

NEWSLETTER

WINTER 2021, ISSUE 8



At the end of 2020, Port Orford crabbers stack their pots on the dock alongside their fishing vessels while they negotiate with buyers for a fair price.

FROM THE EXECUTIVE DIRECTOR'S DESK

Greetings in this new year, one of hope and optimism. In addition to looking forward to a return to a more normal life with the arrival of the COVID-19 vaccine, there is a welcome, renewed focus on the vital role the ocean plays in the health of our planet and to humankind. With the start of 2021 begins the United Nations Decade of Ocean Science for Sustainable Development. Please watch for upcoming events and activities at OSU, in Oregon and beyond as part of the UN Decade of Ocean Science.

One of the important contributions the ocean and coasts make is to provide food and other products. This “food from the sea” provides a major source of protein for over 3 billion people. The Marine Studies Initiative (MSI) has been leading efforts at OSU and across Oregon on various aspects of food from the sea, starting with a workshop in May 2018. MSI leaders and faculty also participated in a yearlong study of an expanded focus on aquaculture, one aspect of food from the sea, that resulted in a strong case for further investment by OSU in this area. Recently, we convened a webinar and panel discussion on the “Future of Food from the Sea,” described in more detail later in this issue. Oregon’s coastal communities and fishing fleets participate in many sustainable wild fisheries, exemplified by this dramatic photo of pots for catching Dungeness crab stacked in Port Orford. Recognizing the need for expanding food from the sea, communities like Port Orford are pursuing innovative seafood hubs.

Here’s to a safe, prosperous and ocean-filled new year!



Jack Barth,
Marine Studies Initiative
Executive Director

Faculty and Student Spotlights

Natchee Barnd

Associate Professor, Ethnic Studies
and Native American Studies

Natchee Barnd is an Associate Professor of Ethnic Studies and Native American Studies. Dr. Barnd earned his degrees from UC San Diego, UCLA, and Sonoma State University, with pit stops at the University of New Mexico and the US Department of Education in Washington, DC. He is a comparative and critical ethnic



studies scholar interested in the intersections between ethnic studies, cultural geography, and indigenous studies. Dr. Barnd's research focuses on issues of race, space, and indigenous geographies. His first book *Native Space: Geographic Strategies to Unsettle Settler Colonialism* was published by OSU Press in 2017. For many years he has been teaching a course on Environmental Racism, which examines how and why environmental harm disproportionately impacts communities of color and Indigenous peoples. Dr. Barnd has co-developed a course for the Marine Studies Initiative called Indigenous Ocean and Coast, which he plans to co-teach with tribal leaders from the Confederated Tribes of Siletz Indians. For several years he has taken students to Newport and Siletz as part of his courses, in order to meet with representatives from Siletz, visit the Siletz reservation, and hear about location connections to the land, waterways, sea, and coast.

Kelsey Swieca

PhD Candidate, Department of
Integrative Biology

Kelsey Swieca is a PhD Candidate in the Department of Integrative Biology. She earned her BS from the University of Oregon where she spent much of her time at the Oregon Institute of Marine Biology (OIMB). Kelsey has been interested in the role the early life stages of organisms play in regulating adult population dynamics for the entirety of her research career—studying larval marine invertebrates and larval Dungeness crab at OIMB and larval marine fishes here, at OSU. Her work at OSU aims to understand how ocean conditions impact larval fish food-webs, diets, growth, and survival into Oregon's fisheries. She focuses on a variety of different fishes including forage fishes, flatfishes, and lanternfishes. To address her research questions Kelsey uses a combination of high-resolution in situ plankton imagery and lab-based biological analyses. Kelsey spends most of her time at OSU's Hatfield Marine Science Center and has been fortunate enough to spend a lot of time at sea during her PhD, which she has thoroughly enjoyed.



Academic Program News

The College of Liberal Arts' Marine Studies degree officially launches in January 2021. This marks the beginning of a new, exciting liberal arts program to complement the excellent marine-related earth and life science degree programs at OSU. Marine Studies is an interdisciplinary field of study that explores the dynamic relationship between people and the marine environment. The new degree contributes to this exploration by emphasizing the human dimensions and perspectives of the ocean and coasts as they coalesce in the social sciences, arts, and humanities. This program is for students who seek expertise in these liberal arts methods and are keenly aware of the importance of understanding the human aspects to address the growing challenges and opportunities for coastal and ocean sustainability. Some highlights to expect from this program:

- CLA students and faculty at OSU Hatfield Marine Science Center, as part of required coastal experience courses and internships.
- Nine new courses, in the areas of anthropology, history, ethnic studies, public policy, and literature. MAST 201, "Humans and the Ocean", is taught this winter term by Susanne Brander (Assistant Professor in CAS - Fisheries and Wildlife). This course introduces students to marine systems and the history of humans' interaction with the ocean from a unique literary perspective. This course was designed through a collaboration with the Center for Teaching and Learning and with faculty Will White (Assistant Professor in CAS - Fisheries and Wildlife), Peter Betjemann (CLA - School of Writing, Literature, and Film).
- Advanced coursework and a capstone to specialize in areas like environmental and social justice, policy, arts and literature, global and transnational perspectives, and community development.

For more information about this degree and other marine degrees at OSU, see: (<https://marinestudies.oregonstate.edu/academics/undergraduate-degrees>)



Left to right: Summer 2020 interns, Maia Insinga, Tom McCambridge, and Chantelle MacAdams conducting fieldwork.

Summer Internships

Building off our successful in-person and remote experiences last summer, MSI will offer a variety of internships focused on natural sciences, human dimensions, and a blend of the two. We're continuing to expand our partners and mentoring base with some new and different experiences this year up and down the Oregon Coast. Summer 2021 internship projects are still being finalized but options may include ones focused on the Cascade Head Biosphere Reserve, coastal tourism, seafood industry, social media and video creation, and marine reserve interpretation at the Port Orford Field Station. Check (marinestudies.oregonstate.edu) for updates on internships.



Marine Studies Undergraduate Degree

College of Liberal Arts

NEW MAJOR

Marine Studies is an interdisciplinary field of study that explores the dynamic relationship between people and the marine environment. The Marine Studies program contributes to this exploration by emphasizing the human dimensions and perspectives of the ocean and coasts. These human dimensions coalesce in the social sciences, arts and humanities. This program is for students who seek expertise in these liberal arts methods and are keenly aware of the importance of understanding the human aspects of addressing the growing challenges and opportunities for coastal and ocean sustainability.

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**Marine
Studies
Initiative**

This undergraduate degree program in marine studies was launched in partnership with the Marine Studies Initiative.



As a result of completing this degree, students will:

- Gain expertise in the humanities, arts and the social sciences—and apply these approaches to the study of humans in the marine environment
- Have a basic understanding of coastal and ocean ecosystem functioning
- Build educational experience to meet specific career and personal goals, through specialization, internship and capstone experiences
- Understand social and environmental justice as frameworks for study and thinking
- Be ready to excel in careers in the public and private sectors

Hallmarks of the new degree:

- Foundational coursework to develop critical thinking regarding human interactions with the marine environment
- Core classes that provide students with interdisciplinary training, including diverse perspectives and methodological approaches to problem solving and decision making, in marine related fields of inquiry across the social sciences, arts and humanities
- Required coastal experience courses offered at Hatfield Marine Science Center or offered at Corvallis or via Ecampus with significant course dimensions integrating with Hatfield
- Advanced elective coursework to contextualize marine-focused courses and gain expertise toward transdisciplinary and liberal arts-based specializations such as, but not limited to: environmental and social justice, politics and policy, arts and literature, entrepreneurship, global and transnational perspectives and community development

Sample Curriculum

Years 1 and 2: Foundations

- “Humans and the Ocean” orientation course, MAST 201
- Introductory marine natural science courses
 - Oceanography
 - Marine Biology
 - Coastal orientation courses at Hatfield Marine Science Center
- Baccalaureate Core and College of Liberal Arts Core courses
- Specialization to gain interdisciplinary, liberal arts expertise

Years 3 and 4: Core

- Core course "Society, Culture, and the Marine Environment," MAST 300
- Perspectives courses:
 - Ethical, social and environmental justice
 - Ecosystem services and society
 - Literature, history and arts of the sea
 - Politics and policy

Years 1 to 4: Experiential Education

- Coastal experience courses
- Marine Studies Capstone, MAST 425
 - A research project applying methods and tools from the arts, humanities and social sciences to the study of human interactions with the marine environment.

To learn more, visit:

marinestudies.oregonstate.edu/marine-studies-major

For questions, email:

liberalarts@oregonstate.edu or
OSUoceanadvising@oregonstate.edu

HMSC Updates

With instruction continuing through winter term in a remote mode, virtual resources are increasingly important. Itchung Cheung, Hatfield Marine Science Center Academic Program Manager and Integrative Biology Senior Instructor will be offering a 1-credit remote version of the highly popular BI 111, Introduction to Marine Life in the Sea, Marine Habitats, to introduce students to the Oregon coastal ecosystems, maritime careers, and Hatfield Marine

Science Center opportunities. This course will utilize new resources developed through the Virtual Field Project, which is a collaboration of more than fifty field stations and marine labs including Hatfield creating “Ecosystem Exploration Videos”, “Live From The Field” and “Live From The Wetlab” events, for educators and students. For more information about the Virtual Field Project, see (thevirtualfield.org).

Elk Spotting at HMSC

On November 16th, a herd of elk took up residence on the South Beach waterfront area of the Hatfield Marine Science Center. These majestic animals are beautiful, but they are large and visitors were asked to keep a distance from them to observe safely.

The area is closed for hunting, so these animals are protected by staying in the area and can often be seen exploring the South Beach area of Newport, Oregon. If you see these animals, be sure to respect them and observe the herd from a distance of about 12 car lengths.

A herd of elk was spotted at HMSC on November 16th, 2020.





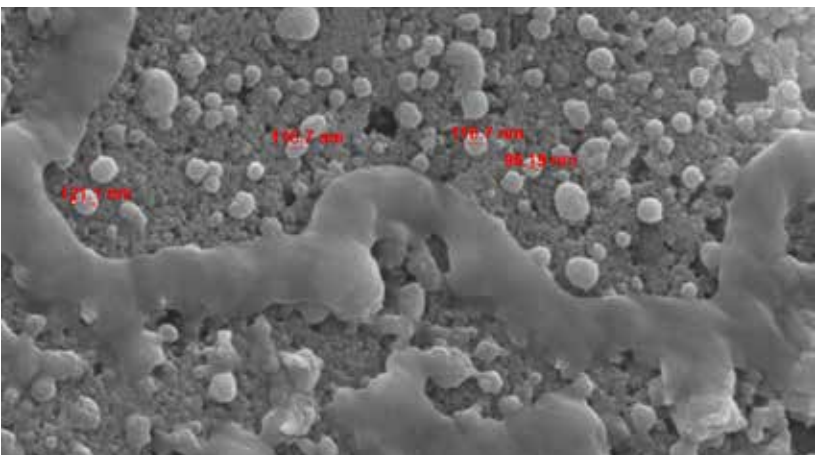
Marine Studies Building

The new Gladys Valley Marine Studies building on Oregon State University's Hatfield Marine Science Center campus not only increases the region's marine science education and research capacity but it was also built using state-of-the-art architectural and engineering techniques, making it the first ADA accessible vertical evacuation tsunami site in the United States. The vertical evacuation area enables people to move to high ground well above the tsunami inundation zone after a Cascadia Subduction Zone earthquake. The building is constructed to withstand a 9+ earthquake and an XXL tsunami event. The roof is designed to serve as an emergency assembly site for more than 920

The Gladys Valley Marine Studies Building, view of the first ADA accessible vertical evacuation tsunami site in the United States. Photo by Mark Farley.

people for up to two days after an earthquake and stands at a height of 47 feet – well above the worst-case tsunami. A ramp on the outside of the building, two hardened staircases, and an emergency elevator lead from the ground level to the roof of the three-story structure and are all available 24/7. A cache located on the roof is stocked with emergency survival supplies such as water, food, shelter, first aid, personal warmth and communication to support people until it is safe to leave the rooftop. The addition of this building improves the safety of those that work and play at the Hatfield Marine Science Center and in the surrounding South Beach community.

PNW Consortium on Plastics



Left: Nanoplastics video thumbnail. Right: a SEM photo of laboratory generated nano tire particles, which show just how small nanoplastics are.

The Marine Studies Initiative and Pacific Northwest Consortium on Plastic Pollution (pnwmicroplastics.org) have teamed up with Oregon State Productions to create a video on nanoplastics and tire wear particles. Nanoplastics are particles smaller than macro and microplastics. While scientists have detected micro tire wear particles in the environment, further research is needed to improve our knowledge about the presence and behavior of nanoparticles and their impact on aquatic species. View the video on here: (beav.es/JU3)



Tipper Marine Studies (MAST) Scholarship

We anticipate that our very first Marine Studies Scholarship, the Captain Ronald and Maryellen Tipper Scholarship will be awarded this Spring with the application process beginning this Winter 2021. The scholarship is for new or current full-time undergraduate students in the College of Liberal Arts enrolled as Marine Studies (MAST) majors who have demonstrated financial need. Two MAST students will receive awards of \$1,000 each to support their degree program work.



Ocean11 club members participating in the annual Fall beach cleanup, this year at Nye Beach.

Ocean11 Marine Club Updates

Adaptive, Creative, Resilient, Same quality as before, Always outdoing ourselves even at a distance... were some of the phrases our Ocean11 student Leadership Team used to describe their attitude towards the new 2020-21 academic year. And so far, they have delivered. The students created fun, engaging and meaningful marine-related activities this past Fall to bring both on-campus and remote members together.

Monthly club meetings were both in-person and remote with students signing up for a specific “Bay Group” to meet the <10-person COVID rule. A bay is a place of refuge, refueling and reconnection, so students got to know others in their small Bay Groups named after different Oregon harbors. Some Bays met on campus while others were remote. All were connected via Zoom so students could see and feel a part of their larger ocean-loving community. Those living on campus, especially new ones, really appreciated and enjoyed these in-person opportunities.

Besides monthly meetings, Ocean11 committees organized an Ocean Trivia/Kahoot! Night, Pumpkin Carving & Costume, local hike, how-to-draw sea life session, Quarantine Challenge, and professional development workshop. Over half of the students participating in the Ocean11 annual Fall Beach Cleanup were new to the club, showing their continued high interest in and commitment to working alongside others for take-action activities at the coast. Facing wind gusts and sideways rain, they worked together to find trash and microplastics at Nye Beach.

What’s up for Winter 2021? Leadership Team buzz is Tang Talks, activating our Ocean11 Interest Groups (surfing, scuba, kayaking, birding, photography...), ocean crafting or cooking workshops, ocean coloring sheet contest for schools, and more. Per the student Leadership Team: *Dedicated on bringing best experiences forward and nobody knows how far we’ll go!*

For information about how to get involved, contact Cynthia Leonard at: Cynthia.leonard@oregonstate.edu or visit: (beav.es/ocean11)

Research

The ocean and coasts provide food and other products to a hungry and growing population. While wild-caught seafood, like these Pacific Ocean Perch, has leveled out over the last three decades, aquaculture continues to grow (see figure below). Food from the sea includes both animals and plants, the latter exemplified by the dulse pictured here, the bacon-flavored seaweed developed at OSU. The reliance on food from the sea will grow in response to human population growth. With this expanded reliance comes benefits, like a lower carbon footprint than food production on

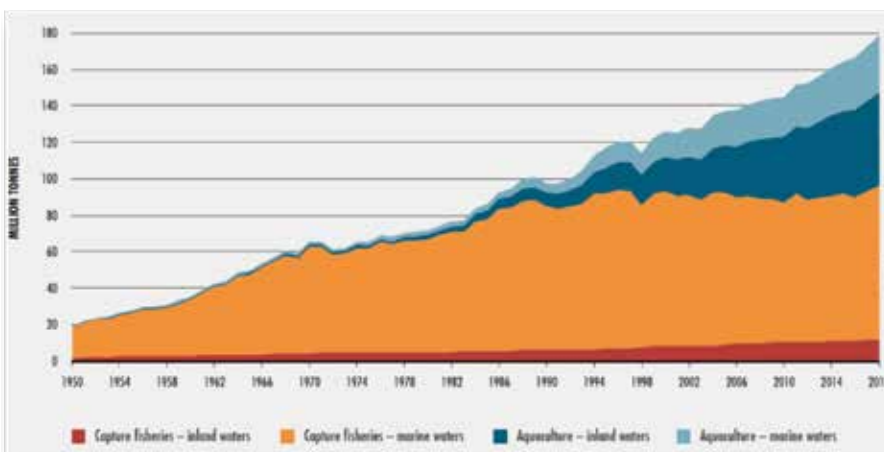


A catch of Pacific Ocean Perch.

land, but there also will be challenges involving competing uses of the marine and coastal environments. This multi-faceted opportunity is exactly the type of transdisciplinary challenge that the Marine Studies Initiative is envisioned to address.

In early December 2020, the Marine Studies Initiative presented a webinar and panel discussion on the “Future of Food from the Sea.” Scott Heppell, an Associate Professor in OSU’s Department of Fisheries and Wildlife, outlined the basic facts about food from the sea, including that \$5.6 billion in seafood was landed in 2018 nationwide. In Oregon, over 1000 vessels and about 2500 fishers and processor workers brought Oregon’s most valuable seafood -- crab, groundfish, whiting/hake, pink shrimp, albacore tuna and salmon -- to the market resulting in about \$0.5 billion in household income. Andrew Plantinga, a professor at the University of California at Santa Barbara, showed how meeting future food needs from land-based sources is challenging due to resource constraints and environmental impacts. He showed that food from the sea could increase substantially with increases in mariculture, and even more if people would shift their eating preferences between species. Christina DeWitt, professor in OSU’s Department of Food Science and Technology and Director of the OSU Seafood Lab in Astoria, showed the amazing health benefits of seafood including reducing the risk of cardiovascular disease, providing essential nutrients for developing infants and children, and improvements to our immune systems (so needed nowadays!). Matt Hawkyard, research associate at OSU’s Coastal Oregon Marine Experiment Station, explained the basics of onshore and offshore aquaculture, including new systems that simultaneously integrate different levels in the food web like fish, algae and shellfish. Gil Sylvia, professor emeritus in OSU’s Department of Applied Economics, summarized the state of food from the sea initiatives at OSU, including a recent look at aquaculture across the university, and the opportunities Oregon and OSU have going forward. The presentations were followed by a lively Q&A session. Please stay tuned for more on this exciting topic!

Left: Trends in the global amounts of wild-caught fisheries and aquaculture production. Right: Photo of dulse.



Port Orford Field Station



Port Orford is the capital of Oregon's unique live fish fishery. Here a local fisherman displays a Tiger Rockfish, part of the day's colorful catch. The beauty of these fish, along with their tasty flesh, fetches a good price on the live fish market.

The compact commercial fishing fleet in Port Orford is highly productive for its size, with commercial fishing revenue making up 30% of the local economy of this rural coastal town. In 2019, these hard working fishermen and women landed \$5M in ex-vessel value of fresh, healthy seafood, and this value is trending upward as consumers pay more attention to where their seafood comes from. Like many Oregon ports, Dungeness crab is king here, with 800,000 pounds landed in Port Orford last year, fetching \$3M in landed value.

Many Port Orford fishermen and women specialize in the unique live fish fishery. Check out this excellent video about one of these intrepid fishermen, Evan Locke, by talented filmmaker Oliver Sutro (<https://youtu.be/QGj8rcZRXmA>). They hold nearly half of Oregon's nearshore permits and in 2019 took 1,098 fishing trips (out of 2,651 trips coast wide). Nearby Orford Reef, Rogue Reef, and other rocky habitat attracts these valuable fish and those who fish for them using hook and line, and bottom long line gear. This fishery yields higher prices to talented fishermen who have learned to keep fish alive from boat to market. For example, in 2019, a live China Rockfish fetched an average of \$7.00 per pound compared to \$1.50 per pound for the same fish if dead. This means that live fish fishermen can catch fewer fish while maintaining a viable business, and this is good for fish stocks as well.

Local fishermen also demonstrate ocean stewardship here through the nearby Redfish Rocks Marine Reserve and Marine Protected Area. Designated in 2012, it was designed and proposed by local fishermen. The fleet refrains from commercially fishing the reserve while participating in collaborative research with scientists and students from OSU, OIMB and other institutions, and contracting with ODFW's Marine Reserves program and other scientists to carry out monitoring activities.

Port Orford Sustainable Seafood is a locally owned and operated community supported fishery with processing facilities located at the Port Orford Field Station, where they process locally caught fish and distribute it to more than 400 CSF members from Ashland to Portland.

Oregon Sea Farms cultivates the edible seaweed called dulse, and recently launched a pilot purple sea urchin ranching operation in partnership with the Oregon Kelp Alliance (ORKA) to help address the surplus production of urchins that are overgrazing the kelp and leading to urchin barrens in the area around Orford Heads.

The Port of Port Orford is launching a major redevelopment project, the Port Orford Seafood Hub, a multi use facility that will house commercial seafood and mariculture businesses, with research, education, and community engagement facilities operated by OSU, and ocean recreation and visitor amenities. The Port is currently working to develop a new pump ashore seawater system that will supply the live fish, mariculture, research, education, and engagement operations.

We're excited about what's in store for Food From the Sea around Port Orford in 2021! Find out more at (research.oregonstate.edu/port-orford) or follow us on social media @osuportorford.

2 Astoria men caught setting stolen crab traps in protected marine reserve

NEWPORT, Ore. (KTVZ) — Two Astoria men who were caught setting stolen crab traps in the Cape Falcon Marine Reserve off the northern Oregon coast await trial following a joint effort of citizen reporting and solid detective work.

Bob Browning has fished Oregon waters all his life. He started fishing off the Garibaldi dock with his family when he was 5 years old. When he saw a strange object bobbing on the ocean surface, he pointed it out to his client, Dr. Sarah Henkel. Henkel, a researcher with the Oregon State University Marine Program, was collecting data for her latest project: The feeding ecology of Dungeness crab in a reef area. She had hired Browning and The Lady Lee on April 3, 2019 to take her out to the Cape Falcon Marine Reserve for the research project. Read more here: (beav.es/JcK)



Upcoming Events

Heceta Bank: Oregon's Hidden Wonder Screening with Portland Audubon

Wednesday, January 27, 2021, 7:00 PM - 8:30 PM

Join OSU marine scientists and other experts to virtually screen the new documentary Heceta Bank: Oregon's Hidden Wonder, featuring the submerged bank, located 35 miles off the Oregon Coast, and learn about the surprising and beneficial impacts it has on our state's coastal environments. Following the screening, a panel will hold a discussion about Heceta Bank, including a Q&A session.

Panelists: Jack Barth, Bill Percy, Paul Engelmeyer, David Baker, Annie Lindren, and Lindsay Adrean

Visit (<https://audubonportland.org/event/heceta-bank-oregons-hidden-wonder-film-screening/>) for more information and to register.

State of the University

Thursday, March 4th, 2021, Time TBD

Join Oregon State University President F. King Alexander for a review of the University's accomplishments and a look towards the future. Visit MSI's virtual table.

Changing Coastlines - The Past, Present, and Future of Coastal Oregon Webinar with Loren Davis, Professor of Anthropology, College of Liberal Arts, Oregon State University

Date and time TBD

Visit (marinestudies.oregonstate.edu) for updates

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