
  - Experts to work with
  - Students to train and mentor
- **Common Spaces**
  - Meeting areas
  - Social spaces
  - Virtual spaces
  - Sharing and preparing food spaces
  - Health and wellness spaces
- **Affordable and Innovative Residential Life Solutions**
- **Seismic Resilient Planning, Response and Recovery**

KEY CHALLENGES – MSI Infrastructure

- ✓ Create a home for all students
- ✓ Interdisciplinary faculty and staff learning environments
- ✓ Clarification/agreements/partnerships for shared space, facilities, and infrastructure
- ✓ High performing cost-efficient infrastructure systems
- ✓ Modern and extremely flexible (non-specialized) facilities
- ✓ Integration of natural, virtual, and physical human-developed infrastructure
- ✓ Seismic expected-event response planning
- ✓ Seismic expected-event recovery planning

Seismic Resilient Hatfield Marine Science Center - Comprehensive Approach

- Existing and new resilient infrastructure and building systems in place to respond to and recover from seismic event
- Continuous human and financial resource investment in emergency response and recovery planning
- Identification of capital investment strategies for community response and recovery planning – state, federal, and local sources
- Establish key measures and OSU resilience outcomes

Seismic Resilient Hatfield Marine Science Center - Comprehensive Approach

OSU Facilities Types around which to cluster Resilience Planning

Research Laboratories
Research facilities with ongoing experiments and depend on a specially conditioned environments.

Essential Facilities
Emergency operations center, police and fire services, hospital, shelters and temporary administrative quarters.

IT Facilities and Networks
Offices, data centers, distributed hubs, and infrastructure to support connectivity.

Instructional Facilities
Classrooms, auditoriums, faculty offices, teaching laboratories, and sports facilities.

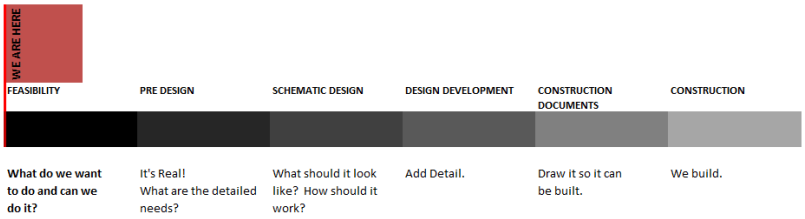
Housing
Residential complexes that include dining facilities.

Administrative Offices
Offices of the Director and Administrative Services

MSI Infrastructure Success is Creating And Sustaining Places that:

- Inspire us to teach and learn
- Inspire us to become leaders
- Celebrate the diversity of the oceans
- Invite Oregon and the world to join us and work in partnership with us

MSI Infrastructure – Where are we now?



MSI Infrastructure – Potential Tasks and Time

Feasibility Design Workshops and Report – 3 months
Solicit Request for Proposal of Design and Contractor Teams – 2 months
Design and Contractor Teams Selection and Contract Execution – 2 months
Pre-Design Phase Documents/Budget – 3 months
Pre-Design Documents/Budget Review – 1 month
Schematic Design Phase – 4 months
Schematic Design Phase - OSU Review – 1 month
Design Development Phase – 3 months
Design Development Phase – OSU Review – 1 month
Construction Document Phase – 4 months
Construction Document Phase Review & Entitlement Application & Construction Bidding – 2 months
Construction – 18 months
Building and Site Move-In Duration – 2 months

HMSC Site Infrastructure Elements

Vegetation Management protects the environmental quality and character of the center. This includes vegatation relocations, infill planting, estuarine restorations, and other landscape improvements.

Pedestrian / Bicycle Pathway Program will improve and maintain pedestrian and bicycle routes to promote safety, encourage sustainable transportation modes, and enhance educational, community, and research programs.

Outdoor Lighting purchases, installs, salvages, and relocates light fixtures to ensure center safety while promoting conservation of energy.

Outdoor Furnishings serves, purchases and installs new trash & recycling receptacles, picnic tables, benches, and dumpster enclosures.

Outdoor Art sites and installs art pieces that are site appropriate and meaningful to their location, both in terms of the physical environment and the interpretation of the artists' concept.

Signage designs and implements installation of signage ranging from pedestrian focused regulatory signs to street scaled vehicular directional signs. The program provides consistent and aesthetically appropriate signs to aid visitors, faculty, students, visitors, & staff in navigating the center campus environment.

Bollards / Vehicle Control protects pedestrian and landscaped zones and controls vehicular and service traffic.

Bike Parking design for new or improved existing bike parking areas while maintaining the consistent, uncluttered character of the Center landscape.

Small Craft Storage and Dock Design to support functional and efficient management of logistics and material distribution at the water's edge.

Section B: Financial Modeling

A short summary of major assumptions and projections is presented here

Report materials – noted in the Supplemental Materials Section - include an Excel workbook with a working version of the financial projection and a document discussing the model assumptions in more detail.

Core Assumptions

- 500 students (400 undergraduates, 100 graduates) taking a full credit load during the academic year while in residence or studying in Newport (45 SCH per academic year for each undergraduate and delivery of 36 SCH for each graduate student). We have used this assumption as the principal boundary condition in assessing the costs of staffing and course delivery, which are the largest costs in the Initiative.
- If there are 500 students at a time at HMSC, there must be some number of students studying in Corvallis or Cascades who were preparing to spend time at HMSC. We assumed there were 1600 undergraduates at a time involved in marine studies broadly (450 students currently involved in programs, 400 new students at HMSC, and 750 other new students studying in various programs in Corvallis). We assumed 350 graduate students, 250 of which are currently studying in programs in Corvallis and 100 new students studying at Newport.
- It was also assumed that the completion and operation of a 100,000 gsf Marine Studies Building in Newport would happen and the building would be operational in Fall of 2017. The completion of a 120,000 gsf Earth Systems Science building in Corvallis, opening in Fall, 2022, was included as an option.

Key Variables

The financial analysis depends greatly on some key ratios, including:

- Overall student to faculty ratio (15 in the example graph following)
- Average size of graduate classes at Newport (12 in the example)
- Average size of undergraduate classes at Newport (20 in the example)
- Proportion of professorial faculty to instructors (4:1 in the example)

These variables drive other important factors for cost estimates including:

- Number of faculty and instructors
- Number of graduate teaching assistants
- Proportion of credit hours delivered at Newport through Ecampus (which is important because that tuition goes to the delivering unit

Key Variables in the Financial Analysis

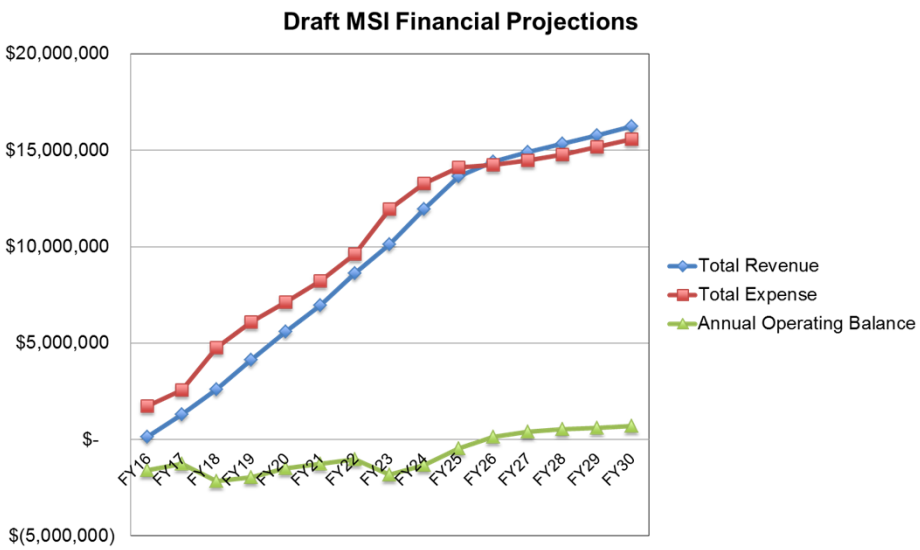
Variables are shaded green
Fixed assumptions or values calculated from the variables shaded brown

Key Assumptions	
Undergraduates* at HMSC in 2025	400
Graduates at HMSC in 2025	100
Newport MSI building operational Fall, 2017	
Average graduate class size	12
Average undergraduate class size	20
Credit hours at HMSC delivered online	50%
3.5 graduate students per tenure rank faculty	
Addition to current HMSC O&M	
All graduate students on assistantships	
Support staffing analagous to Cascades currently	

Settings	
Average student/faculty ratio	15
Ratio of tenure track/instructors	80%
Average graduate class size	12
Average undergrad class size	20
Include current O&M shortfall? ($250K)	yes
Corvallis ESS building Fall, 2022	yes
Include depreciation of new buildings?	no

*We have assumed 500 students means 500 students receiving a full course load at HMSC in an academic year (45 SCH for undergraduates, 36 SCH for graduates)

Key Measures	
Tenure-track faculty	27
Instructors	6
GTAs	33
% Undergrad SCH online	50.2%



APPENDIX

Meeting Notes & Detailed Discussion Slides

February 3, 2015

Oregon State University
Marine Studies Building – Newport Oregon

Building Principles

In striving to expand marine studies research, education and outreach along the Oregon coast as part of its Marine Studies Initiative (MSI), Oregon State University is developing plans to build a new marine studies building at the Hatfield Marine Science Center (HMSC) located in Newport.

Placement of the building at this site is reliant and key to retaining a close connection to HMSC's world-class seawater facilities and proximity with our state and federal agency partners. Our planning for this new building is in the early stages. To reflect the reality of building along Oregon's coast with the Cascadia Subduction Zone (CSZ), we are in the process of developing *Building Principles* to guide the building's design.

First and foremost, we are committed to the safety of OSU students, staff, faculty, and guests. The *Building Principles* seek to demonstrate how to build responsibly in Newport and elsewhere along the Oregon coast, and to showcase earthquake readiness to coastal officials, business owners and the general public.

We are well aware of the seismic hazards at HMSC, including strong-shaking, liquefaction, and tsunami inundation. These same hazards are faced up and down the Oregon coast. We will build this facility to withstand the expected CSZ earthquake, and allow our building occupants to evacuate to safe higher ground before a tsunami inundation takes place.

Building Principles & Key Points:

With recognition of the specific hazards outlined above, OSU will construct the marine studies building to meet the following principles:

1. Safety will be the primary guiding principle.
2. The building will be designed to ensure that structural integrity is maintained for the expected CSZ earthquake. Our planning for the new building will be in cooperation with experienced architects, engineers and building officials with a focus on building a seismically-resilient structure. Occupants will be able to survive the seismic event, exit the building and follow the tsunami evacuation plan.
3. Core design features will serve to demonstrate state-of-the-art structural options for future building in such seismically active regions worldwide, as well as for earthquake and tsunami readiness.
4. The building will have a design occupancy of not more than 350 people, which is significantly lower than the current 500-person design code for building in the inundation zone.

5. Our earthquake readiness and tsunami evacuation planning will include not only this building, but the entire campus. OSU currently has a tsunami evacuation plan that is practiced twice per year, in cooperation with the City of Newport, Lincoln County and state agencies.* The frequency of these drills can be adapted to meet the needs of training for short-term occupants (e.g., students present for only a quarter term or shorter periods of time).
6. Student housing will be located off HMSC property and well out of the tsunami zone.
7. Current knowledge and models indicate that the expected water inundation height on the HMSC site will be significantly reduced from that of water initially encountering the coast. The building will be designed to minimize the hydraulic demands imposed by the tsunami.

We believe the building provides an opportunity to demonstrate how to construct and operate a seismically-safe building under these conditions. We believe that doing so is important, both to provide a land-water interface, and to serve as an example for the coastal community.

* **HMSC – Tsunami Evacuation Plan Partners**: Lincoln County Sheriff's Office - Department of Emergency Management; Newport Police and Newport Police Volunteers; Newport Fire Department; Newport Department of Community Development; Lincoln County School District; American Red Cross; CERT (Community Emergency Response Team); RACES (Radio Amateur Civil Emergency Service); Oregon Office of Emergency Management; Oregon Department of Transportation (ODOT); Oregon Department of Geology and Mineral Industries (DOGAMI); Port of Newport; Oregon Sea Grant; Oregon Coast Community College; OSU Emergency Preparedness, NOAA National Weather Service (Tsunami Ready program)