

NEWSLETTER

WINTER 2022, ISSUE 11



Undergraduate liberal arts Marine Studies students on a fall trip to the Oregon Sea Grant Hatfield Visitor Center at the touch pool.

FROM THE ASSOCIATE DIRECTOR'S DESK

In this New Year, we reflect on the past year and eagerly anticipate new work together. The Ocean11 student club (beav.es/ocean11) has been thriving, with a leadership team of 18 students and well-attended events, some which are covered in this newsletter and all featured in the club's Instagram feed. In the past summer, nearly 100 undergraduates studied in ocean-focused programs, by taking classes at Hatfield and interning with research labs, non-profits and businesses. Planning is underway for an excellent summer 2022 program at Hatfield Marine Science Center, where students and faculty will enjoy learning and research spaces at the new Gladys Valley Marine Studies Building and improved seawater labs in the Education Wing. I am extremely grateful for OSU departmental efforts to develop student opportunities and registrar's guidance about course scheduling. Also deeply appreciated is generous donor support, which allows us to provide crucial new awards and scholarships to advance marine studies by students and faculty.



Kristen Milligan,
Marine Studies Initiative
Associate Director

This winter 2022 newsletter is #11 in our newsletter series. If you like what's in this issue, please check out past issues (beav.es/U9V) and explore our webpages (marinestudies.oregonstate.edu). Also- mark your calendar for the April 9 Marine Science Day, a long-time annual event hosted by OSU's Hatfield Marine Science Center to celebrate marine research with activities for all ages.

On behalf of the MSI, I wish everyone the best in this New Year.

-Kristen Milligan, Marine Studies Initiative Associate Director

Gladys Valley Marine Studies Building Innovation Lab



The main shop floor sits in the center of the lab outfitted with a manual mill and lathe as well as a computerized numerical controlled (CNC) mill. Additional equipment such as the CNC router seen to the left of the image will serve as a shop tool and learning tool for gaining skill sets in programming manufacturing equipment.

As the Gladys Valley Marine Studies Building has come to life over the past term so has the Innovation Lab (iLab) that sits within. The Hatfield Marine Science Center iLab embodies the full progression of an idea, from design in the computer lab to presentation in the studio. Serving as a resource for the Hatfield community and beyond, the iLab houses the necessary equipment and training resource to complete innovative projects. Within the 2,500 sq ft lab there are dedicated spaces for traditional machining, 3D printing, welding, electronics, computer design, multi-media, and an artist studio. Each area has been outfitted with a suite of tools that allow for introductory level work as well as cutting edge professional work. The iLab sits as a space for learning and creating for any marine focused design effort and works to pair learning experiences with projects to provide greater access to unique hands-on experiences.



(Left) Work stations are setup on the electronics work bench that is outfitted with the necessary equipment for performing design and development or troubleshooting of electronics. (Right) There is a printing cabinet filled with Prusa filament style printers. These printers will be used for creating prototype components and are part of the additive manufacturing capabilities of the iLab.

Faculty Spotlight

Drummond Biles

Gladys Valley Marine Studies Building Innovation Lab Manager

In September, 2021, Drummond Biles was hired on as the Manager for the new Gladys Valley Marine Studies Building Innovation Lab (iLab). Drummond came to Hatfield after completing a post-doc at the Sandia National Laboratory. Previously, Drummond completed his PhD at the University of New Hampshire in Mechanical Engineering focusing on experimental fluid dynamics. While at UNH Drummond taught classes in the Machine Shop, mentored senior projects, and taught classes in the Ocean Engineering program. Now as the manager of the iLab, Drummond has been working to set up the structure and operation of the iLab. From aiding in project design to detailing the training procedure on equipment, Drummond is working to make the iLab into an accessible highly functional prototype marine lab.

Right: Drummond Biles, Innovation Lab Manager, working on a project.



Roundhouse Foundation Marine Studies Innovation Lab Internship and Scholarship Fund

With the generous support of the Roundhouse Foundation, this award supports Oregon State University undergraduate students in their second year or more of study who are participating in a paid internship with the Hatfield Marine Science Center (HMSC) Innovation Lab (iLab) in Newport, Oregon. Recipients will be students in any college at Oregon State University who are interested in developing the programs and operations of the HMSC iLab.

The internship includes a Roundhouse Foundation Marine Studies Innovation Lab Scholarship award for the Winter and Spring terms, a paid hourly position at the HMSC iLab during the Winter, Spring, and Fall terms (approximately 8 hours per week), with a stipend for housing at HMSC during the Summer term, and access to up to \$1,000 that can be used for supplies, travel, etc. to support iLab-related projects. Learn more about this award at beav.es/Uck.



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!

For information about how to get involved, contact Ocean11 at ocean11osu@oregonstate.edu

For more information about Ocean11 visit:
beav.es/ocean11

Academic Program News

“Put the Ocean in your Major” has been one of the marine studies slogans to highlight the many ways students can learn about the ocean and coasts at Oregon State. For example, every undergraduate can take general education courses, called Baccalaureate Core, emphasizing ocean topics such as Food from the Sea (FW 324) and Introduction to Coastal and Marine Economics (AEC 353). Beyond curricular paths to ocean literacy are the many other opportunities through student organizations like Ocean11, OSU Marine Team, Hydrophiles, Hatfield Student Organization, and clubs in Environmental Sciences, Integrative Biology, and Fisheries, Wildlife, and Conservation Sciences. Here are several recent highlights of ways the ocean and coasts are parts of student experiences at OSU.

Nearly 200 enrollments in courses at Hatfield in 2021. Most recently, fall courses at the coast included regular offerings such as Oregon Coast Math Camp (OC 515), Natural History of Whales and Whaling (FW 419/519), Coastal Ecology and Resource Management (FW 426/526), Methods in Physiology and Behavior of Marine Megafauna (FW 469/569). New fall offerings were Gyotaku and the Changing Sea (ART 199/399) and Science of Hot Ocean (HC 407).

68 Baccalaureate Core Courses related to issues facing the ocean and coasts

66 individuals who will come to Hatfield for the winter term, Introduction to Marine Life in the Sea (BI 111). This 1-credit, field course explores the varied marine life and habitats on the Oregon coast, including rocky shores, sandy beaches, and estuaries.

32 hands doing art during Gyotaku and the Changing Sea (ART 199/399), offered fall term session 5A at Hatfield.

38 enrolled in the new College of Liberal Arts, Marine Studies “MAST” undergraduate program. In the first couple of years, MAST students take liberal arts and university core courses plus foundational degree requirements, such as Humans and the Ocean (MAST 201) and coastal orientation courses.

16 aquatics and SCUBA courses offered by the Physical Activity Course program. Check out the new Marine Outdoor Training webpage, launched in collaboration with Adventure Leadership Institute, Physical Activity Course program, and Diving and Small Boat Safety (beav.es/U9C).

Students from the Gyotaku and the Changing Sea art class hanging up their pieces in the Marine Studies Building.



28 round trips per week by the Coast-to-Valley Shuttle. This Lincoln-Benton County partnership provides daily public transportation to the coast, with stops at OSU Corvallis campus and Hatfield. Fall student trips used this service, and the MSI Office provides free tickets (beav.es/U9y).

1.6 kilometer roundtrip distance of the Yaquina Estuary Trail, which is a fantastic resource at Hatfield for student trips. This trail winds along Yaquina Bay between Hatfield and the Oregon Coast Aquarium. There are accessible entry points from parking lots, partially paved paths, and interpretive signs. During the fall art course, students explored natural areas, watched seabirds, and discovered intertidal life.

Research - Fall 4CAST Summit

Coastal Climate Change and Community Art, Science and Tradition



Overhead view of sand art designs by participants from the fall 4CAST Summit.

A new project focused on measuring and understanding the impacts of climate change on a pristine coastal habitat brings together a unique set of partners: the Cascade Head Biosphere Collaborative, Oregon State University, the Oregon Coast Aquarium, the U.S. Forest Service (USFS) and the Oregon Department of Fish and Wildlife. Focused on four habitats spanning Oregon’s only UNESCO Biosphere Reserve at Cascade Head just north of Lincoln City – ocean subtidal, rocky intertidal/sandy shores, estuary/river, and forest uplands – 4CAST involves citizen scientists in making observations of coastal climate change. Given its ease of measurement and its importance to coastal habitats and species, 4CAST is focusing on changing temperatures as an indicator of coastal climate change. Launched in late 2020, the partnership successfully carried its first citizen scientist activity in August 2021 with a seastar survey in the rocky intertidal of the Cascade Head Marine Reserve. This science activity coincided with an art event that featured public talks in Lincoln City about phyto- and zooplankton by OSU scientists and students and a plankton sculptor. The seastar survey was followed by a public art event, with the first day featuring a giant calligraphy of the word “Wonder” drawn in the sand near Lincoln City and the second day featuring 80-foot, multicolored zooplankton sand drawings. In the upland forest with leadership from USFS, nine time-lapse cameras are documenting the rhythm of change in a variety of species including the goldenrod, evergreen huckleberry, Sitka spruce, and the insects that thrive off these plants. These time-lapse cameras will be maintained by citizen scientists and the megabytes of photographic observations will be analyzed by citizen data analysts. The Marine Studies Initiative is involved with co-leading 4CAST and sponsoring MSI summer 4CAST interns like Jeremy Schaefer in 2021. The Oregon Coast Aquarium leads the volunteer citizen scientist program. Efforts are underway to include Traditional Ecological Knowledge in this region that has been revered by coastal peoples for time immemorial. For further information about 4CAST and how to get involved as the 2022 field season kicks off, see (4CASTproject.org).



The 4CAST Project is observing and recording the whole, interrelated ecosystem at Cascade Head through activities in the Uplands, River & Estuary, Near-Shore, and Sub-Tidal / Oceanic habitats. As a community of scientists, artists, and citizens they are concerned by the rapid destabilization of the climate here along our vibrant and diverse western shoreline. 4CAST is responding by employing art, science and traditional ecological knowledge to observe and interpret 4 habitats across a “whole” coastal ecosystem, and in the process gaining insights and taking action. Learn more at (4CASTproject.org).

Blue Heart

Beauty and Change Along America's Western Shoreline



Our Mark

"Handprints as art are often seen as childish these days, as it's one of the first forms of art we make when we are little. However, this little tradition spans the entirety of human history, in every region across the globe. From cave paintings to kindergarten classrooms, you can find hand tracings anywhere. They are innately human; a universal gesture telling the world "I was here." Like a tree's rings, they catalog decades, even centuries of natural history into one traceable mark. As we individuals come and go, what we leave behind may stay around for hundreds of years. It would be wise to make our mark with care." -Katie Mack, Oregon State University Art student

This piece was created for the inaugural (ART 199/399) class at the new Gladys Valley Marine Studies Building in Newport, OR. The 16 students and faculty who participated in the course traced their hands to create the design. It was made on a cedar tree that died in the Echo Mountain Fire. The concept was created by Mack and was executed with the help of Duncan Berry.

This fall at the new Gladys Valley Marine Studies Building in Newport, 16 students participated in a new art class (Art 199/399) and created beautiful ocean-based artwork with renowned Gyo-taku artists Dwight Hwang and Duncan Berry. Students learned how "art illuminates science" by creating their own portfolio of prints directly from the creatures of the land, sea, and air along Oregon's coastline. This undergraduate course was offered in partnership with the College of Liberal Arts with instructional leadership by faculty Andrew Myers. The class was inspired by Dwight and Duncan's new art exhibit "Blue Heart: Beauty and Change Along America's Western Shoreline" which is now premiering at the Marine Studies Building.

Inspired by the beautiful spaces in the new Gladys Valley Marine Studies Building, artists Duncan Berry and Dwight Hwang worked with the Marine Studies Initiative and the Hatfield Marine Science Center to launch a major art exhibit in those spaces. They created 25 traditional Gyo-taku art pieces to feature in the Blue Heart Exhibit. Gyo-taku, or fish rubbing, is a traditional Japanese folk art that originated in 1800s Japan.

Berry and Hwang came together to create this exhibit to showcase the power and beauty of the Pacific Ocean, as well as the deep and lasting climate-driven changes that are occurring with increasing speed along our western shoreline. "For us, making these impressions directly from the bodies of creatures that frequent the land, sea and air along our coastlines is an 'active form of reverence' like a giant living braille. In doing so we get to witness the fascinating stories of their lives and the dramatic climactic changes they are adapting to everyday," Berry said.

Berry, an artist and Oregon coast resident, wanted to capture the "wild and beautiful places that have shaped me into who I am." Inspired by the "mystery and power of this planet," he wanted to show respect and gratitude for the space he uses, the food and water he consumes, and to live a life dedicated to the well-being of others. Hwang, an internationally recognized artist resident in Los Angeles, creates classical gyo-taku art, restricting himself to the traditional materials, but working tirelessly to push not only the art but himself to bring awe, memories and quiet contemplation to viewers worldwide. Together, they created an exhibit of "art illuminating science."

The Blue Heart exhibit is currently on display in the new Gladys Valley Marine Studies Building in Newport, Oregon. The public is welcome to view the art during Hatfield Marine Science Center's typical hours of operation- Monday through Friday, from 8 AM to 5 PM. Parking is available at no charge.

Ocean11 Marine Club



Ocean11 Leadership Team members on a kayaking trip as part of their fall retreat.

They're baaaack! Ocean11 students were back on campus in full-force this Fall, eager to dive into every activity. Students were ready to interact in person with one another. We had almost double the participation, enthusiasm and energy at our events. Our new Student Leadership Team did an incredible job of creating and facilitating a variety of activities such as a Beach Cleanup, Newport Behind-the-Scenes Overnight, selling metal straws, Ocean Observing Center Tour, Tailgates (Go Beavs!), Ocean-themed Pumpkin Carving and Bingo Nights, and a big Holiday Party to top off the term. Ocean11 meets monthly as a large group and then its five committees plan the rest of the term's calendar (Community Outreach, Field Trips, Next Gen Outreach, Research & Learning Opportunities, and Social). Ocean11 is definitely back and riding a big wave of momentum into 2022!

MSI Advancement Awardees

The Marine Studies Initiative (MSI) Advancement Award supports transdisciplinary collaborations, through focus on human dimensions of the ocean and coasts, expanding and enhancing educational opportunities at the coast, and further strengthening inclusive excellence in marine-related programs. Learn more about the projects at (beav.es/U9v). Thanks to the many generous donors to the Marine Studies Innovation Fund who make these Advancement Awards possible. (Please view the last page to learn how to donate).

Selected Projects

Looking through the lens: Combing community science and photography to gain insight on the diets of tufted puffins and other marine birds on the Oregon Coast

Project Leader: Rachael Orben, Assitant Professor, Dept. of Fisheries, Wildlife, and Conservation Sciences

Pernot Microbiology Summer Camp to Visit and Engage with Scientists and Stakeholders at Hatfield Marine Station

Project Leader: Rebecca Vega Thurber, Professor, Dept. of Microbiology

The Creative Coast

Project Leaders: Michael Boonstra, Senior Instructor, Dept. of Art and Andrew Myers, Instructor, Dept. of Art

(Re)defining Coastal-Community Resilience for Post-Disaster Recovery Travel

Leader: Shawn Rowe, Associate Professor, Oregon Sea Grant/OSU College of Education

Enhancing Student Engagement in Marine Studies Through Coastal Experiences

Project Leader: Francis Chan, Associate Professor, Dept. of Integrative Biology

Incorporating Indigenous Youth into Knowledge of Apex Predator Ecology

Project Leader: Jessica Schulte, graduate student, Dept. of Fisheries, Wildlife, and Conservation Sciences

Tribal Impacts from Outdoor Recreation in Marine Systems

Project Leaders: Lara Jacobs, graduate student, College of Forestry and Ashley D'Antonio, Assistant Professor, College of Forestry

Diseases of Marine Mammals

Project Leader: Carla Schubiger, Assistant Professor, College of Veterinary Medicine

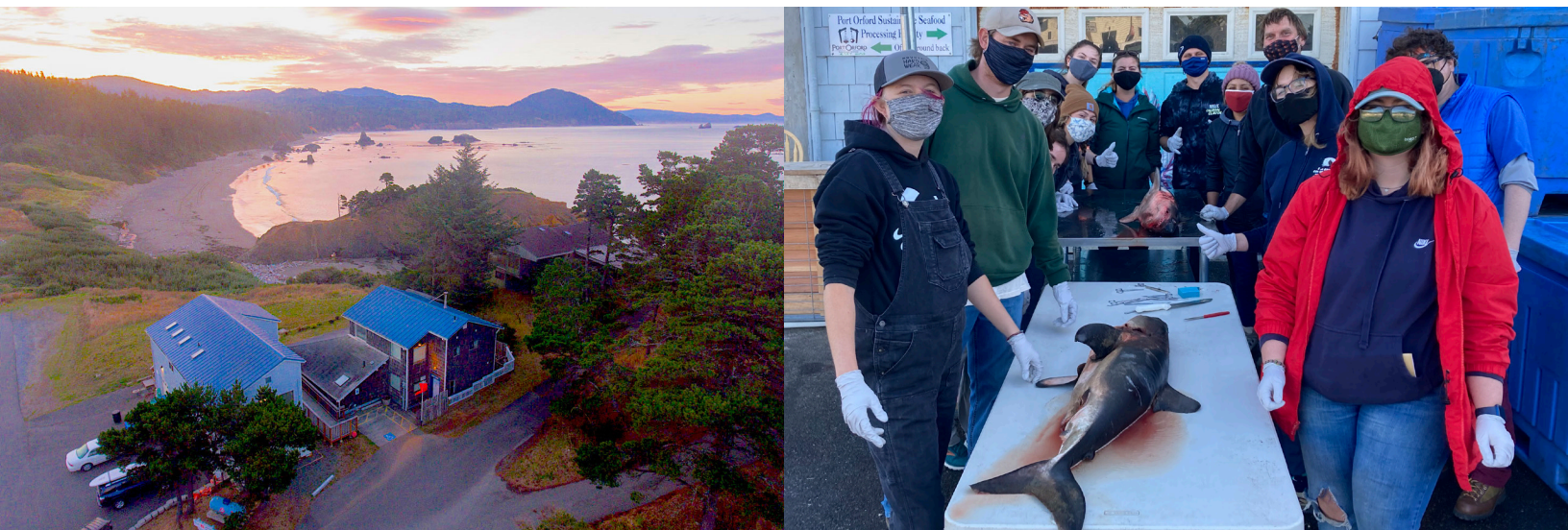
Port Orford Field Station

In 2021, the station supported various marine and coastal research projects from multiple units at OSU, OIMB, ODFW, NOAA, and more. Here is just a glimpse of the work conducted this year.

The GEMM Lab, directed by Leigh Torres, completed year 7 of gray whale foraging research. Team leader Lisa Hildebrand completed her master's and is now working toward her PhD. Masters' student Allison Dawn was welcomed as the new team leader. The team has almost doubled in size since 2020, with multiple research projects underway. Aaron Galloway of OIMB worked with the GEMM Lab to launch Kelp2Whales, a Sea Grant SEED project studying the ecological relationships between kelp and whales. You can learn more about their work in 2021 at (beav.es/UFI).

Port Orford has been able to support an array of research, education, and engagement activities in 2021. We welcomed a team of PISCO researchers from the Bruce Menge/Jane Lubchenco lab. We bid farewell to two PISCO members, Jonathan Robinson and Brittany Poirsson, and welcomed John Dickerson to the team. Now preparing for 2023 evaluation, marine reserve monitoring and research is led by the ODFW Marine Reserve Program. In a return to our roots, a project led by Sarah Henkel, Scott Heppell, Taylor Chapple, and Tom Calvanese, with student Lauren Borland used acoustic telemetry to study fish movement behavior at Redfish Rocks. Collaboration continued with the Redfish Rocks Community Team to support ocean acidification monitoring led by Francis Chan.

Over the summer, Noah Dolinajec worked with Rachel Orben to study tufted puffins on the Oregon Islands National Wildlife Refuge on the southern coast. In fall 2021, a team of students from the OSU College of Forestry, led by Jim Rivers, carried out an extensive survey along the Coquille River of snags (standing dead trees), which serve as a critical wildlife habitat. Port Orford hosted Taylor Chapple's shark students during their field trip, which included two salmon shark dissections.



Left: Aerial photo of the Port Orford Field Station. Right: Taylor Chapple's shark students on a field trip at the Field Station during a salmon shark dissection.

Port Orford Field Station Donated to Oregon State University

OSU has accepted a generous donation from the Port Orford Ocean Resource Team (POORT) of the field station property at 444 Jackson Street in Port Orford. This transition reinforces OSU's commitment to the mission of the Port Orford Field Station to support student learning, scientific research, community priorities, and economic opportunities in Port Orford and along the southern Oregon coast. Our sincere gratitude to POORT and the entire ocean-aware community of Port Orford.

Hatfield Marine Science Center

Visitor Center: The Hatfield Marine Science Visitor Center is open to the public. Reservations need to be made for all visits and face coverings are required. Make a reservation and learn more at (beav.es/3dJ). Days/Hours: Thursday - Monday, 10 AM - 4 PM; closed Tuesday - Wednesday.

Research Seminars: HMSC Research Seminar Series will be happening throughout the winter 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.

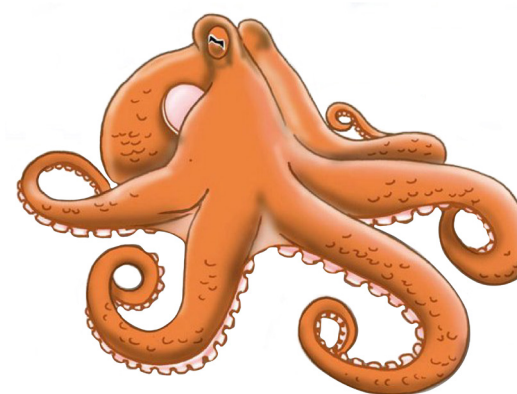


HMSC Science on Tap European Green Crabs: Are They Here to Stay? January 19th, 2022

Join Dr. Sylvia Yamada from the Dept. of Integrative Biology for the first HMSC Science on Tap of 2022 to learn about European Green Crabs. European green crabs are global invasive species that prey on native species, including shellfish and smaller crabs. Furthermore, they can tear up valuable eelgrass meadows and deprive native species of food and shelter. Green crabs arrived in Oregon estuaries during the 1990's but remained rare until the 2015-2016 El Niño. Now they are abundant enough to be observed by divers and caught in sports traps.

Where did green crab come from? How can you tell them apart from native crabs? What is their life cycle? How are they spreading? Can you eat them? Should we be concerned? Come learn the answers to these questions and see if there is anything we can do to reduce their numbers. Visit (beav.es/UtM) for more event details and Zoom information.

Marine Science Day



SAVE THE DATE!

Marine Science Day:
Saturday, April 9th 2022

Visit (hmsc.oregonstate.edu) for more details closer to the event.

Follow us on social media!



marinestudies.oregonstate.edu



@msi_oregonstate



[Marine Studies Initiative](https://www.facebook.com/MarineStudiesInitiative)



@osumarinestudies

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