MARINE STUDIES INITIATIVE

NEWSLETTER

Fall 2021, ISSUE 10

Jack Barth, Executive Director (center), and students on the R/V Elakha for a "Coastal Oceanography (OC332)" summer course field trip.

FROM THE EXECUTIVE DIRECTOR'S DESK

Jack Barth,
Marine Studies Initiative
Executive Director

Welcome to our Fall 2021 newsletter – wow, what a year and a half it's been! Even in these times of uncertainty and challenges from a pandemic, heat and wildfire, and unprecedented flooding from extreme weather events across the globe, the ocean, and all the life it supports continue to provide for all of us. As such, the ocean and coasts deserve our renewed attention, as we are doing through the Marine Studies Initiative. I'd like to extend a special welcome back to the fall semester to our students, a resilient bunch who persevere in the face of challenge. We are proud to have partnered again with the Hatfield Marine Science Center and academic units across campus to offer a robust, in-person, program at the coast during summer 2021. I was privileged to engage a group of students eager to be part of an in-person learning experience at the coast after countless hours of remote learning during the 2020-2021 school year. Their voices, eyes, and imaginations were alive as we learned and explored Oregon's ocean, coast and estuaries. Here we are on a fieldtrip aboard the *R/V Elakha* as part of the class "Coastal Oceanography (OC332)." Our MSI summer interns gained valuable experience across a range of marine issues, working from Cascade Head to Port Orford. We are excited for the new academic year, eager to enjoy the newly opened Gladys Valley Marine Studies Building at HMSC, and ready to welcome our inaugural class of Marine Studies undergraduate students!
-Jack Barth, Marine Studies Initiative Executive Director

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Faculty Spotlight

Lisa Ballance in the field conducting research on killer whales during her time as an ecologist at the National Oceanic and Atmospheric Administration (NOAA).

Dr. Lisa Ballance

Director Marine Mammal Institute
Professor Fisheries, Wildlife, & Conservation Sciences

Lisa T. Ballance is the Director of OSU's Marine Mammal Institute (MMI), and a Professor in Fisheries, Wildlife, and Conservation Sciences. Though relatively new to OSU, beginning her second year, she has deep experience with marine mammal research, as a marine ecologist with NOAA for 30 years. She arrived at Hatfield Marine Science Center in Newport, as MMI was gaining footing. In her two years with MMI, they have hired three new tenure track professors, including Drs. Mauricio Cantor and Kate Stafford, with funding support from MSI, added eight new additional Principal Investigators, and doubled the number of graduate students and post-doctorates. MMI faculty were able to move into new laboratories and offices in the Gladys Valley Marine Studies Building. As Principal Investigator on MMI's *R/V Pacific Storm*, she is leading a 30-day expedition to search for a cryptic whale in the Northwest Pacific Gyre. The vessel works to study a distinct population of gray whales, and projects focused on ecology, behavior, and conservation of cetaceans around the world. Lisa's central reason for coming to OSU is the concern of extinction. "We are facing the extinction of the Vaquita, a small porpoise endemic to Mexico," Lisa said. "I have been deeply involved in science associated with both. I don't have the answers, but I have lived the failures." Lisa feels that the hope for preventing extinction and restoring our oceans lies with transdisciplinary research and teaching that emphasizes collaboration, experiential learning, engagement with society and problem solving that MSI strives for.

OCEAN 11 MARINE CLUB

Are you an undergraduate student with a passion for the ocean? If so, OSU's Ocean11 Marine Club may be the perfect fit for you!

Learn more about Ocean11 and get information on how to join at **beav.es/ocean11.**

Congratulations!

Congratulations on the promotion to associate professor of the original four marine faculty hired back at the inception of the MSI

- **Ana Spalding-** Public Policy, College of Liberal Arts
- **Steve Dundas-** Applied Economics, College of Agricultural Sciences
- **Felipe Barreto-** Integrative Biology, College of Science
- **Jamon Van Den Hoek-** Geography, Environmental Sciences, and Marine Resource Management; College of Earth, Ocean, and Atmospheric Sciences

Academic Program News

Summer at the Coast: Between June and August, nearly sixty students took part in the nine field courses at Hatfield Marine Science Center: Pacific Northwest Coastal Ecosystems (BI353); Biology and Conservation of Marine Mammals (FW302); Marine Conservation Biology (FW464/564); Coastal Oceanography (OC332); Biological Oceanography (OC440); Phycology (BOT417/517); Ecology of Marine and Estuarine Birds (FW331); Marine and Estuarine Invertebrate Zoology (Z461/IB561); and Aquaculture, (FW498/598). Many of these students took multiple courses through the summer.

Approximately 40 additional students participated in marine-focused internships through three major programs: Marine Studies Initiative summer internships ***(beav.es/UJG)***; the Hatfield-CEOAS National Science Foundation-supported Research Experiences for Undergraduates program ***(beav.es/UJN)***, "Estuaries to the Deep Sea"; and, Oregon Sea Grant's Summer Scholar's program ***(beav.es/UJx)***. Summer internships engage a broad network of mentors and partner organizations.

OSU's Pathway to Fall: Undergraduate and graduate programs across the university are welcoming new and returning students. Three courses bring students to Hatfield for one and two week experiences in the early weeks of September: Oregon Coast Math Camp (OC515) and the Ecampus hybrid courses, Coastal Ecology and Resource Management (FW426/526) and Methods in Physiology and Behavior of Marine Megafauna (FW469/569). Also anticipated are full-term Hatfield-based courses: The Natural History of Whales and Whaling (FW419); Marine Conservation Biology (FW464/564), and the onsite section of Coastal Ecology and Resource Management.

College of Liberal Arts Marine Studies Undergraduate Degree: Throughout the summer, Academic Advisor, Cynthia Leonard and colleagues in the College of Liberal Arts have been advising new liberal arts, Marine Studies students. These include many first year students, plus transfers into more advanced levels of the degree program. We are excited to welcome nearly 25 new students. Entry courses include liberal arts core and marine-focused foundational courses such as Introduction to Marine Biology (BI150), Geography of the Deep (OC103), and Humans and the Ocean (MAST201). Students will also be taking coastal experience orientation classes offered through Integrative Biology and Fisheries, Wildlife, and Conservation Sciences. Some transfer students are ready for the first offering of (MAST 300), Society Culture and the Marine Environment taught in Winter by A. Spalding from School Public Policy. Some students are creating upper division specializations, with Environmental and Social Justice a popular theme.

Virtual learning experiences: The Hatfield Seawater Classroom Technology Refresh is now complete. OSU Academic Technology collaborated with Hatfield to design and install new audio and visual systems to support remote and onsite teaching and learning in the seawater classrooms. This includes learning resources through the Virtual Field project ***(beav.es/UJi)***, which creates and shares virtual teaching materials and events from field stations, marine laboratories and other research or educational sites around the world.

Students performing a necropsy on fish specimens for a summer Aquaculture Laboratory (FW498/598) course.Thank you to 'Mai's Asian Market' in Newport for the donation of the specimens (farmed fish from Vietnam).

Marine Studies Student Awardees

Kristen Alvstad

Senior, Biology- Marine Biology option

Kristen is going to use the funds towards the OSU Motorboat Operating Training Course. This course will give Kristen hands-on experience with operating small boats, as well as an overview of boating and everything involved.

Lily Rice

Junior, Biology- Marine Biology option

Lily hopes to use the funds to work with the REEF Environmental Education Foundation located in Florida, holding outreach events, educating the public, promoting marine conservation, and working with other non-profit organizations.

2021 Summer Interns

Left to right: Sophie Dziak, Emily Morrow, Jeremy Schaffer, Drake Gross, Chloe Lee, and Maddie English after their project presentations.

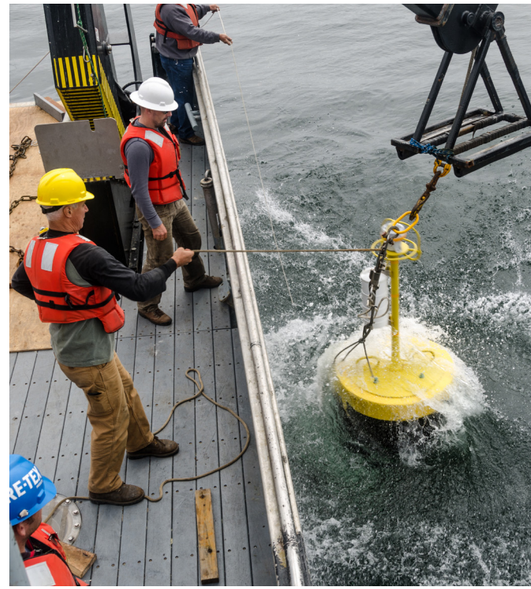
In spite of another summer of COVID-19 challenges, the Hatfield Marine Science Center, and the Port Orford Field Station welcomed summer interns. Students conducted summer research projects along the Oregon coast focusing on a wide variety of disciplines such as Ocean Acidification Awareness to Sustainable Seafood Promotion. We would like to thank all our mentors for their commitment to guiding students through their research and work experiences. MSI summer internships would not be possible without our outstanding mentors!

Research

Oregon State University continues to lead the way in practical, problem-solving research that improves lives, supports sustainable use of natural resources, and drives economic growth to transform our future for the better. OSU researchers are top-ranked in their fields and focus on cross-cutting research themes to facilitate the convergence of transdisciplinary research, education, outreach, and engagement.

Research focuses cover a broad spectrum of disciplines in the natural and social sciences, including marine conservation science and policy, marine bio-imaging and underwater vehicles, coastal resilience, food from the sea, renewable energy from the sea, Oregon ocean acidification and hypoxia, and marine genomics.

This new hub for showcasing research across these transdisciplinary topics is found on the Marine Studies Initiative website ***(marinestudies.oregonstate.edu)***. You can view this webpage at ***(beav.es/UZf)***, with links to programs across Oregon State that are conducting marine research in multiple disciplines.

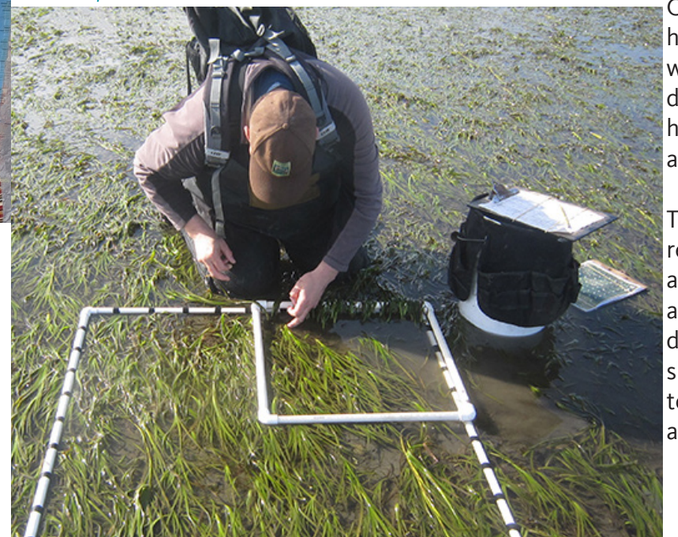


Wave energy testing equipment being pulled from the water. Photo courtesy of Oregon Sea Grant.

News

Newly passed legislative bill funds actions to support Oregon fisheries, fishing industries, coastal communities in face of changing ocean conditions

ODFW biologist surveys shellfish and their habitats to inform management and track change. HB 3114 increases ODFW's capacity to assess shellfish populations in Oregon estuaries. ODFW photo.



NEWPORT, Ore –The passage of House Bill 3114 is another historic Oregon first in the fight against ocean acidification and hypoxia (OAH) and shows Oregon leaders' awareness of the importance of healthy oceans. Oregon is an epicenter for OAH and was one of the first places in the world to observe direct impacts of ocean change when oyster hatchery production collapsed in 2007 from ocean acidification.

The bill provides $1.9 million to fund important research and monitoring along the Oregon coast and estuaries, develop best management practices, and conduct outreach and education. ODFW will directly receive $470,000 of this funding to assess shellfish and habitat in estuaries and map estuaries to document long-term OAH impacts. Read the full article at ***(beav.es/UJc)***.

Hatfield Updates

Gladys Valley Marine Studies Building iLab:
Drummond Biles has been selected to be the new Innovation Lab Manager at Hatfield. The Innovation Lab, or iLab, is a part of the newly completed Gladys Valley Marine Studies Building. This lab will bring much needed capacity to OSU's ocean research enterprise and Oregon's developing blue sector.

HMSC Visitor Center:
The Hatfield Marine Science Visitor Center is now open to the public. Reservations need to be made for all visits and face coverings are required. Visitors can experience the new interactive simulator of the *R/V Tanni*. Make a reservation and learn more at ***(beav.es/3dJ)***.

Research Seminars:
HMSC Research Seminar Series will be happening throughout the fall term, 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.

Drummond Biles, second from right, met with Blue Sector entrepreneurs who are participants in Hatfield's sponsored effort to grow blue tech capacities in coastal communities.

Intern Spotlight

Maddie English

Senior in Environmental Science, Aquatic Biology Option

Internship

Marine Reserve Interpretation
Port Orford Field Station

"I first heard about the Marine Studies Initiative in the early spring before my freshman year at Oregon State. I hadn't decided yet whether I wanted to go to OSU, so I reached out to one of the members of the leadership team for MSI, Kristen Milligan. Even though I was just a prospective freshman at that point, she took the time to meet with me and tell me all about the MSI program and the opportunities that I could have at OSU. Because of her and the MSI program, I decided that very day that I wanted to attend OSU.

Fast forward 4 years to this summer; I had the opportunity to participate in the MSI summer internship program and it was really everything that my freshman year self could have ever wanted. I studied at the Port Orford Field Station for the summer and spent my time learning and communicating about the Redfish Rocks Marine Reserve. I got the chance to study urchins and kelp forests, participate in whale research, and partake in PISCO intertidal ecology fieldwork, among many other things. It was by far one of my best experiences at OSU and I wouldn't have been able to do it without MSI."
-Maddie English, OSU student

Port Orford Field Station

Members of the GEMM Lab's 2021 whale research team "Heck Yeah!," conducting fieldwork at Port Orford. Learn more about their research at ***(beav.es/UZx)***.

Summer 2021 was another season full of research, learning, and community engagement. The GEMM Lab whale research team completed their 7th field season in Port Orford. Team "Heck Yeah!" conducted fieldwork involving in situ prey sampling from kayaks, photo ID of whales and zooplankton, and tracking the location of whales using a theodolite.

Supporting the GEMM Lab team was MSI Marine Reserve Interpretation Intern Maddie English. She also worked closely with the Oregon Kelp Alliance (ORKA) – Kelp Forest Restoration Project. Her research project focused on purple sea urchin reproductive health and will be presented at the State of the Coast Conference in October. She worked with the Redfish Rocks Community Team on several interpretive and science communication initiatives and managed the social media accounts for the Port Orford Field Station. Maddie English assisted volunteer Kerry Holman install a pH sensor for Dr. Francis Chan's ocean acidification monitoring project at Redfish Rocks. These sensors help scientists monitor pH levels and acidification progression at the marine reserves. Ocean acidification is a growing concern for scientists, the shellfish industry, and coastal communities. By monitoring pH levels on the Oregon Coast, we will be able to better understand and respond to changes in our oceans.

Noah Dolinajec, a Graduate Certificate student in the OSU Seabird Oceanography lab, spent three weeks surveying islands on the south Oregon Coast while living and working at Port Orford Field Station. Noah has built a community science initiative, BIRDSwithFISH, designed to engage experienced coastal nature photographers to submit pictures of coastal Oregon birds with fish.

A team led by Sarah Henkel, Taylor Chapple, Scott Heppell, and Tom Calvanese, worked this summer tracking rockfish, lingcod, and Dungeness crabs using acoustic telemetry, based on prior work by Tom and local fishermen. This project is assessing the behavioral responses of rockfish, lingcod, and Dungeness crabs in the reserve using acoustic telemetry (surgically implanted transmitter tags and hydrophone receivers), tracking both 2-dimensional movements and acceleration of all species in response to offshore seismic testing. Kaus Raghukumar, Ph.D., co-investigator on the NoiseSpotter™ project partnered on this project. During their stay at the Field Station, Kaus and his team studied the effects of anthropogenic noise on fish. They deployed an acoustic vector sensor array in the Redfish Rocks Marine Reserve to measure the particle motion and overall acoustic disturbance of the recent seismic testing off the Oregon coast on the Cascadia subduction zone. Learn more about this work at ***(beav.es/UJ2)***.

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

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Marine Studies Initiative