

NEWSLETTER

SPRING/SUMMER 2021, ISSUE 9



Main entrance to the new Gladys Valley Marine Studies Building, located on OSU's Hatfield Marine Science Center campus in Newport, Oregon. Photo by Mark Farley.

FROM THE HATFIELD DIRECTOR'S DESK

What a year we have all been through. For many of us, our lives and work have been turned upside down, and our ability to deliver face-to-face instruction, training, and collaboration have been severely curtailed by the COVID-19 pandemic. Over the last several months, however, with vaccines available, we are able to anticipate transitioning back to more 'normal' times. Here at Hatfield, we are planning for summer courses being taught in person, albeit at reduced class sizes, and we are also preparing for a combination of virtual and on-site internships. As we approach the summer research and field season, we are also anticipating a return to laboratories and offices by our faculty, staff, and students, though again, not yet in full density mode. Still, it is exciting to think that we can plan on more direct interaction with our students and colleagues, especially in the new Gladys Valley Marine Studies Building. Amazingly, we actually completed construction and moved into the new building last summer, during the height of the wildfires and the almost apocalyptic smoke, only to have to maintain the lowest density use of our facilities. I can't tell you how much I look forward to the sound of people walking and talking in the hallway and clamoring into the classrooms and laboratories in anticipation of the day's new discoveries. Hatfield is about to come back to life, and we welcome the new Marine Studies students with open arms!

-Bob Cowen, Hatfield Marine Science Center Director



Bob Cowen,
Hatfield Marine Science
Center, Director

Faculty Spotlight



Photo of Dr. Meagan Wengrove.

Dr. Meagan Wengrove

Assistant Professor, Coastal Engineering, College of Engineering

Meagan Wengrove is an Assistant Professor in Coastal Engineering within the College of Engineering. She completed her Ph.D. at the University of New Hampshire in 2018 and focused on sand ripple dynamics in the nearshore coastal ocean. Meagan's current research focus is still on mobile boundaries and their influence on natural and engineered systems. On the natural side, she is investigating the morphodynamics of tidewater glacier ice faces and their morphodynamic influence on glacial melt rates in Alaska with a team of other energetic researches, students, and research assistants. On the engineering side, Meagan currently investigates the influence of sediment transport on the evolution of coastal natural and nature-based features (coastal marshes and dunes) that naturally can reduce flooding and wave impact on our coastal shorelines and provide ecosystems and communities resilience. Meagan really loves sand ripples- her graduate students say she lights up when talking about them.

Outside of science and engineering, Meagan is a swimmer and a SCUBA diver, she also enjoys hiking, biking, rock climbing, gardening, art, and cooking. Meagan began playing the piano again during COVID-19 after not playing for 20 years, which has been a fun and new adventure into how much your brain remembers from a long time ago.

Pacific Northwest Consortium on Plastics

The Pacific Northwest Consortium on Plastics (PNWC) held its annual teleconference virtually on April 15, 2021. It was attended by over 130 consortium members from PNW as well as California, Hawaii, and Europe. The meeting started with presentations from several research groups from the United States and Norway on the creation of reference materials for laboratory research on the fate and effects of micro and nanoplastics. Then the group segued into presentations and demonstrations from groups in California,

putting together a global database of microplastic effects studies. Meeting attendees were able to use the new database to evaluate impacts across the biological hierarchy in aquatic organisms, as well as mammalian species used to study effects in humans. Finishing up with a review of modeling studies being performed at Western Washington University, it was several hours well-spent connecting stakeholders with cutting-edge tools that will move us closer to reducing the impacts from plastic pollution. The PNWC's next quarterly meeting will be held in July 2021. Follow @pnwmicroplastics on Twitter and Instagram for updates, or visit the website at (pnwmicroplastics.org) for more.

PNW Consortium on Microplastics new logo.



Academic Program Updates

The MSI and Hatfield teams extend appreciations to students, faculty and staff for their work and endurance over the past year. Curiosity, creativity, and care are top themes, as we anticipate summer and fall.

Curiosity: Field summer courses are in high demand. Students will learn about coastal ecosystems, oceanography, algae, invertebrates, birds, marine mammals, conservation, aquaculture, and more (beav.es/oQw).

Creativity: Innovations abound, with new technologies and artwork communicating our experiences with the ocean. New technology in seawater classrooms enables high-resolution educational experiences for remote participants. The Gladys Valley Marine Studies Building features artwork by local artists, including Liberal Arts faculty Michael Boonstra (beav.es/3Uh).

Care: May was Mental Health Awareness Month, and mental health support needs continue throughout the year. Join us in learning how to recognize and support students in distress with OSU Counseling and Psychological Services' "Kognito" (beav.es/3AB).

College of Liberal Arts Marine Studies Undergraduate degree: Starting in fall, new students will begin their studies with liberal arts core and marine foundational courses such as Introduction to Marine Biology (BI 150), Humans and the Ocean (MAST 201), and coastal experience orientation courses.

New Oceanography degree: The popular Ocean Science Option in College of Earth, Ocean, and Atmospheric Sciences' Earth Sciences will soon be a new Bachelor of Science program. In a proposal led by faculty Robert Wheatcroft and colleagues, the degree features eight new oceanography upper-division classes and two new baccalaureate core, Introduction to Biological Oceanography (OC 202); Oceans, Coasts, and People (OC 333).

Coasts Compared: Aruba and Oregon. A new, remotely delivered spring course (SOC 299/ENSC 299) created a joint University of Aruba and OSU experience emphasizing culture, sociology, geography and marine management. Co-taught by OSU faculty Dwaine Plaza (School Public Policy), Itchung Cheung (HMSC/Biology), Larry Becker (CEOAS) in collaboration with U Aruba's faculty Eric Mijts.

Fall term at the coast: Three courses will bring students to Hatfield during September intersession, the two-week period before fall term begins: Oregon Coast Math Camp (OC 515), Coastal Ecology and Resource Management (FW 426), and Methods in Physiology and Behavior of Marine Megafauna (FW 469). Housing is limited, and we encourage early applications (beav.es/3A2).

OSU News Release

Roundhouse Foundation gift to support learning experiences in marine innovation and technology

NEWPORT, Ore. – The Roundhouse Foundation has awarded more than \$500,000 to Oregon State University to support students conducting research and exploring careers in marine technology, innovation and entrepreneurship at the Hatfield Marine Science Center. The gift, secured through the OSU Foundation, will expand and enhance educational activities for K-12 and undergraduate college students in the Innovation Lab, a 2,700-square-foot workshop and studio for designing, fabricating and testing scientific instruments and technology critical to ocean and coastal-based research. Read more at (beav.es/3Mv).

Ocean11 Marine Club



Hammerhead shark art, created by Ocean11 member Grace Holmes.

Even during the dark winter days, Ocean11 has been humming along with activity. Their new Discord server has sparked a lot of activity and chit-chat as students share stories, photos, artwork, and memes. Students ask questions about classes, grad schools, internships, seafood recipes, and outdoor activities such as scuba diving, birding, paddling, surfing, clamming, beachcombing, and more. Through Discord we've discovered the incredible artists in Ocean11.

Our Next Generation Outreach Committee has also been very creative over the past, reaching out to local teachers regarding their interest in marine activities for students. Several teachers responded, and the team created an ocean-focused lesson plan with a slideshow for grades K-5. Our Next Generation team will present these via Zoom to schools in Eugene, Corvallis, and even Los Angeles! The Team also created an Ocean11 Coloring Book for grades 2-5. They held a coloring page competition within Ocean11, asking members to submit pages with original ocean art and captions. The final coloring book turned out great—full of line drawings of ocean critters

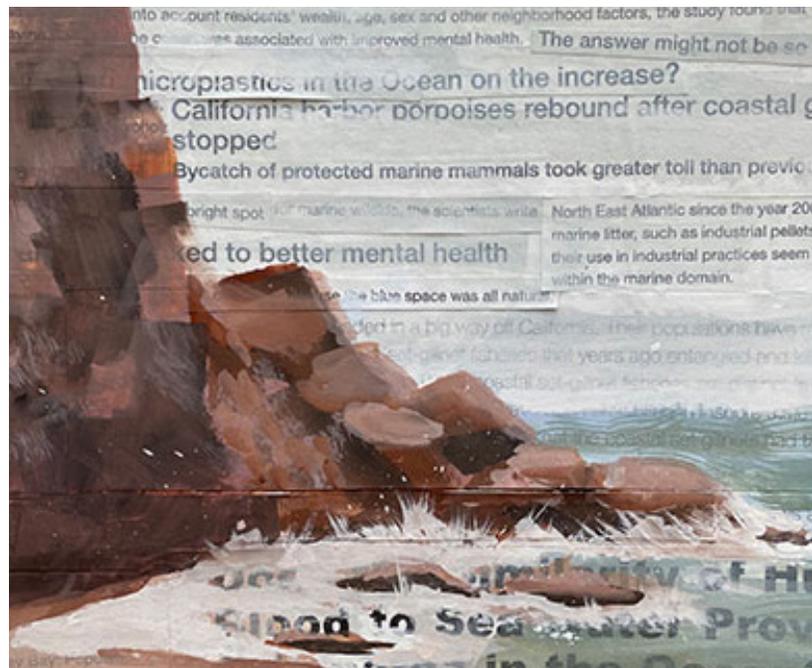
and abstract marine art. With schools opening up in the Fall, the Next Generation Outreach Committee is looking forward to working with kids again, offering fun hands-on ocean activities.

Playing off of TED Talks, the Ocean11 Social Committee hosted “TANG Talks” where club members had the opportunity to share an ocean-related passion for 5-10 minutes. Students loved hearing and learning from each other. Our first TANG Talk covered white orcas, squid brains, tales of surfing with seals, and diving off of the beautiful Caribbean island of Bonaire. Need a boost of creativity? Come hang out with Ocean11 or check out their social media @ocean11osu or visit the website at (beav.es/ocean11).

MAST Scholarships

The new Captain Ronald & Maryellen Tipper and Eugene & Linda Williamson Scholarships support students in the College of Liberal Arts enrolled in the Marine Studies (MAST) undergraduate degree program who have demonstrated financial need. Although MAST just rolled out officially in January, several high school students admitted to OSU in the Fall applied for these scholarships, along with currently enrolled students. This Spring, MSI and College of Liberal Arts will award four of these promising students \$1,000 each. We look forward to supporting more students next year as the word gets out about MAST and these generous scholarships. Thank you, Tipper and Williamson families!

Art created by MAST student Lauren Rice, for the new MAST 201 course, “Humans and the Ocean”.



MSI Internships



Citizen Science, Cascade Head- Jeremy Schaffer

Jeremy will assist the habitat leaders within the Coastal Climate Change + Community Art, Science & Tradition (4CAST) project, focused on the Cascade Head Biosphere Reserve. His work will involve training and working with citizen science volunteers, developing data collection and monitoring protocols, conducting research on species and habitats, and more.

Ocean Acidification Awareness, Newport- Emily Morrow

Emily will work with the Oregon Coast Aquarium to conduct research on visitor awareness about ocean acidification. Guided by a social marketing framework, Emily will create research tools to gather data on visitors' knowledge, values, and behaviors related to ocean acidification.



Marine Reserve Interpretation, Port Orford- Maddie English

Maddie will do a combination of volunteer coordinator and interpretive ranger work. The internship goal is to learn about and experience the Redfish Rocks Marine Reserve and Marine Protected Area (MPA). Maddie will communicate ecological and cultural aspects of the Marine Reserve and MPA to the public and visitors to Port Orford.

Coastal Tourism, Cascade Head- Drake Gross

Drake will focus on the Cascade Head Scenic Research Area and the Interpretive Wayside. Partnering with the Access and Trails Collaboration, he will create a project to tell a story about Cascade Head Scenic Research Area. The project will address the need for recreational use, online messaging on Salmon River estuary restoration, and more.



Seafood Business & Industry, Newport- Sophie Dziak

Sophie will experience and gain an understanding of the seafood restaurant industry relationships by working with Local Oceans Seafood Dockside Grill & Fish Market's marketing team. She will create messaging and promotions around one or more core company values of seafood consumption and personal health, seafood sustainability, ocean health, and connection with local fishermen.

Marine Media: MSI & Aquaculture, Corvallis- Chloe Lee

Chloe will work with the Marine Studies Initiative Office and OSU Aquaculture faculty on efforts to raise the visibility of both programs through social media and website development. She will work with the MSI team to advance awareness of undergraduate marine programs at OSU and around the state. She will also support OSU Aquaculture faculty to boost current strategic planning efforts to support greater collaboration among OSU aquaculture departments and programs.



Hatfield Updates

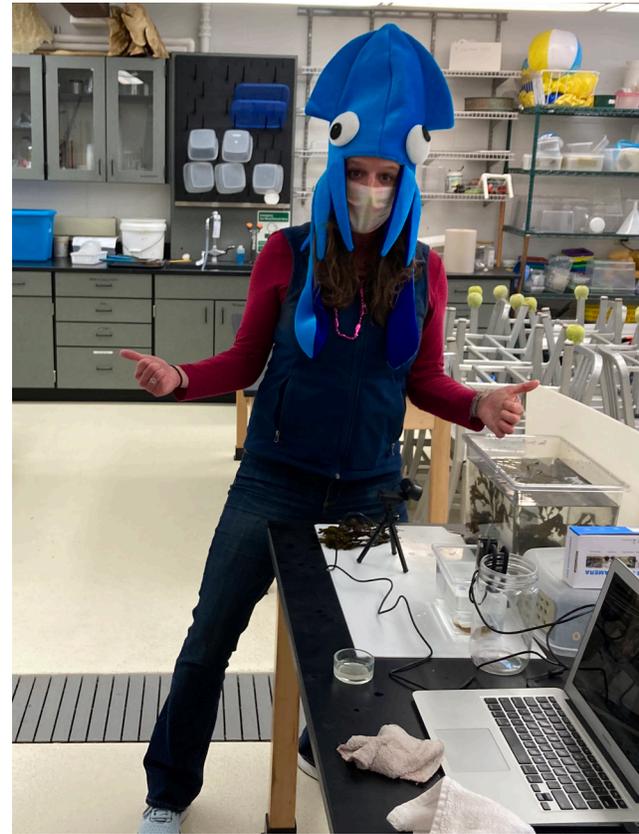
Marine Science Day

On April 10, 2021, the Hatfield Marine Science Center Marine Science Day went virtual. This was a choose your own adventure event where visitors could explore five different themed rooms—the Main Stage, Tours, Kid Zone, Exhibit Hall, and the Community Art Gallery. In each of these areas, Hatfield researchers and educators could share what they had been working on all year, from on your own activities to live events. With over 3,000 visits to the site during the four-hour event, Marine Science Day could not have happened without everyone who supplied content, gave a talk, or attended the sessions.

HMSC Research Seminars: HMSC Research Seminar Series will be happening throughout the summer every Thursday from 3:30-4:30 PM PST. Visit the OSU Events Newport Calendar (beav.es/3x3) for the seminar schedule and login details.

HMSC Visitor Center

The Hatfield Marine Science Center Visitor Center remains closed until further notice. Once the Visitor Center reopens, be one of the first to navigate *R/V Taani*, a cutting-edge research vessel that will be used to provide scientists and educators access to the marine realm. Step behind the helm on the *Taani* at this brand new exhibit and navigate out to sea or throughout the bay. Please refer to (beav.es/3dj) for updates.



Sea Grant's Lindsay Carroll running the Kids Zone at the HMSC virtual Marine Science Day, 2021. Photo by Cait Goodwin.

Heceta Bank Virtual Screenings

Heceta Bank Screenings

4 Virtual screenings in May, June, August 2020, and January 2021 

Four virtual events of Heceta Bank: Oregon's Hidden Wonder captured on average 1400 total views nationwide & internationally. **1400**

Targeted Audiences

- South Central Oregon Coast
- Central Oregon
- Locally
- Portland Metro

World Oceans Day Event

- Nationwide
- Internationally

The Marine Studies Initiative office had many in-person events planned for 2020 and 2021. Due to COVID-19, we shifted our strategy to stay connected and went virtual. Since May 2020, MSI hosted four virtual screenings of “Heceta Bank: Oregon’s Hidden Wonder,” followed by a Q&A panel. The virtual screenings had over 1,400 total views, from across the country and even some international viewers for our World Oceans Day 2020 event. Huge thanks to Oregon State Productions, OSU Cascades, OSU Media Services, and our amazing panelists and supporters who helped make these virtual events happen!

Research

Medicines From the Sea: Cancer Drugs to Everyday Products

The ocean is a vast source of natural products with potential applications for human health and well-being, ranging from medicines for cancers, infectious diseases, and pain management, to everyday skin-care products. Notable research tools include Green Fluorescent Protein (GFP) from jellyfish and the enzyme Taq polymerase which is used to catalyze the polymerase chain reaction (PCR) for amplification of DNA.

Medicines from the sea are derived from diverse marine animals, plants, and micro-organisms, such as sponges, sea squirts, cone snails, sea slugs, seaweeds, and bacteria in deep-sea sediments. The discovery and development of medicines from the sea will continue to expand with the advancement of technologies that facilitate access to the ocean and marine organisms.

In May of 2021, the Marine Studies Initiative and the College of Pharmacy presented a webinar and panel discussion on “Medicines From the Sea: Cancer Drugs to Everyday Products.” Pharmacy professor **Kerry McPhail** introduced the topic, spoke of her own research on natural products from marine organisms, and led the webinar. Keynote speaker **Dr. Barry R. O’Keefe**, Chief of the Natural Products Branch, Developmental Therapeutics Program, National Cancer Institute, gave an overview of medicines from the sea. **Dr. O’Keefe** also highlighted examples of approved marine natural product-derived anticancer drugs, such as Aplidin® and Yondelis® from sea squirts, and Halaven® based on a sponge natural product, he described new drugs in development.

In Oregon State University College of Pharmacy, there is a large cohort of faculty discovering and studying natural products from the sea. **Jane Ishmael**, an associate professor of Pharmacology at OSU, discussed her research lab’s approach to working out how new natural products act to kill cancers that are difficult to treat, such as brain and metastatic breast cancers. **BJ Philmus**, an associate professor of Medicinal Chemistry at OSU, described how his lab aims to identify and understand the biosynthetic genes and enzymes used by cyanobacteria to make biologically active natural products and to mix and match them for the creation of additional new natural products. **Taifo Mahmud**, a professor of Medicinal Chemistry at OSU, explained that many species of sea creatures make their own natural sunscreen and his lab has taken the sunscreen genes from fish and expressed them in yeast.

The presentation was followed by a lively Q&A session facilitated by professor **Kerry McPhail**, and Biology Pre-Med student **Hayleigh Middleton**. Learn more about this event at (beav.es/JvG) and view the event recording at (beav.es/3Qk).

(Left) Strikingly colored sea slugs of the genus Phyllidia produce biologically active (and odiferous!) ‘isocyanoterpenes’. (Right) Kerry McPhail and graduate student Chris Thornburg looking for cyanobacteria in Coiba National Park, Panama.



Port Orford Field Station

On World Oceans Day, 2021, Port Orford celebrates “a connection to the ocean that is inclusive, innovative, and informed by lessons from the past.” In Port Orford, both life and livelihood depend on the sea around us. Even the name Port Orford reveals this intimate connection: there “is no Port Orford without the Port,” which is the engine that drives the local economy.

In this town of 1,200, more than 30% of the local workforce derives their livelihood from commercial fishing. Each year, the small vessel fleet makes hundreds of day trips to sea to sustainably harvest an average of \$5M of fresh, healthy seafood, resulting in an average annual contribution to Oregon’s economy of \$15M. Some of this seafood is delivered to the market alive, thanks to fishers who have developed the skills needed to ensure the survival of colorful and highly prized rockfish, cabezon, lingcod, and greenling. These skills pay off in the form of greatly increased prices per pound for live fish versus fresh fish. Value-added fisheries such as these bring a living wage job within reach while supporting sustainable harvest.

Port Orford Sustainable Seafood (beav.es/ode) is a local, fisherman-owned and operated seafood processor located within the Port Orford Field Station. This business focuses on having a Community Supported Fishery (CSF), with 400+ members from Portland to Ashland. They purchase seafood from local fishers, process, package, and ship it to their members each month. This small-scale model creates local jobs and provides a better price for small vessel fishers. Members receive healthy, sustainably harvested seafood and are educated on where it came from, even the fishing vessel and captain who caught it.

In response to calls for ocean protections to address a history of overfishing of long-lived species like rockfish, Port Orford fishers made an informed decision to propose the Redfish Rocks Marine Reserve and Protected Area (MR/MPA) (beav.es/3Ah) which went into effect in 2012. This nearly eight square mile protected area, located within Port Orford’s historical fishing grounds, has served as a living laboratory ever since, with local fishers as active partners in research and monitoring activities with scientists from OSU, ODFW, OIMB/UO, NOAA, and others. Community efforts to establish the Redfish Rocks MR/MPA also led directly to the establishment of the OSU Port Orford Field Station (beav.es/o95), which supports these and other research activities in the region.

Global efforts are underway to support UN Sustainable Development Goal 14, in the next decade, to “conserve and sustainably use the oceans, seas, and marine resources.” Targets include sustainable fishing, with an emphasis on small vessel fishing, marine protected areas, income from sustainable fisheries, and increasing scientific knowledge, research, and technology for ocean health.” At the Port Orford Field Station, we are proud to do our part in advancing these goals by partnering with our neighbors and friends in the commercial fishing industry as we prepare for the future of fishing.

The Port of Port Orford is the economic engine of the town of Port Orford, advancing sustainable fishing, conservation, and ocean science. Photo by Manuela Durson.



Dam Proud Day

Beavs Give

On April 28, 2021, Oregon State University's Dam Proud Day, a one-day virtual fundraising event, brought in more than 4,000 gifts from 48 states and 11 countries totaling more than \$1.1 million. The Marine Studies Initiative, including the Port Orford Field Station, raised over \$20,000 from 126 gifts, including from many first-time donors. We are so thankful for your support and look forward to using your gifts to make a difference for our students, our university, and our ocean and coasts.

(Right) Students in Newport, Oregon on the dock of Yaquina Bay.



World Oceans Day

June 8, 2021- The Ocean: Life & Livelihoods

June 8 has been designated by the United Nations as World Oceans Day. This year's theme is "The Ocean: Life & Livelihoods." There are many events you can virtually attend to learn about the "wonder of the ocean and how it is our lifesource, supporting humanity and every other organism on Earth." Learn more about World Oceans day at (unworldoceansday.org). Visit (marinestudies.oregonstate.edu) for MSI special day-of updates on World Oceans Day, including a video of marine artwork by Ocean11, seafood recipes, a downloadable coloring book, and more!



Fisherman in Myanmar, by Guille Álvarez via unsplash.com.

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Marine Studies Initiative



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Thank you for your support!

We wish to acknowledge our many contributors for their kind and generous support of students and programs at Oregon State University. Your gifts help support the following:

Marine Studies Innovation Fund (#270020)

The Marine Studies Initiative Innovation Fund supports learning opportunities at the coast such as;

- Experiential hands-on learning opportunities
- Scholarships for marine-related degrees
- Unique research and internship opportunities
- Housing support to live at the coast while studying

Donate to this fund at (beav.es/3ff).



Port Orford Field Station Science and Education Fund (#140330)

The Port Orford Field Station Science and Educational Fund supports access to unique marine and terrestrial ecosystems that support transdisciplinary research and education, community priorities, and economic opportunities on the Southern Oregon coast. Donations to this fund enhance our ability to continue to provide this vital support to students, researchers and the community to expand our work in this hard-working rural community, as its residents embrace the new blue economy. Donate to this fund at (beav.es/3fy).

Eder Family Fund for Dungeness Crab Research (#270030)

The Eder Family Fund for Dungeness Crab Research supports research related to Dungeness crab and its fishery such as crab distribution, landings, mortality, fisherman safety, biotoxin domoic acid levels, which all aid in supporting this important species for generations to come.

Donate to this fund at (beav.es/3fg).



Your gifts make a difference for our students,
our university, and our ocean and coasts.

To make a gift, go to: marinestudies.oregonstate.edu/impact/give-gift
Or send a check payable to 'OSU Foundation' with notation for MSI and list fund name, to Oregon State University Foundation, 4238 SW Research Way, Corvallis, OR 97330.

If you need assistance or details on other gift opportunities, call 800-354-7281 or 541-737-4218. Or, email: annual.giving@oregonstate.edu



Oregon State University
Marine Studies Initiative