

NEWSLETTER

FALL 2019, ISSUE 4



Jack Barth and Sarah Henkel take their summer students (OC332 and BI353) on an estuary cruise.

From the Executive Director's Desk

I'm pleased to share this newsletter containing recent updates and upcoming plans. We're making terrific progress on our Marine Studies Initiative goals. These include rapid progress on the new Marine Studies Building in Newport, including a nearly finished exterior and great progress on the 2nd and 3rd-floor laboratories and offices. The new College of Liberal Arts Marine Studies undergraduate degree – designated "MAST" with the intended symbolism of a sailing vessel's mast – is making progress through OSU's curriculum proposal system.

Summer 2019 featured another stimulating set of experiential marine classes offered at the Hatfield Marine Science Center. I dove in myself, teaching the interdisciplinary "Coastal Oceanography, OC332" course. The coastal setting allowed us to visit and understand beach formation processes, the rhythmic effect of tides on an estuary, the rich intertidal communities along the Oregon coast, and an exciting day-long research cruise on Yaquina Bay. Our academic offerings at the coast continue with courses for Fall 2019 and planning for even more in 2020.

We're also pleased with the success of the MSI-sponsored summer interns in Newport, Bandon, Port Orford, and Portland. Their projects displayed the broad vision of MSI, with studies on communication and policy, an improved engineering approach to mudflat coring, scientific filmmaking, whale ecology, coastal tourism, the connection of art and science, and seafood marketing.

MSI is also proud to be partnering with colleges and departments across OSU to hire new faculty who will make use of the great new facility at HMSC. Stay tuned for more about that soon!



*Jack Barth,
Marine Studies Initiative
Executive Director*

MSI Intern & Research Experience for Undergrads Projects



Left: Shoshana McClarence smiling in front of their artwork. Right: Andrew Chin looking into a microscope.

Highlights from Summer Internships

The summer season is filled with internship opportunities at the coast. This past summer, Hatfield welcomed over 60 summer interns in total. These include the National Science Foundation supported 'Research Experiences for Undergraduates, REU' program, Oregon Sea Grant Summer Scholars,

NOAA scholarships, and others in partnership with public agencies at the coast. Since 2018, the MSI has added new, interdisciplinary internship opportunities. Here are highlights from some of the summer interns who were based at Hatfield Marine Science Center. We thank all faculty mentors for their commitment to guiding students through their research and work experiences.

Shoshana McClarence (MSI - Art) recently completed their Master's in the College of Liberal Arts' Environmental Arts and Humanities program. As an abstract painter interested in exploring religious studies, Sho created a watercolor book illustrating mystical experiences which researchers have experienced at Hatfield. Shoshana's advice for future interns is, "Be really open and be willing to



Marine Studies Student Awards

Thanks to generous donors, the Marine Studies Initiative is pleased to announce new Student Awards. These awards recognize and reward OSU undergraduate students who demonstrate outstanding scholarship and pursuits consistent with the transdisciplinary, collaborative, experiential learning and outreach vision and mission of MSI. Recipients will be using their award funds for travel, obtaining

computer software, applications, and publications associated with research interests.

2019 MSI Oregon State Student Award recipient are:

Kayl Cota - Fisheries and Wildlife Sciences

Lily Jackels - Biology

Nikolay Galtsev - Environmental Sciences with a concentration in Policy and Economics

Haley Kent - Environmental Sciences, Aquatic Biology option, Chemistry minor

Tom McCambridge - Biology, Marine Biology option

do anything that comes your way because there is so much to do here.” Shoshana is now pursuing their Ph.D. in religious studies at Denver University in Colorado. (Faculty mentors: Itchung Cheung and Kerry Skarbakka)

Bailey Burk (MSI – Education, Policy, and Outreach) is an OSU undergraduate student studying microbiology, chemistry, and environmental sciences. During her internship, she worked with Oregon Department of Fish and Wildlife to

create outreach materials about the red rock crab, which are often incorrectly identified as invasive, when in fact, they are native to Oregon. When asked how she liked her internship, Bailey said, “It’s been a really positive experience. My mentors were awesome and always made time for me and I’ve appreciated that.” (Mentor: Liz Perotti, Oregon Dept. of Fish and Wildlife)

Andrew Chin (REU) is from the University of Washington. During

his internship, he learned about plankton ecology by studying Dungeness crab larval distributions. His advice for future REU students: “be flexible. Coming into this project, I thought I was going to work with larval flatfish, but I ended up doing something else, with crabs. I still had a lot of fun with it and learned a lot. It’s really important to be flexible and make time for things besides science, like going to the beach or surfing, or just exploring the town.” (Faculty mentors: Su Sponaugle and Bob Cowen)



Bailey Burk smiling at a crab.

Sarah Schmidt (REU) is from Carthage College in Kenosha, Wisconsin. She studied bacteriophages to treat diseases in oyster larvae, which could eventually be more effective than antibiotics in treating disease and benefiting the aquaculture industry. When asked how she liked being on the west coast for this first time, Sarah said, “I love Oregon! It’s very different, but there are so many opportunities to explore from mountains and oceans and forests and dry grasslands. So it’s very unique.” (Faculty mentors: Chris Langdon and David Madison)



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!

What is Ocean11 Marine Club?

Ocean11 is a trans-disciplinary marine club that provides opportunities for OSU students to grow academically, professionally, socially, and experientially with the ocean and coasts. **ALL MAJORS ARE WELCOME.**

“My favorite thing about Ocean11 is how many kind, driven, and

passionate people it attracts, which allows our club to make real change in our community.”
-Ocean11 Club Member

For information about how to get involved, contact Cynthia Leonard at: Cynthia.leonard@oregonstate.edu For more information about Ocean11 visit: beav.es/ocean11

Saskia Madlener

Science Documentary Producer, Oregon State Productions

Growing up on Long Island, NY, the ocean was a place of reflection and adventure, but also of inquiry—how vast are these waters, how do waves form, why does the beach wash away one year only to come back the next?

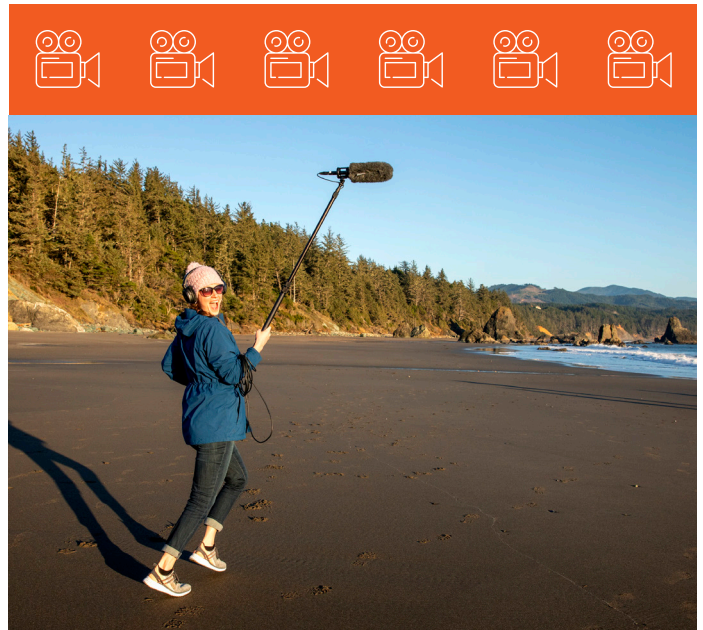
Science was not my forte, particularly physics, where I resisted assigning numbers to natural phenomena. But I persevered in undergrad and took courses in meteorology and ocean science. There must be a way to describe heat transfer in ways that I could grasp, or to characterize motion without shoving fluxes into boxes. I then read Rachel Carson's *"The Sea Around Us"* and watched NOVA. A light bulb went off—this is how I want to make science accessible to everyone.

I still craved the fundamentals, so I completed an MSc. in Marine Resource Management at OSU and took several courses in physical oceanography. I was more adept at physics this time around and was driven to delve deeper.

I have since devoted my career to humanizing science to connect with viewers on a more emotional level. Especially in a culture that consistently discredits science, it's crucial to enhance scientific literacy,

and visual storytelling just happens to be my medium of choice.

The MSI perfectly embodies what I hope to achieve: to marry the arts and the sciences so that everyone can develop a deep understanding of and appreciation for the natural world. I currently work at Oregon State Productions, and we have partnered with the MSI to create content that reflects its mission. Keep a lookout for videos about marbled murrelets or coastal resilience, among many others to come!



Saskia Madlener operating a boom mic.



The Marine Studies Initiative and Oregon State Productions announce their latest collaboration, *On the Wing*. This short video combines essay "On the Wing Marbled Murrelets" by OSU English major Rachael Vega with stunning imagery of OSU researchers tracking the nests and foraging habits of elusive Marbled Murrelets.

Watch the
video here:
beav.es/ZXW



Research Highlights



Forage Fish Workshop participants, Newport OR.

Eder Family Fund for Dungeness Crab Research

Oregon Dungeness crab is an extraordinary commercial and recreational resource, with a catch of ~17 million pounds per year and a value of \$33-74 million. Because of this high economic and societal value, scientists and resource managers are interested in better understanding this species' distribution and movement. One key question is about Dungeness movement patterns in relation to their prey and how habitat types affect crab movement. For example- are crabs more mobile in sandy areas because of relatively low prey abundance and less mobile in areas with structure such as natural or artificial reefs, where prey might be more abundant?

In fall 2018, Dr. Henkel and collaborator, Dr. Roegner from NOAA fisheries, with the generous support from the Eder Family Fund for Dungeness Crab Research, deployed VEMCO acoustic receivers and tagged crabs around a reef in the Cape Falcon Marine Reserve and at the North Head site - a sandy area just north of the mouth

of the Columbia River. This acoustic tagging allows the researchers to track crab movements. They found that crabs in the reef area of Cape Falcon spent considerably more time in this rocky habitat compared with the crabs that had been released into the sandy, open area of North Head. Specifically, the ten male crabs released at the sandy North Head site left the main detection area within a week, whereas the ten male crabs released in the Cape Falcon Marine Reserve array remained in the main detection area for much longer, up to as long as 3 months.

The acoustic receivers also captured information about sturgeon and great white sharks moving between these areas. Henkel's team detected these species tagged by other scientists: 35 green sturgeon and 7 great white sharks moved through the Cape Falcon Marine Reserve; two of those sharks and 25 of the sturgeon were also detected at the North Head/Columbia River site.

In addition to the science, Henkel's team also contributed to marine reserves enforcement. While they were looking for the moorings at Cape Falcon in April 2019, they found a small surface

float linked to 19 long-lined crab pots inside the marine reserve. They recovered the crab pots and turned them over to Oregon State Police. The poacher has since been apprehended!

Information provided by Sarah Henkel, Eder Family Fund for Dungeness Crab Research Award Recipient

Forage Fish Workshop

MSI was proud to co-sponsor with OSU's College of Forestry a "Forage Fish Workshop: Connecting the Land and Sea." A transdisciplinary group met on October 10, 2019, to discuss better ways to connect our understanding of very nearshore ocean habitat, particularly forage fish communities, to the success of predators, especially seabirds and the coastal-dwelling Marbled Murrelet.

More info: marinestudies.oregon-state.edu/forage-fish-workshop

Fishermen Safety at Sea

MSI continues to amplify OSU efforts in marine research and to make new connections among existing programs. Laurel Kincl, from OSU's College of Public Health and Human Science, continues her projects on fishermen safety at sea with MSI support, including a new undergraduate student intern, Renee Doran, and a newly funded project from the National Institute for Occupational Safety and Health.

Written by Jack Barth, MSI Executive Director



Left: Oregon Sea Grant marine educators at Hatfield hosted home-schoolers from around Oregon for a day of hands-on science. Right: Oregon House Majority Leader Rep. Barbara Smith Warner, State Rep. David Gomberg, and HMSC Director Bob Cowen on top of the new Marine Studies building.

Hatfield News

National Marine Lab leaders

meet at Hatfield: In early October, the National Association of Marine Laboratories (NAML) met at Hatfield for their 2019 biennial meeting. The association aims to stimulate research and promote education in marine sciences. This meeting was an opportunity for representatives from marine laboratories across the country to learn about Hatfield, share opportunities for growing programs at marine field centers nationwide, and plan upcoming activities. Bob Cowen, Hatfield Director and NAML President, hosted and moderated the meeting. During this meeting, OSU speakers shared highlights relevant to all labs.

- Rick Spinrad, President of the Marine Technology Society and formerly Chief Scientist for NOAA and Vice President for Research at OSU discussed 'The push and pull of marine technology'.
- Kristen Milligan (MSI) spoke about expanding academic pro-

grams at the coast.

- Jack Barth (MSI and CEOAS) highlighted the developing ocean observing and marine ecosystem challenges in the Pacific Northwest.
- Shawn Rowe (College of Education) shared his experience of 15 years of research on helping the public make sense of ocean sciences.
- Erica Fischer (Engineering) presented about community resilience research and planning for the Cascadia Zone.
- OSU Hatfield's Itchung Cheung shared about accomplishments from partnerships in marine education, emphasizing the positive power of multiple agencies collectively contributing to education at Hatfield.
- Martin Storksdieck, Director of the Center for Research on Life-long STEM Learning, engaged the group in thinking about the concept of learning ecosystems and the role of marine labs for public understanding of science.

The NAML members also had an opportunity to tour seawater facilities and the new Marine Studies building. The MSI was excited to be part of this important event. For more information about NAML, see www.naml.org

Building News: Oregon House Majority Leader Representative Barbara Smith Warner and Representative David Gomberg spent a November afternoon with Hatfield Director Bob Cowen understanding the role the campus has on the Oregon Coast and the significance of Hatfield's collective decades-long research work for addressing climate questions.

The new Marine Studies Building was of particular interest to both leaders as they embark upon work sessions to answer pressing questions about community resilience in the face of natural hazards.

To view building progress in real time visit beav.es/ZRV

Summer 2019 in Port Orford

This summer, the Port Orford Field Station demonstrated the breadth of the Marine Studies Initiative mission in research, education, and engagement activities on the southern Oregon Coast. Researchers and students studied near-shore ecology in collaboration with local fishermen and volunteers. Eight students enrolled in an intensive field course offered in partnership with OSU Cascades, and we reached out to hundreds of community members and visitors through events like Redfish Rocks on the Dock. This 6th annual event attracted more than 200 local residents and visitors who came to learn about the Redfish Rocks Marine Reserve, commercial fisheries, marine research, and outdoor recreation. This annual event is organized by the Redfish Rocks Community Team and hosted by the Port Orford Field Station. Many exciting marine science-focused, free-choice learning activities took place, including Oregon Marine Mammal Stranding Coordinator Jim Rice performing a harbor porpoise necropsy, Stacia Ryder of the Curry Watersheds Partnership engaging young attendees in hands-on activities with a scale model of a local watershed, Oregon Sea Farms offering samples from their dulse mariculture operation - dulse is an edible red seaweed developed by Dr. Chris Langdon at OSU -- and Dr. Jenn Head answering questions about a variety of marine invertebrates



MSI Summer Whale Ecology Intern, Mia Arvizu, Summer 2019

on display in the station's touch tanks.

Gray Whale Research: This summer, we hosted the 5th year of research on the feeding behavior of gray whales, led by Dr. Leigh Torres of the Marine Mammal Institute's GEMM Lab. This research aims to dive into the behavior of the group of gray whales that frequent the waters around Port Orford each summer, instead of migrating to Alaska. This year, the team was again led by OSU Fisheries and Wildlife graduate student Lisa Hildebrand. Lisa was joined by MSI intern Mia Arvizu and Astoria

High School student interns Donovan Burns and Anthony Howe. The team presented their work to the Port Orford community at the always popular seminar at the end of the season. This year, the community learned that the young male gray whale named "Buttons" (due to its tail markings) had frequented the waters around Port Orford every year since the study began, making him a Port Orford summer resident. The team also began to analyze image data from drop cameras to explore changes in kelp and purple urchin abundance.

**UPCOMING
EVENT:**
Heceta Bank
OSU Cascades
Science Pub

March 17th, 2020, at 6:30 pm.
Screening of "Heceta Bank: Oregon's Hidden Wonder" followed by Q&A panel and trivia. Doors open at 5:30 pm, and screening begins at 6:30 pm. Father Luke's Room at the McMenamins Old St. Francis School (700 NW Bond Street, Bend OR.) *Free



Academic Program News

After a summer packed with classes and internships at the Oregon coast, planning is now underway for the future. This fall, we welcomed new students to the coast through courses taught at Hatfield Marine Science Center, such as the Education course “Communicating Ocean Science to Informal Audiences, SED 435/535” taught by Shawn Rowe and Fisheries and Wildlife courses “Coastal Ecology and Resource Management, FW 426/526” taught by Scarlett Arbuckle and “Methods of Physiology and Behavior of Marine Megafauna, FW 469/569” led by Renee Albertson.

Mid-September, before Fall term classes begin, is a popular time for learning intensive short courses. College of Earth, Ocean, and Atmospheric Sciences faculty Lorenzo Ciannelli led the GEO 508 course “Field Camp in Risk and Uncertainty Quantification in Marine Science and Policy” at Hatfield from September 16-20. This course is part of a traineeship supported by National Science Foundation, where students learn to work in transdisciplinary groups on societal problems using large and ever-expanding data resources. More info: beav.es/ZRh

Students from OSU Cascades experienced the coast this past summer through a new course, “Coastal ecosystems and fish health”, led by Cascades-Biology instructor Ann Peterson with support from Port Orford Field Station’s Tom Calvanese. The

Redfish Rocks Marine Reserve, Port Orford dock and commercial areas provided locales for students to learn field methods and delve into resource management and community issues. For example, students practiced hook and line fishing methods aboard the *F/V Misty* with Captain Aaron Ashdown. Three of the student’s independent projects were presented at the POFS Summer Science Symposium.

Our office is developing new support tools for faculty and degree programs to “put the ocean” into the curriculum. Look out for updated brochures and other materials, both digital and print, to highlight educational opportunities at the coast. A series of faculty field trips has launched, with one-day tours to explore the Hatfield Marine Science Center and experiential education opportunities and resources.

Attention faculty: Are you interested in having someone come speak to your class about ways students can access the coast—such as through student activities, courses, and internship opportunities? Would you like information to share with your class via Canvas? Are you interested in developing a course based at the coast? Please contact us at marinestudies@oregonstate.edu to talk about options.

Written by Kristen Milligan, MSI Associate Director

FOLLOW US ON SOCIAL MEDIA!



marinestudies.oregonstate.edu



[@osumarinestudies](https://www.instagram.com/osumarinestudies)



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



[@msi_oregonstate](https://twitter.com/msi_oregonstate)