Marine Studies Initiative (MSI)

Update for Oregon's Ocean Policy Advisory Council

Friday, May 8th, 2015 Bandon, OR

Jack Barth and Bob Cowen, Oregon State University

Marine Studies Initiative (MSI)

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 oxygen in **every second breath** you take comes from the ocean's phytoplankton*

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Marine Studies Initiative (MSI)

The ocean impacts the **economic vitality** of Oregon's coastal communities, and **drives weather and climate variability across Oregon**, the nation and the world.

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Marine Studies Initiative (MSI)

Just as the marine environment lends itself to scientific study, the **sea and the coast have inspired and provided resources to humans for millennia.**

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Marine Studies Initiative (MSI)

"OSU's next big thing" – OSU President Ed Ray

"500 full-time equivalent students at Newport by 2025"

The Launch
2013-2017
FY13-17
$65M

facilities, faculty and infrastructure needed to strengthen the integration of marine education, research and engagement

Programs, people
HMSC building

The Expansion
2017-2025
FY17-25
$96M

establishing a robust transdisciplinary team to expand the marine expertise into diverse and unique fields of collaboration and distinction

Programs, people
Corvallis building

Information Technology (IT) throughout

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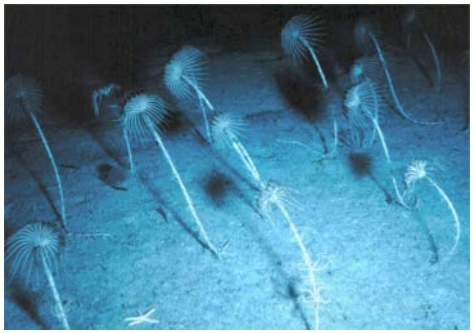
Marine Studies Initiative (MSI)

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.



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- The **MSI** is a University-wide initiative that will target an unprecedented collaboration across all 11 academic colleges of the University plus its outstanding Honors College and Graduate School.

- 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 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.

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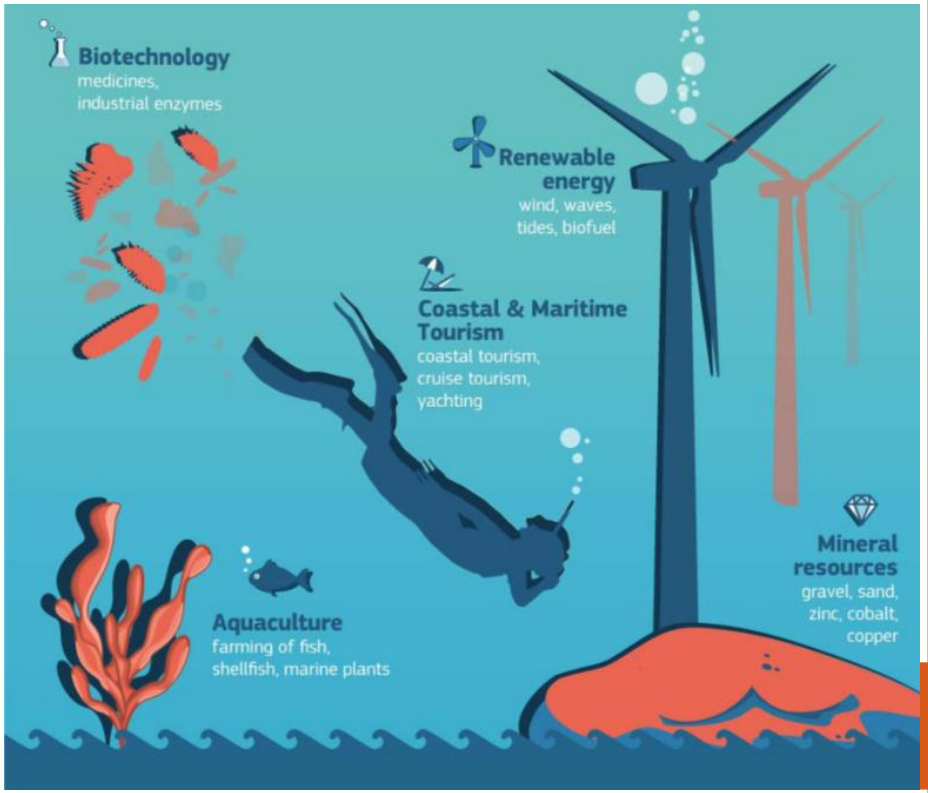
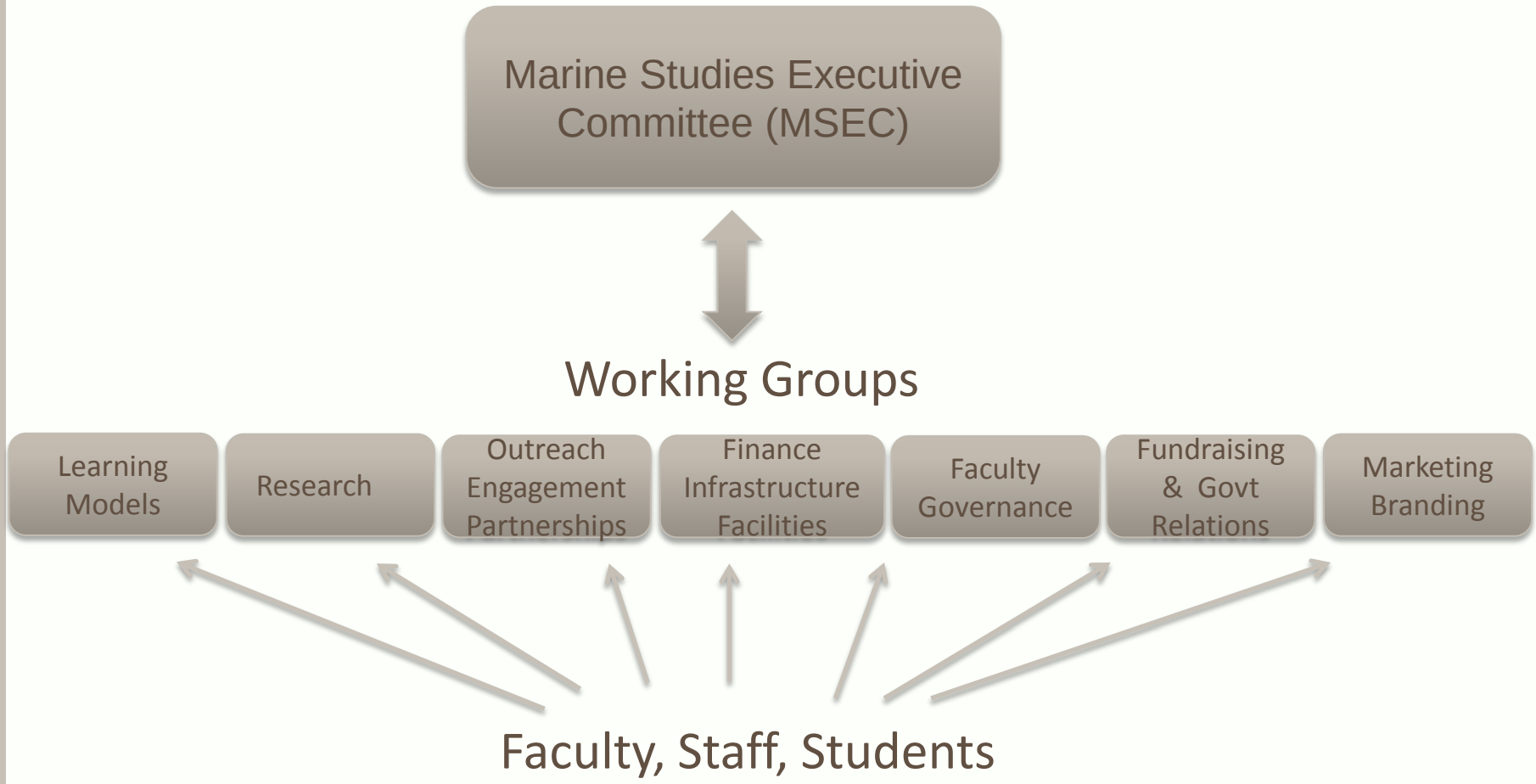
The Blue Economy

Pacific Northwest Maritime Transportation System (sea to inland points)
~$66B = ~$20B Columbia River region + ~$46B Puget Sound region

Fisheries (and all associated industries)
Shipping
Tourism (including recreational and charter boat fishing)
Ocean energy (wave, current, wind)
Ocean observing/monitoring value-added ocean current and wind products, e.g., Weathernews.com
Ocean technology (underwater vehicles, cameras, water-quality sensors)
Biotechnology (drugs from the sea)
Ports (and all associated industries)
Insurance (seismic risk, tsunami risk, coastal inundation)





100+ faculty, staff and students

Advisory Committee

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Advisory Committee

David Gomberg, State Representative
Arnie Roblan (Rosie Shatkin), State Senator
Brigitte Ryslinge, OCCC President
Spencer Nebel, City of Newport City Manager
Michelle Longo Eder, OSU Board of Trustee
Mark Labhart, Tillamook County Commissioner
Terry Thompsom, Lincoln County Commissioner
Kevin Greenwood, Port of Newport General Manager
Gabriella Goldfarb, Gov. Kitzhaber's Natural Resources Policy Advisor

To be added: private industry

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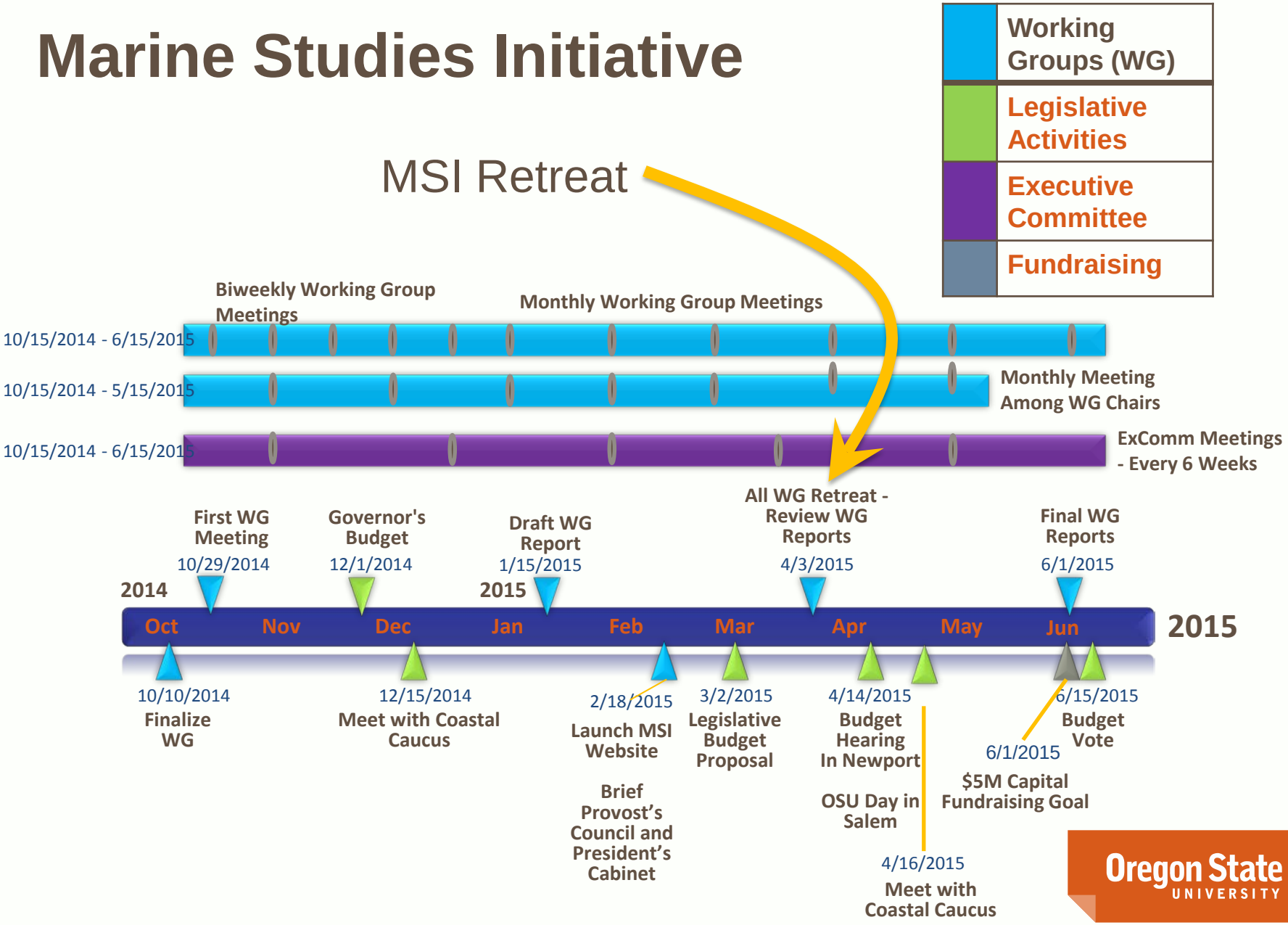
Marine Studies Initiative



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Learning Models Working Group

THE LIVES AND CAREERS OF ALL PEOPLE CAN BE ENRICHED THROUGH OCEAN LITERACY

- Expand and enhance undergraduate and graduate degrees with *marine* **options, minors, and certificates** *across* colleges
- Create an interdisciplinary, **liberal arts**, marine studies **undergraduate** major and minor
- Increase **internship** and **international student opportunities** across marine-related degree programs
- Continue to foster K-12, community college, professional, and noncredit education partnerships

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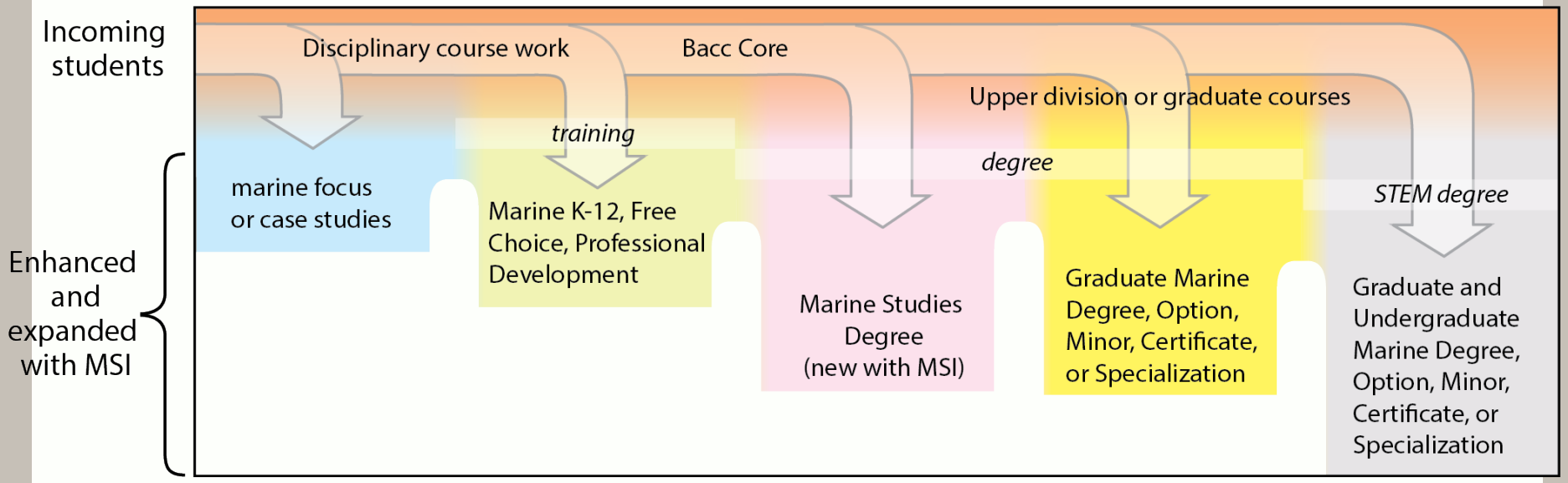
Marine Education Opportunities



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Research Working Group

FROM THE MOUNTAIN TOPS TO THE OCEAN:
A STEWARDSHIP OF PLACE IN OREGON

- **Integrated Marine Systems Science**: Climate change impacts on marine systems; Coastal Ecology; Paleo-Oceanography; Ocean and Coastal Observing
- **Reliance on the Sea**: Food from the Sea; Renewable Energy; Recreation and Tourism; Cultural Heritage
- **Global Change and Resilient Coastal Communities**: geological change (earthquakes, tsunami), climate change (sea level rise, storms, erosion), biophysical change (ocean acidification, hypoxia, invasive species), social change (demographics, economics)

Cross-cutting role of Data Science in MSI: Finding Solutions

- **MSI Think Tank: Incubators of Knowledge to Action**

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Research Working Group

FROM THE MOUNTAIN TOPS TO THE OCEAN:
A STEWARDSHIP OF PLACE IN OREGON

- **Expand resources and structure for focused Centers of Excellence address key global marine related issues.**

  Examples include:

  - Marine Mammal Institute
  - Marine Genomics
  - Coastal Resilience
  - Oregon Ocean Acidification and Hypoxia (OOAH)
  - Marine Conservation Science and Policy
  - Ocean Law (Partner with UO)
  - Sustainable Fisheries (and aquaculture)

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Outreach, Engagement, Partnerships Working Group

Shelby Walker (Co-Chair) Director, Oregon Sea Grant
Gil Sylvia (Co-Chair) Director, COMES
Jeff Sherman, Director, Open Campus Initiative
Dave Hansen, Program Leader, OSG Extension
Burke Hales, CEOAS
Itchung Cheung, Academic Programs Manager, HMSC
Kaety Jacobson, OSG Newport Extension
Pat Corcoran, OSG Astoria Extension
Jamie Doyle, OSG Coos County Extension
Mark Sytsma, PSU
Jan Hodder, OIMB/UofO
Kristen Wilken, Dean, Clatsop Community College
Birgitte Ryslinge, Director, Oregon Coast Community College
Iria Gimenez, CEOAS
Jessica Porquez, CAS/HMSC
John Souder, Watershed Mgmt. Council, Coos Watershed District
Scott Reed, Vice President, Outreach & Engagement

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Outreach, Engagement, And Partnerships Working Group

CONNECTING PEOPLE

- Connecting with the **private sector**
  - Marine Technology; Tourism; Fishing/Aquaculture/Seafood Industries; "Centers of Excellence"
- Connecting **universities** (U of O, PSU) in a variety of ways
  - 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 with industry, non-profits, state agencies, centers of excellence
- Supporting **community-based presence** on the coast
  - Business collaboratives - supporting the needs of new or existing local businesses
  - Local "nodes" of university expertise and engagement
  - Supporting K-12 educations

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Finance, Infrastructure and Facilities Working Group

- Build sustainable finance model
- Provide state-of-the-art facilities in Newport to accommodate student and faculty growth
- Facilitate the development of student housing and support infrastructure (including recreation, transportation, etc.) for the resident students (and visiting faculty) at the Newport campus
- Expand experiential opportunities:
    - Ship access for training and student research
    - Small boat access and training
    - Research Diving and safety program
    - Expand seawater experimentation facility access to students and scientists
    - Computing/IT support for classroom and student use

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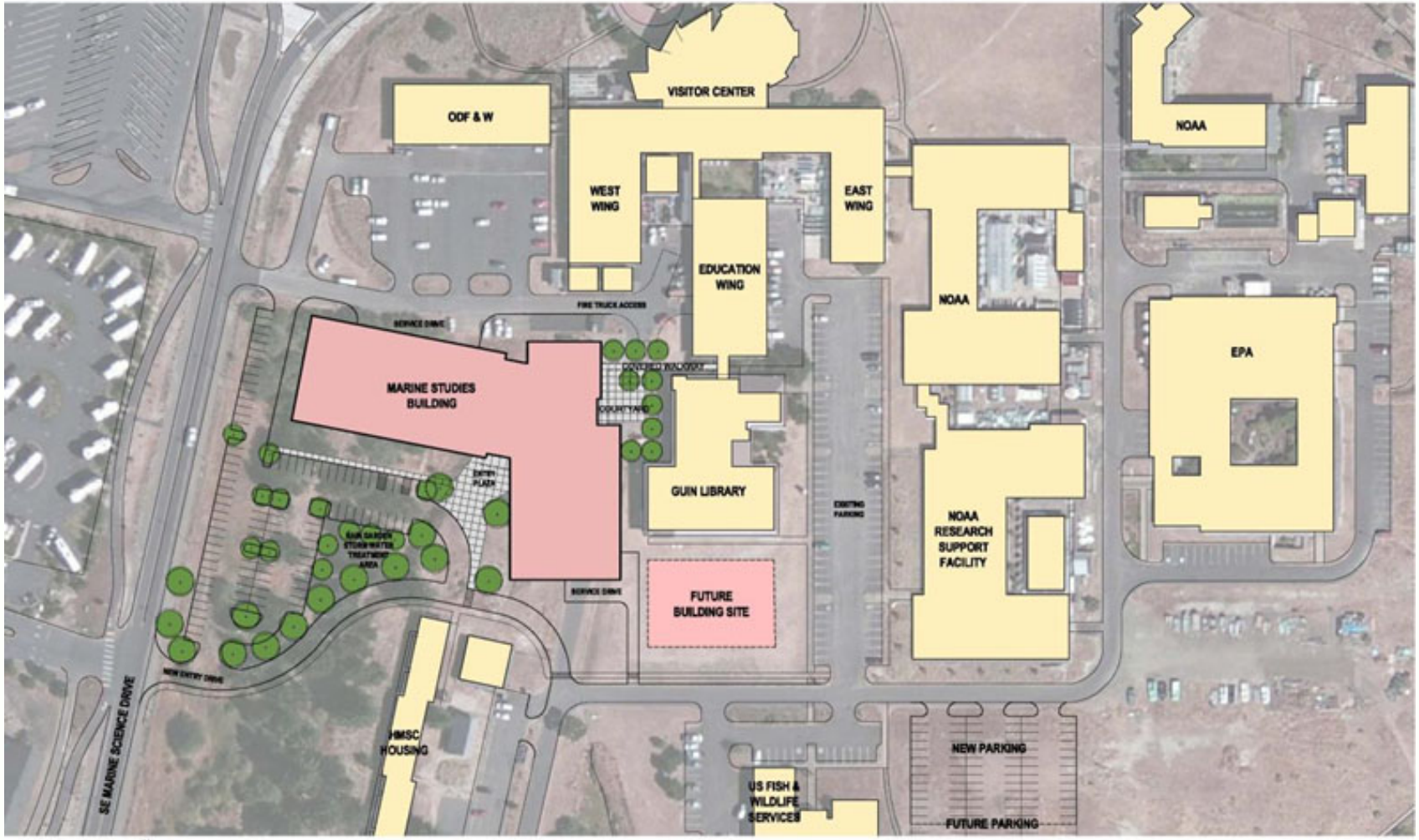

SITE PLAN

HATFIELD MARINE SCIENCE CENTER

MARINE STUDIES BUILDING

gLAs Architects, LLC

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HMSC MSI Building Principles

- To reflect the reality of building along Oregon's coast with the Cascadia Subduction Zone (CSZ), we have developed our *Building Principles* to guide the building's design.
- First and foremost, we are **committed to the life 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.**

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Fundraising – Launching the MSI

Received $20 Million Challenge Grant – May 2014

<u>3 Year Challenge</u>:

Building

- $5 Million – Capital – Philanthropic
- $25 Million – Capital – OR State Bond

Program

- $15 Million – Philanthropic
  - $5-7 Million – Faculty Endowments
  - $5 Million – Graduate Student Fellowships
  - $3-5 Million – Undergraduate Program Support

To date (4/24/2015) ~ $7.7M toward $20M match

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Marine Studies Building Fund

Coastal Community Challenge

"The Marine Studies Initiative needs your help to become a reality. A resounding show of support from the coastal community is key to enabling $20 million in matching philanthropic funds."

Bob Cowen, Director
OSU Hatfield Marine Science Center

"OSU's Coastal Community Challenge speaks to the power of our community to effect change. The Marine Studies Initiative will bring to the coast new educational opportunities, economic growth, and collaborative solutions to the real-world challenges of our ocean community."

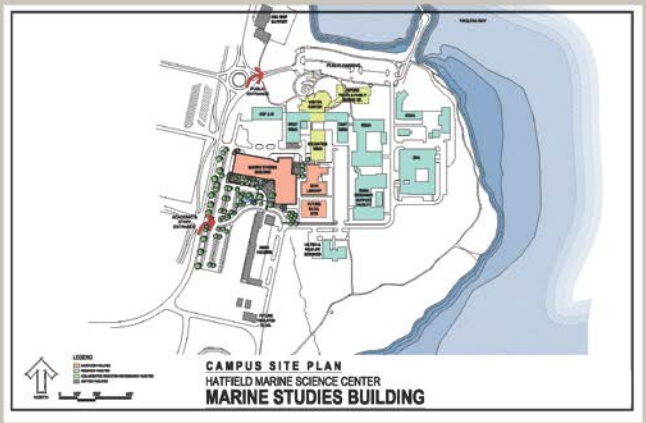
Michele Longo Eder
Co-Owner, F/V Timmy Boy
Member, OSU Board of Trustees

The Marine Studies Building

Challenged by a $20 million matching pledge, OSU has a tremendous opportunity to launch the Marine Studies Initiative with a state-of-the-art coastal facility for

- **Teaching** - Classroom space will support up to 500 undergraduate and graduate students, featuring "collaboratories" for students from diverse disciplines to solve real-world problems through collaboration and teamwork
- **Research** - The building will house the Marine Mammal Institute, Marine Genomics Program, and an interdisciplinary research and teaching faculty from across OSU's eleven colleges. An "incubator" for business start-up ventures will enhance OSU-industry collaboration.

Now, we are asking for your support. OSU aims to raise $1 million from the coastal community toward this dramatic expansion of OSU's Hatfield Marine Science Center. Your investment in our shared future will help make the Marine Studies Building a reality.



To invest in the Marine Studies Initiative,
contact Hatfield Marine Science Center,
Director's Office at 541-867-0212
or the OSU Foundation at 541-737-5495.
hmsc.oregonstate.edu | julie.matthies@oregonstate.edu

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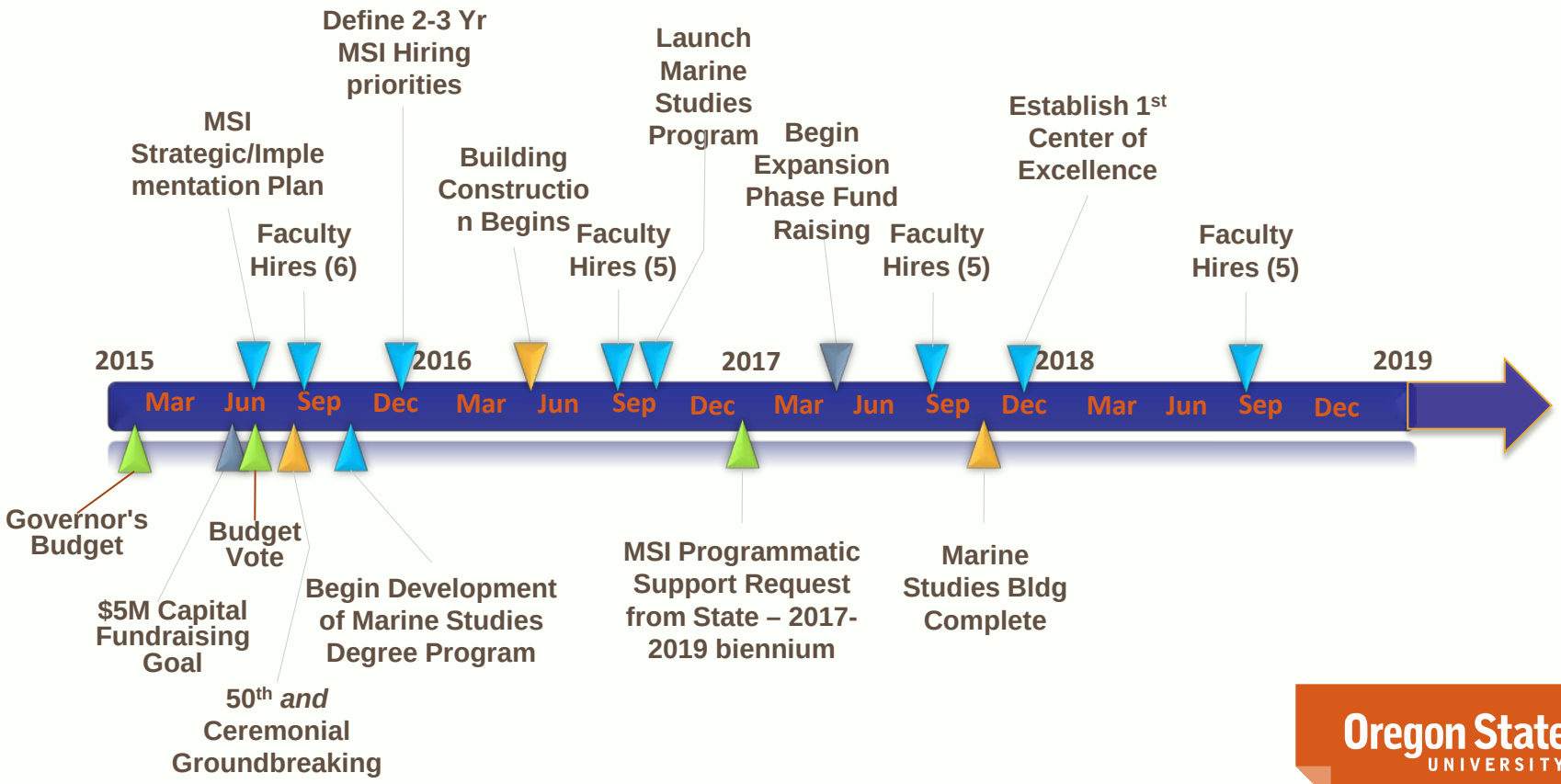
Marine Studies Initiative

3-4 year timeline

	MSI Program
	Legislative Activities
	Building
	Fundraising



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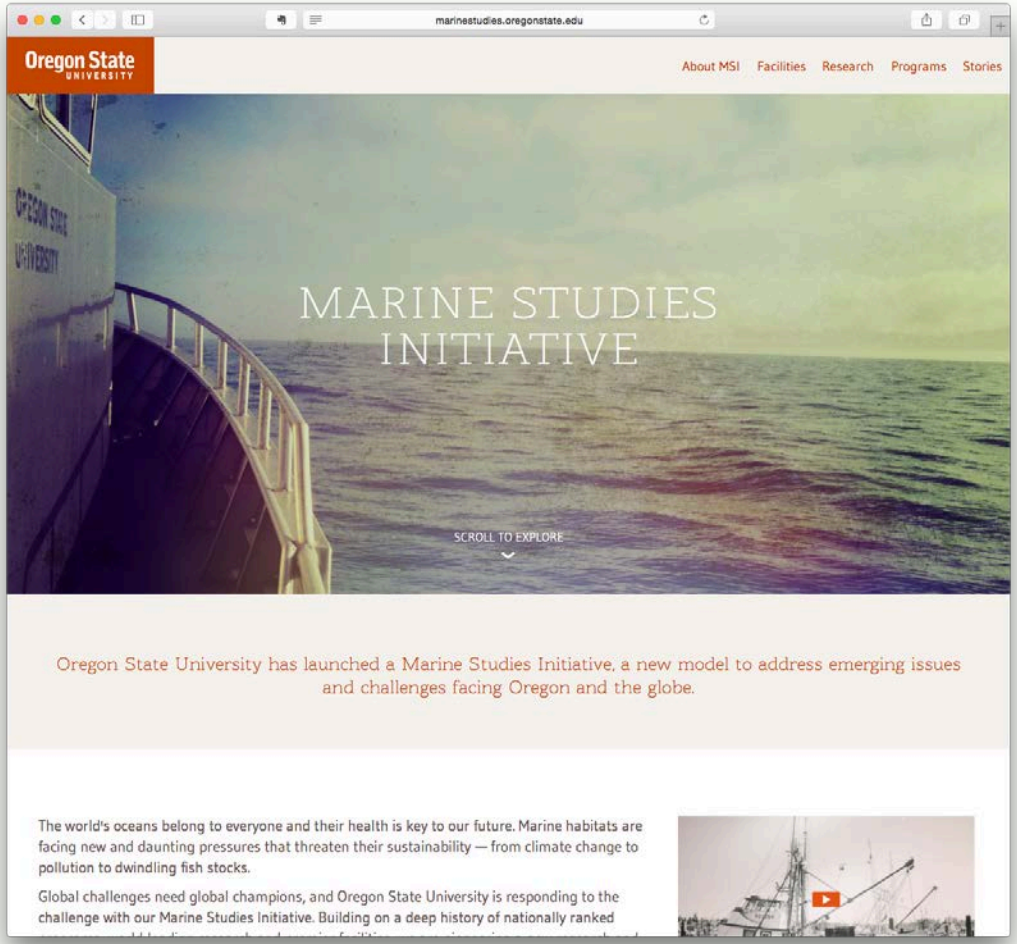
WORKING GROUP SUMMARIES

Marketing and Branding Working Group

http://marinestudies.oregonstate.edu/



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Finance, Infrastructure, And Facilities Working Group

Worked as two subgroups:

- *Finance* (led by Sherm Bloomer, Director, Budget & Fiscal Plan)
- *Infrastructure and Facilities* (led by Kirk Pawlowski, Executive Director, Capital Planning/Development

Finance:

- Estimating # of MSI-related students and student credit hours (majors, options, BAC core, etc.)
- Using new OSU budget model to estimate income from tuition
- Will require investment by OSU in addition to tuition; build into OSU operating budget
- #'s are consistent with other academic endeavors on campus

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Finance, Infrastructure, And Facilities Working Group

Infrastructure and Facilities

- Infrastructure is the physical fabric that binds the built and virtual environments supporting the diverse communities engaged in our academic, service, and research missions.
- The "place"
  - Lower the Barriers for industry, community, public and private research and university collaboration by creating inspired, functional, and flexible infrastructure
  - Access to the Sea: boats, seawater, diving
- Working on concept of "flow" of people, ideas, information.
- Will conduct MSI building design "charrettes" as buildings come closer to reality. [*charrette* = "intense period of design or planning activity"]
- Evaluating options for student housing in Newport

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Faculty Governance Working Group

Governance Principles

- Develop governance structures that will *facilitate, support and incentivize* faculty who participate in MSI

Faculty Appointments

- New hires
  - Provost initiatives (academic home will be determined at the time of hire following OSU centers and institutes model; may be joint)
  - College proposed and supported positions (may be joint)
  - Endowed positions via development activities
  - Fixed-term appointments from MSI base budget or grants & contract
- Position Descriptions
  - Developed for MSI faculty to specifically identify and acknowledge the unique nature of these appointments and the expectations for accomplishments
- Mentoring, Promotion and Tenure
  - MSI Leader should be active/voting member of the P&T review process
  - P&T Committees should include MSI faculty in addition to disciplinary peers

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Faculty Governance Working Group

Organizational Structure

- Support faculty , students, and outreach and engagement at multiple locations
- Similar to “branch campus” model, but includes the multiple locations of MSI
- MSI reports directly to the Provost (rank unspecified, e.g., Vice Provost - VP)

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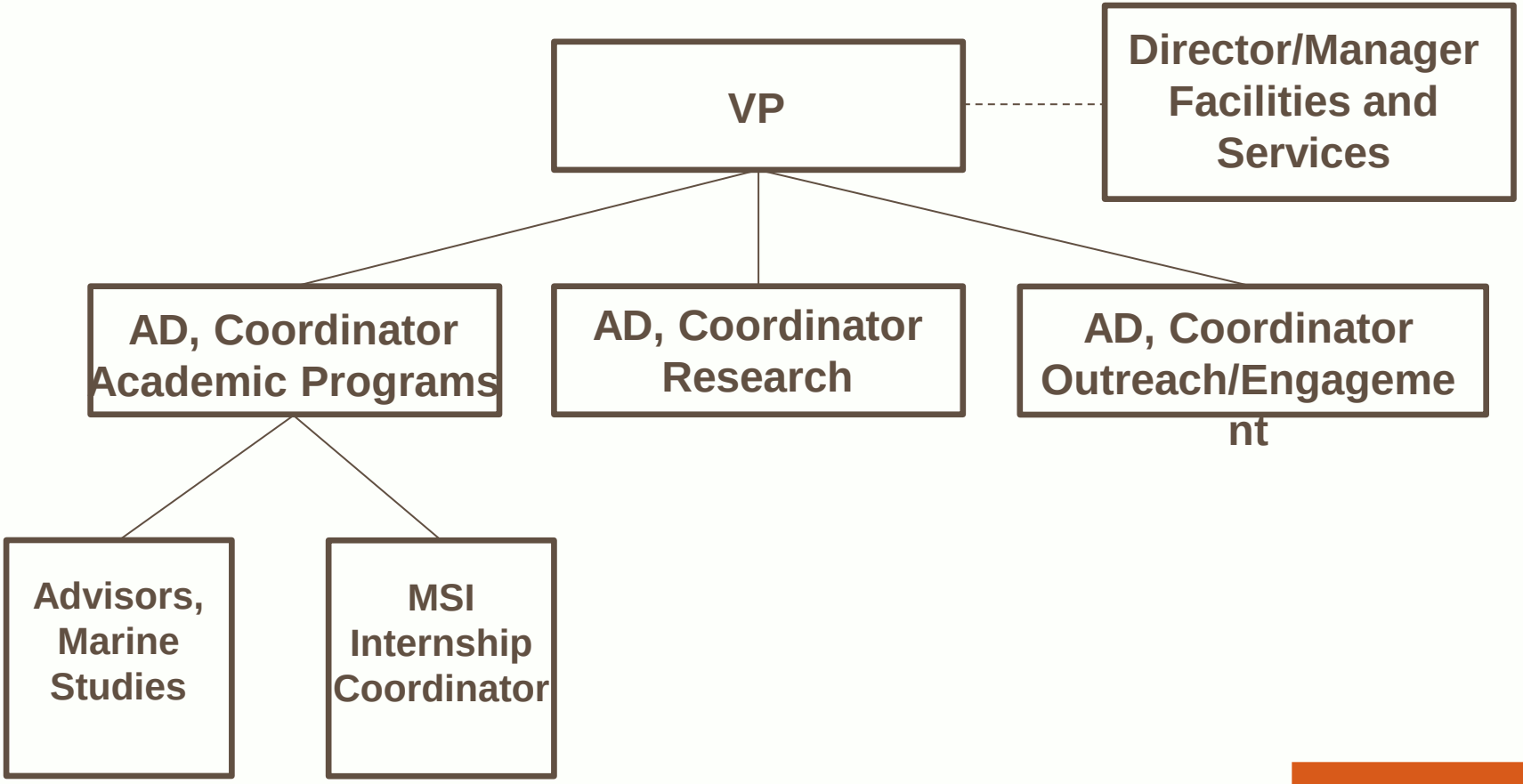
Marine Studies – Organizational Chart



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Marketing/Branding Working Group

Working on short-term (through June 30, 2015) and mid-term (July 1, 2015 through June 30, 2017) strategies

Communications

- Develop clear set of MSI talking points (~done)
- External
  - Identify and train MSI experts and partners to effectively communicate
  - Conduct editorial board visits and meetings with reporters/media
  - Communicate importance of marine studies research and teaching with regular feature and news stories/releases.
- Internal
  - Communicate importance and the variety of marine studies research and teaching being conducted by Oregon State to all OSU faculty, staff and students
  - Regularly provide updates on status of MSI to internal stakeholders
  - Presentation to OSU Board of Trustees.

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Marketing/Branding Working Group

Web, Video and Interactive Media

- Design and launch website to support MSI.
- Create 2-3 minute video about the MSI.
- Create two-way links between MSI website and websites of OSU units.
- Populate MSI website and other OSU websites with fresh and compelling marine studies information and narratives.

Public Affairs

- Complete MSI economic impact study and communicate results.
- Regularly work with MSI WG chairs to complete an on-going SWOT analysis to proactively remain ahead of and address communications issues.

Events

- Fully support MSI during HMSC's 50th anniversary events.
- Create mid-term event strategy in support of MSI.
- Science Pubs – Corvallis, Newport, Portland.
- Alumni speaker series.

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HMSC MSI Building Principles (2/4)

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.

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HMSC MSI Building Principles (3/4)

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. **The requirements for safe construction will ultimately dictate the square footage and occupancy of the facility.**

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).

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HMSC MSI Building Principles (4/4)

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.

It is worth noting that several professors at Oregon State are among the world's leading experts in construction needs for coastal, tsunami, and earthquake zones and their participation in safety planning will facilitate a state of the art plan.

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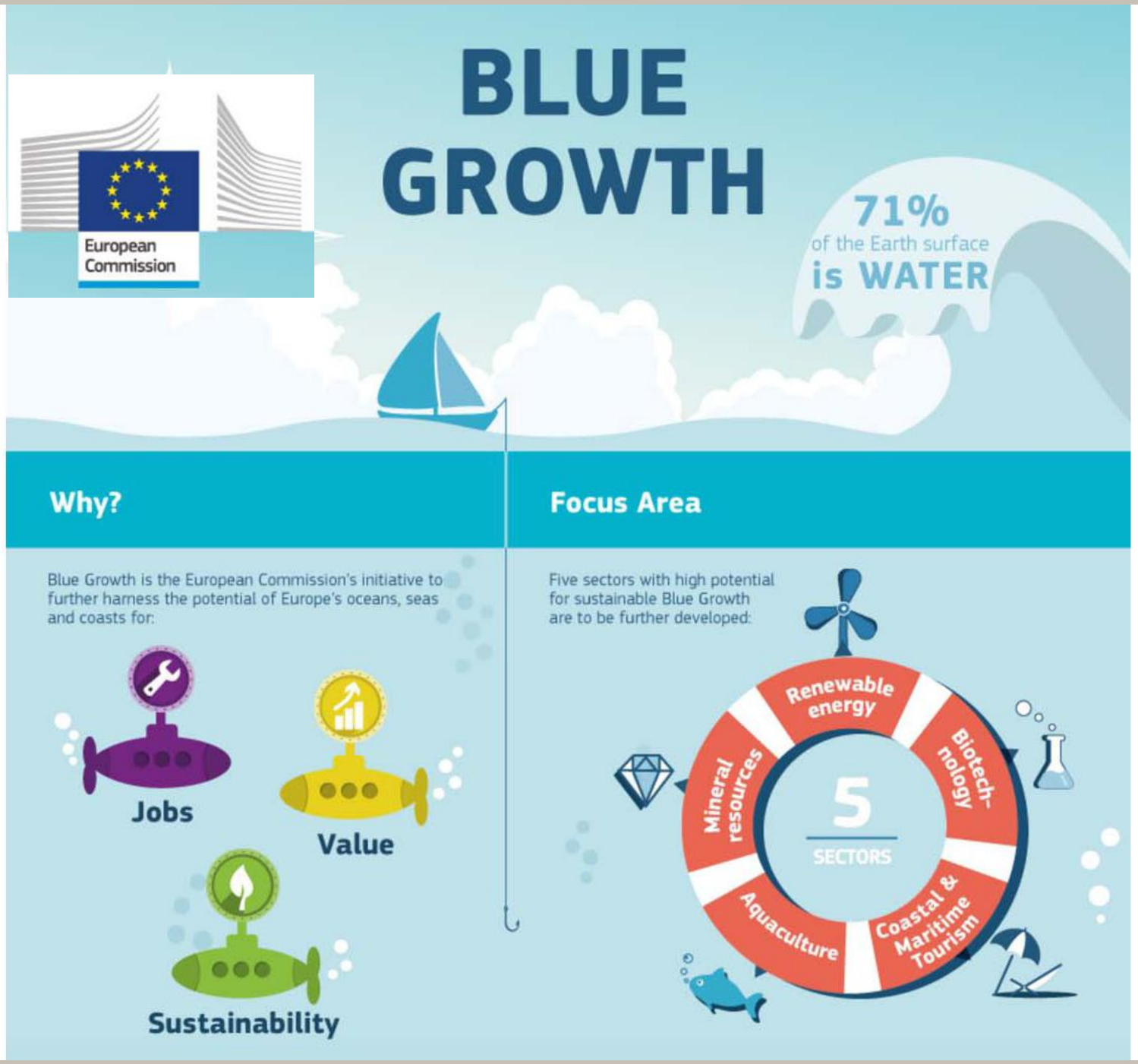
European Commission
BLUE GROWTH
71%
of the Earth surface
is WATER
Why?
Blue Growth is the European Commission's initiative to further harness the potential of Europe's oceans, seas and coasts for:
Jobs
Value
Sustainability
Focus Area
Five sectors with high potential for sustainable Blue Growth are to be further developed:
Renewable energy
Biotech-nology
Coastal & Maritime Tourism
Aquaculture
Mineral resources
5
SECTORS

an example …

Pacific Seafood is a family owned $2B (~5000 employee) company based in Oregon. They are truly 'Boat to Throat,' handling all of the steps of the seafood from the moment it is caught until it is consumed.

Could collaborate on a **capstone set of courses** that blend disciplines, solve real world issues, and end up with **internships** (~20 per year).

Their current interests are very much towards sustainability -- makes business and ethical sense

1. **Science** related (QA/QC of product, extending shelf life, aquaculture, protein extraction/use, etc.)
2. **Business** related (Sales, marketing, accounting, finance, logistics , shipping/coordination)
3. **Engineering** (Civil - plant design and renovation)
4. **IT** -- (networking, software, traceability of product through process)
5. **Risk assessment** (bridging fishery stock, environmental variability, geo-politics, economics)
6. **Sustainability**

- **MSI** is unique in that it is an approach to learning, discovery and impact that capitalizes on a **thematic strength of an entire university**

- 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.

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