

# Oregon Sea Grant 2014-2017 Strategic Plan

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## Introduction

Oregon Sea Grant's Strategic Plan for 2014–2017 identifies the program's goals and strategies for addressing key issues important to Oregonians, the region, and the nation. This plan also identifies the metrics we will use to track our progress towards these goals. The process of developing and publishing a strategic plan helps us focus and unify our thinking and communicate our priorities to our many partners and stakeholders. We look to this document to guide decision making and resource allocations.

This strategic plan builds on our existing program strengths and allows us to be innovative as we address critical and emerging coastal and ocean issues. Our leadership and experienced faculty and staff will use this plan to apply their diverse skills toward improving the health and well-being of Oregon's people, economy, and environment.

## Oregon, a Coastal State

Oregon has more than 360 miles of coastline bordered to the north by the Columbia River and to the south by California. The rich coastal and ocean resources of the region have provided the foundation for Oregon's diverse economies, communities, and coastal ecosystems. Oregonians share important aspirations for their health and well-being, social and economic vitality, and sustainable coastal ecosystems.

While only about 225,000 of the state's nearly four million residents live in coastal counties, many Oregonians use, rely on, or benefit from our coastal region, which supports an almost \$60 billion annual coastal and ocean economy driven by fisheries, agriculture, timber, tourism, and ocean industries. The state has pioneering land-use laws to conserve marine resources and ecological function for long-term benefits. In addition, the Oregon Beach Bill of 1967 guarantees

public access to our beaches; there is an average of two public beach access sites per mile of coastline.

Numerous rivers and streams drain nearly all water from Oregon's 15 major watersheds into the Pacific Ocean. There are 22 major estuaries along the Oregon coast supporting a variety of species including salmon, rockfish, crabs, oysters, clams, shorebirds, and harbor seals. Rocky shores and islands make up many of the unique and picturesque landscapes of the Oregon coast. These biologically rich and visually dramatic shores have high value to Oregonians and visitors as places to recreate, relax, and learn.

In recent decades, ocean- and coastal-dependent communities have experienced substantial changes in their demographics and economies. Historically dependent on the timber, agriculture, and fishing industries, our small coastal and coastal-adjacent communities are in transition and looking to diversify by capitalizing on other strengths such as natural beauty, clean air, temperate weather, authentic working waterfronts, and local culture. This variety of demands on coastal resources requires comprehensive management and planning to balance resource uses.

The Oregon coast is influenced by oceanic and atmospheric conditions and processes of the entire Pacific Ocean. Seasonal climatic variations, sea-level rise, storms, cyclical events such as the El Niño Southern Oscillation, the California Current, and geologic forces continually shape the coast and can exacerbate risk to coastal people, economies, and environment. Through these regional-scale factors we are naturally linked to our neighbor states of Washington and California, as well as Alaska and Hawaii.

## **Oregon Sea Grant**

Oregon Sea Grant is a statewide program headquartered at Oregon State University. Our mission is to develop and support an integrated program of research, outreach, and education that helps people understand, rationally use, and conserve marine and coastal resources.

Oregon Sea Grant was established in 1968 as one of the first three Sea Grants in the nation and in 1971 as one of four original Sea Grant College programs under the National Oceanic and Atmospheric Administration (NOAA). It remains one of the largest and most productive of the 33 programs nationwide. We are a state-federal partnership, with the majority of federal support coming from the National Oceanic and Atmospheric Administration. We also receive funding from Oregon State University, other state and federal appropriations and grants, contributions from counties and local governments, industry, and other sources.

Oregon Sea Grant is an integrated program of communication, education, extension, and research that engages partners and functions as a creator of knowledge, convener of diverse stakeholders, and a trusted provider of information. The real strength of our organization lies in the talents and abilities of our people; individuals employed by the program, researchers funded by the program, and those contributing as partners and advisors. We have, or regularly access, expertise in the physical, biological and social sciences. Our faculty and staff are located in coastal communities, at centers (such as the Hatfield Marine Science Center), and on the Oregon State University campus. Oregon Sea Grant's ability to integrate these diverse talents and abilities to address emerging issues has been critical to the continued success of our program.

Program activities within Oregon Sea Grant are equally wide-ranging. We provide professional, technical, and public education and learning opportunities through the Sea Grant Extension program—one of five program areas associated closely with Oregon State University Cooperative Extension. Much of the extension engagement with stakeholders is enhanced with information products developed with our professional communications staff. Communications not only provides materials support (print, Web, video, etc.) to all elements of the program but also collaborates on communications-related research.

Oregon Sea Grant's highly competitive grants program funds cutting edge marine research in academic institutions throughout Oregon. This research addresses issues of high importance and societal relevance to Oregonians. The program stresses scientific excellence and meaningful collaboration with industry, agencies, communities, and other stakeholders. An advisory council of marine industry and coastal community leaders provides continued external review of the program.

Sea Grant also manages the Visitor Center of the Hatfield Marine Science Center as a public science learning facility and free-choice learning laboratory. We work collaboratively to engage, listen to, inform, and assist a range of stakeholders, such as K–12 teachers and students, community and industry groups, conservationists, state resource managers, and the public. In addition, Sea Grant supports undergraduate and graduate students as “Sea Grant Scholars” to study important marine and coastal problems.

## **Plan Development**

The Oregon Sea Grant Strategic Plan was shaped by our faculty, staff, stakeholders, and advisory council. We began with a diverse strategic planning committee in a process that built on previous efforts and focused on integration across our communication, education, extension, and research administrative elements. The committee's initial concepts were refined during a meeting of staff and the OSG citizen Advisory Council. This meeting provided a venue for reflecting on past successes and challenges, advancing concepts for new initiatives to address critical and emerging concerns. The resulting plan is aligned with the strategies outlined in strategic plan of the National Oceanic and Atmospheric Agency (NOAA) as well as the relevant goals of Oregon State University.

## **Focus Areas**

A fundamental element of strategic planning and thinking is framing the issues; what we issues work on, how we work on them, and what we expect to accomplish through our efforts. In a program with diverse expertise and interests the challenge is to describe these issues in a way that clearly communicates our programmatic priorities both within the organization and to interested parties outside of Oregon Sea Grant.

To this end we have adopted four focus areas identified in the National Sea Grant Strategic Plan:

- Healthy Coastal Ecosystems
- Sustainable Fisheries and Aquaculture
- Resilient Communities and Economies
- Environmental Literacy and Workforce Development

These focus areas help to define our programmatic priorities. However, the focus areas are best understood as lenses through which to view our program rather than as discrete categories. For example, our programming in aquatic invasive species can be viewed as affecting the health of coastal ecosystems, but it is equally valid to view this work through the lens of sustainable fisheries or improving environmental literacy.

Each focus area includes two or more strategic goals. Since our programming nearly always addresses more than one focus area, strategic goals within focus areas are often interdependent, and progress toward any one of them will inevitably address others.

### **Healthy Coastal Ecosystems and Habitats (HCE)**

Oregon's coastal ecosystems (watershed, estuarine, shoreline, nearshore, and offshore) are among the most productive in the world, yielding a bounty of benefits such as fisheries, tourism, alternative energy sources, clean water, and habitat for people and species such as gray whales. These ecosystems, including their human elements, face increasing challenges from natural and societal stressors such as erosion, habitat modifications, aquatic invasive species, hypoxia, contaminants, over-use, and climate change. These stressors can put excessive strain on coastal ecosystem functioning and ecosystem services and reduce our ability to sustainably use and benefit from all that our coast has to offer.

Keeping coastal ecosystems healthy is a challenge because the diverse stressors do not adhere to traditional political boundaries. Responsible management of these systems requires new kinds of thinking and actions, often termed ecosystem-based management. Ecosystem-based approaches require coordination among federal, state and local jurisdictions and the active engagement of the people who live, work, play, and develop policies along our coasts. They also require understanding of the characteristics of species, landscapes and their interactions within each ecosystem.

Oregon Sea Grant integrates efforts across program resources and expertise and with partners (state and federal agencies, nonprofit organizations, stakeholders, etc.) to address ecosystem-scale issues. We will continue to pursue and strengthen current programming such as working waterfronts, aquatic invasive species, coastal hazards, habitat restoration, wave energy, watershed education, and coastal tourism. We will also explore opportunities to enhance our activities around contaminants of emerging concern in surface and groundwater as well as human dimensions research, including issues surrounding marine spatial planning and “peopled seascapes.”

Three strategic goals are associated with the HCE focus area:

*HCE Goal 1: Ecosystem services are improved by enhanced health, diversity and abundance of fish, wildlife and plants.*

*HCE Goal 2: Ecosystem-based approaches are used to manage land, water and living resources.*

*HCE Goal 3: Ecosystems and their habitats are protected, enhanced or restored.*

### **Sustainable Fisheries and Aquaculture (SFA)**

Oregon's coastal history, culture, and economy are shaped in part by our productive fisheries. Oregon Sea Grant's various program elements access the experiential knowledge of the fishing community to enhance understanding and science-informed management of sustainable, commercially valuable fish stocks and the ecosystems that support them. Integrated programming examines relationships between habitat, physical forces (e.g., climate change, currents), food webs (including invasive species and disease), and fish production.

Oregon Sea Grant plays a critical role in building partnerships and helping businesses and communities self-organize, thereby increasing the efficacy of citizen engagement in fisheries-related decision making and management. We will continue our work that builds capacity within communities of place and of practice and with the coastal groups that we have helped to coordinate and facilitate. We will continue in our efforts to enhance local access to and markets for seafood, and support improvements in fishing techniques.

We also work to maximize locally realized benefits of Oregon seafood by enhancing seafood product development, food safety and handling, and other programs that advance consumer awareness and ability to make healthy choices related to seafood consumption. We will continue programs that enhance seafood processing capacity with local companies and consumers, and look for opportunities to expand programming with international consumers as well as with currently underserved audiences such as Native American tribes.

We will continue our work in aquaculture, particularly related to shellfish and ornamental fish. The shellfish industry faces a number of important challenges including seasonal hypoxia in upwelled marine waters, diseases such as *Vibrio tubiashii*, aquatic invasive species, and ocean acidification. The challenges facing the ornamental fish industry include highly variable quality and health of fish imported into Oregon from overseas, risk of aquatic invasive species introductions associated with some of these imports, and a risk of introduced aquatic animal diseases. We will seek out opportunities to expand our programming outside of the U.S.

Two strategic goals are associated with the SFA focus area:

*SFA Goal 1: A safe, secure and sustainable supply of seafood to meet public demand.*

*SFA Goal 2: Informed consumers who understand the health benefits of seafood consumption and how to evaluate the safety and sustainability of the seafood they buy.*

### **Resilient Communities and Economies (RCE)**

Oregon's coastal communities provide vital economic, social and recreational opportunities for residents and visitors. A changing climate and concerns about locally-generated tsunamis have increased awareness of the vulnerability of coastal communities and ecosystems. Balancing the varied demands on coastal resources requires Oregon to develop innovative policies, institutional capacities and management approaches to increase community resilience.

Oregon Sea Grant will bring its unique research and engagement capabilities to support the development of resilient coastal communities that sustain diverse and vibrant economies, effectively respond to and mitigate natural and technological hazards and function within the

limits of their ecosystems. We will continue and strengthen our programming around climate change issues with stakeholders and local communities. We will explore possibilities for expanding our programming in diverse concerns associated with climate change including sea level rise, water quantity and quality, impacts on native and invasive species, ocean acidification and hypoxia.

Coastal communities in Oregon are increasingly aware of their vulnerability to distant events, such as a the tsunami created by the earthquake near the coast of Japan in 2011, and to near-shore events such as the historical shifting of the Cascadia Subduction Zone and resulting tsunamis along the coast. We will continue to support research related to tsunamis, and our programming informing residents and stakeholders of the risks and proper responses to near and distant events. We will explore opportunities to expand this work along the entire Oregon coast, including working with local businesses to conduct trainings and distribute information for tourists.

Marine economies in coastal communities are heavily dependent on recreational and commercial fishing, and tourism. We will continue our work to engage local communities and the fishing industry on issues such as ocean use and sustainable practices. We will continue to support research that is relevant to Oregon stakeholders, and look for opportunities to enhance our programming and partnerships around coastal tourism.

Four strategic goals are associated with the RCE focus area:

*RCE Goal 1: Development of vibrant and resilient coastal economies.*

*RCE Goal 2: Communities use comprehensive planning to make informed strategic decisions.*

*RCE Goal 3: Improvements in coastal water resources sustain human health and ecosystem services.*

*RCE Goal 4: Resilient coastal communities adapt to the impacts of hazards and climate change.*

### **Environmental Literacy and Workforce Development (EWD)**

Environmental literacy is a fundamental understanding of natural systems: the relationships and interactions between the living and non-living environment. But literacy goes beyond simply knowing and understanding to acting, whether through seeking out new learning or changing behavior. Promoting sustained, long-term environmental literacy in the 21st century requires rethinking how we engage professional and public audiences. New models for Sea Grant Extension and education based in research on how learners deploy choice and control across different work, school, and leisure contexts can help Oregon Sea Grant better serve existing audiences while reaching new and underserved audiences where and when they need it.

Since 2003, Oregon Sea Grant has led the way at Oregon State University and within the national Sea Grant network in bringing current research on free-choice learning across the lifespan to environmental literacy and workforce development efforts for both schools and public audiences. In 2012, the Oregon Sea Grant Education Program adopted a new name and strategic focus on Free-choice learning. All of our education programming now fall under the umbrella of Free-Choice Learning. Free-Choice Learning is a way of describing the learning that happens

when choice and control in learning shifts from educators to learners. Such self-directed learning is typical of most of the learning that occurs across the lifespan. Indeed, nearly all of our current educational activities are free-choice learning experiences for participants.

We will also continue other efforts supporting environmental literacy and workforce development to be supported by our expertise in science communications. We will continue to provide fellowship and scholarship opportunities for students at all Oregon academic institutions, and will explore opportunities to expand environmental literacy activities.

Two strategic goals are associated with the EWD focus area:

*EWD Goal 1: An environmentally literate public supported and informed by a continuum of lifelong formal and informal engagement opportunities.*

*EWD Goal 2: A future workforce reflecting the diversity of Sea Grant programs, skilled in science, technology, engineering, mathematics and other disciplines critical to local, regional and national needs.*

## Performance Measures

Performance measures are the metrics by which OSG will track progress toward implementation of the Strategic Plan. We have adopted 12 performance measures from the National Sea Grant Strategic Plan. Our diverse program elements and expertise contribute in unique but variable ways to each performance measure. For example, our programming around coastal hazards will generate a different suite of metrics than programming in marine science education or aquaculture.

The numbers for each performance measure are informed by input from our faculty and staff as well as our recent history of reporting such metrics.

1. Number of Sea Grant tools, technologies and information services that are used by our partners/customers to improve ecosystem-based management. **112**
2. Number of ecosystem-based approaches used to manage land, water and living resources in coastal areas as a result of Sea Grant activities. **60**
3. Number of acres of coastal habitat protected, enhanced or restored as a result of Sea Grant activities. **1,000**
4. Number of fishermen, seafood processors and aquaculture industry personnel who modify their practices using knowledge gained in fisheries sustainability and seafood safety as a result of Sea Grant activities. **2,000**
5. Number of seafood consumers who modify their purchases using knowledge gained in fisheries sustainability, seafood safety and the health benefits of seafood as a result of Sea Grant activities. **1,000**

6. Number of communities that implemented sustainable economic and environmental development practices and policies (e.g., land-use planning, working waterfronts, energy efficiency, climate change planning, smart growth measures, green infrastructure) as a result of Sea Grant activities. **100**
7. Number of communities that implemented hazard resiliency practices to prepare for, respond to or minimize coastal hazardous events as a result of Sea Grant activities. **30**
8. Number of Sea Grant facilitated curricula adopted by formal and informal educators. **200**
9. Participation in Sea Grant supported informal education programs. **600,000**
10. Number of Sea Grant-supported graduates who become employed in a career related to their degree within two years of graduation. **12**
11. Economic benefits.
  - a. Market and non-market benefits from Sea Grant activities. **\$25 million**
  - b. Businesses created as a result of Sea Grant activities. **4**
  - c. Businesses retained as a result of Sea Grant activities. **16**
  - d. Jobs created as a result of Sea Grant activities. **120**
  - e. Jobs retained as a result of Sea Grant activities. **400**
  - f. Patents derived from Sea Grant activities. **0**
12. Number of peer-reviewed publications produced by the Sea Grant network, and number of times each peer reviewed publication has been cited in the last four years. **60**