Biology

Better Together:
Colonial Marine Animals Reveal Secrets of Collective Propulsion

Kelly Sutherland, Kevin Du Clos, and Alejandro Damian-Serrano

The largest migration on the planet happens every night in the open ocean. At twilight, oceanic plankton swim from the depths, traveling hundreds of meters to the surface to feed. Sunlight only penetrates the surface skin of the ocean, so most of the photosynthesis, and therefore available food, occurs in these upper layers. Plankton are vulnerable to predation so they wait until night to travel to the surface and feed under the cover of darkness, avoiding visual predators like fish.

Understanding how plankton achieve these impressive migrations is one of the motivations for our SCUBA-diving based project off the Kona coast of Hawaii (the big island). The advantage of using a volcanic island as your base of operations is that the water gets deep very fast. Departing from the marina and motoring three miles off shore, we are floating over 6,000 feet of water. Fortunately, we don't have to dive to those depths. Instead, we wait for sunset and for the plankton to migrate upwards towards the surface.

Among the incredible diversity of planktonic organisms, our focus is on colonial organisms called salps, or pelagic tunicates. Salps are widespread marine invertebrates that occur in meter-long chains and employ multiple pulsed swimming jets, each produced by an individual called a zooid. Being colonial means that zooids are genetically identical and each zooid is fully physiologically functional. Zooids are neurologically integrated and attached into a chain. Our goal is to understand how diverse zooid arrangements in these colonies relate to swimming performance. In other words, what is the 'design space' that colonial swimmers inhabit? Salps are fragile and watery; they fall apart if they are handled too roughly and historical measurements from the laboratory severely underestimate their swimming and feeding abilities. They also move in three dimensions. To overcome these challenges, we are using a custom-built, SCUBA diver-operated stereo camera to record their swimming and coordination underwater.

An underwater stero camera, custom built by the Sexton Co. in Salem, OR. is providing new insights into salp swimming performance in the open ocean. Sutherland deployed the system off the Kona coast in September 2021. (Image: Victoria Scriven)

The stereo system helps us get at realistic swimming movements, but to understand the underlying morphology of the individual zooids and how they fit together in a chain, we need detailed reconstructions. The problem is that when the colonies are handled too much—remember, they are accustomed to the open ocean where they never contact edges or hard surfaces—they break apart. To take lab measurements, we hand-collect individual salp chains in jars during our SCUBA dives. Back at our Airbnb lab, we gently transfer the colonies to a custom-built tank filled with collected seawater.

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Night diving in 6000 feet of water off the Kona Coast (Image: K. Du Clos)

UNIVERSITY OF OREGON

Better Together

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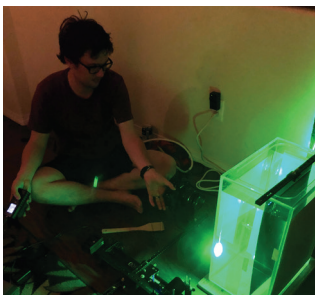
We are interested in salp swimming but to get good reconstructions of their morphology, we have to wait (and wait) for them to stop swimming. A laser sheet mounted on a motorized slider is scanned through the colonies. The reconstructed slices will give us a detailed view of the zooid morphology and the architecture of the chains.



Back at the Airbnb lab, postdoc Kevin Du Clos scans salps in a custom-built tank using a laser sheet mounted on a motorized slider. The reconstructed slices will allow us to visualize the three-dimensional architecture of the colonies. (Image: K. Sutherland)

Beyond the morphology of individual zooids, and the architecture of the chains, the jet wakes of swimming organisms give us insight into swimming performance. For example, straight wakes that roll up into a tidy vortex ring are associated with higher swimming efficiency than messy, turbulent wakes. In salps, a consequence of having multiple swimming units is that the individual jet wakes could interact. Jet wake interactions might enhance or diminish swimming performance but no one has successfully studied these interactions. Using

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Greetings from the Department Head

Bruce Bowerman, Corbett Falls, Columbia Gorge, OR.

Welcome to our 2021 Department of Biology newsletter! While uncertainty remains, I am optimistic that we can maintain our step-wise return to normalcy for our Biology undergraduate majors and graduate students. The past two years have been immensely challenging. All of us had made many adjustments over time to keep things working as well as possible.

Remarkably, in spite of these challenges, we have continued to move forward. Indeed, our newest faculty member, Dr. Melanie Spero, joined us this past summer as an Assistant Professor of Biology and a member of our Institute of Molecular Biology. Dr. Spero will continue to pursue her exciting research on the role of the human microbiome in human health, as described in more detail within the profile below. We also include stories about the many different research activities that our students and faculty have maintained during the pandemic, following safety guidelines. While completely avoiding COVID, they have continued to make remarkable progress in our research and education missions. We hope you enjoy the updates, and that we all soon emerge from this disruptive pandemic with our health good and our interactions more in person!

Bruce Bowerman
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Welcome New Faculty

Melanie Spero Institute of Molecular Biology

I grew up in a small town in Connecticut where I discovered my enthusiasm for science while touring the University of Connecticut as part of a high school science program. I met scientists who had cloned a frog gene into plants to protect the plants from fungal diseases. I was completely captivated with the idea of swapping genes from one organism to another, and decided to major in Biotechnology at Rutgers University, where I also spent a great deal of time on the Raritan River as a member of the rowing team.

Over time, my interests shifted towards microbiology as I came to appreciate the incredible diversity of the microbial world. I went on to earn my PhD in microbiology from the University of Wisconsin-Madison, where I cemented my love of bacterial physiology and dark beer. As a postdoc at Caltech, I continued to study anaerobic bacterial physiology, this time in the context of human disease.

I am thrilled to be joining the University of Oregon. Eugene is a beautiful place to live and raise a family, and after years in Southern California, I am excited to see some lush greenery. I am also grateful to join an exceptional and collaborative community of colleagues.

My research program will focus on bacterial physiology in the context of chronic infections. Chronic infections can last on timescales from weeks to decades. As a microbiologist, I'm drawn to this very straightforward question: *What are bacteria doing in there*?! What processes do bacteria rely on to survive long-term in host environments? How do their activities affect human health? My hope is that focusing on these questions will help us learn more about the incredibly adaptive lifestyles of bacteria and help develop novel therapeutic approaches for combatting chronic infections.

Undergraduate Spotlight

Samuel Craig

My scientific interest and lab career began as a passion and goal: to share in the work of all those dedicated to finding a cure for cancer.

In high school, I pursued this by applying myself to volunteer for student worker positions at Oregon Health and Sciences University. During the summers of 2017 and 2018, I carried out an internship in the Division of Surgical Oncology at OHSU as part of the Pommier lab. My project aimed at developing a more affordable test of estrogen receptor positive and negative breast cancer cells to provide proper medical treatment in developing countries.

Over the summer of 2019, I continued working at OHSU, now within the Guimaraes lab as part of the Department of Diagnostic Radiology. There, I imaged the development of pancreatic cancer in a mouse model, looking for a manner by which it might be both detected and treated with greater efficiency.

By applying these experiences, I hope to one day be a Surgical Oncologist. For this, I plan to earn a medical degree. Currently, I'm working to achieve my Bachelor of Science, majoring in Biology and minoring in Chemistry.

Since October 2019, I've worked in the Grimes lab in the institute of Molecular Biology. In the lab, I've characterized a novel zebrafish mutant that I found to have defective cilia motility, leading to a ciliopathy-like condition. This has sparked my interest in developmental biology and regeneration, topics which closely intersect with cancer research.

Over the last summer I was thrilled to be accepted into the Summer Program for Undergraduate Researchers. I presented my results at SACNAS and ABRCMS (where I won an oral presentation award), and at the retreat for the Institute of Molecular Biology (where I won a poster presentation award). As part of the 2021 Knight Campus Undergraduate Scholars cohort, I am now immersed in a larger, longer term and more complex research project aimed at determining how embryos sense and correct shape deformations. This is an exciting and relatively unknown aspect of developmental morphogenesis.

I look forward to continuing my career in research and hope that through my studies and work I can have a positive impact in the world, making it a happier, healthier place.

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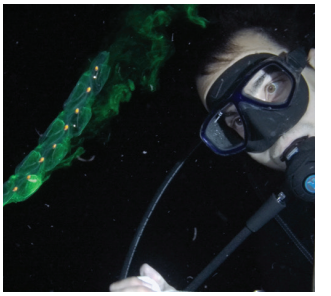
fluorescein dye dispensed with a micropipette underwater we can visualize how the water moves in and around the zooids as they swim. By investigating the wakes across multiple species of salps we aim to understand the relative roles of hydrodynamics and body dynamics in setting optimal swimming patterns.



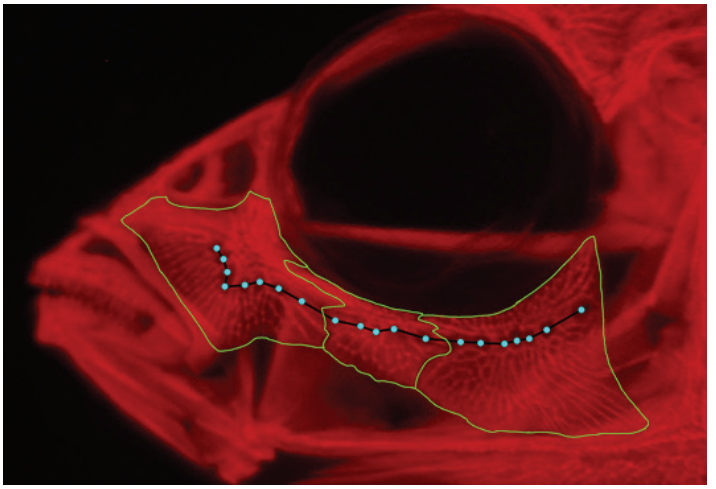
Postdoc Alejandro Damian-Serrano dispenses fluorescein dye around a swimming salp chain to render a 3D view of jet wake structures. (single frame shown; Image: K. Sutherland)

Coloniality is a hard concept to wrap our heads around, but it is quite common in the pelagic realm due to its potential hydrodynamic advantages; salps are a striking example. Daily vertical migrations of some species of salps are akin to a human running a marathon each day. A deep, interdisciplinary investigation that begins with bringing advanced imaging systems under the ocean is allowing us to open a new understanding of coordinated, modular swimming.

We gratefully acknowledge funding support from the Gordon and Betty Moore Foundation.

On Being A New Postdoc in the Bill Cresko Lab

by Chuck Kimmel



Three infraorbital bones and their pit line. Bones in Alizarin Red-stained stickleback. Image by Mark Currey

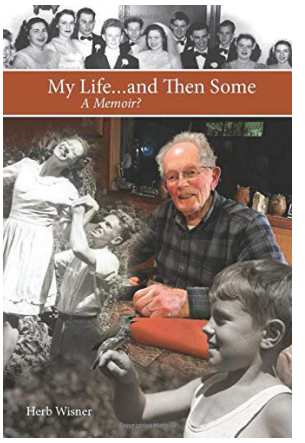
Although I still want to keep a toe in the Institute of Neuroscience (ION), I'm delighted to announce that Biology Professor Bill Cresko in the Institute of Ecology and Evolution (IEE) here at UO has graciously accepted greenhorn (Bill's term) me to join his lab as a postdoctoral fellow. Postdocs are typically young scientists just out of graduate school. However, I am an 81-year-old Emeritus Professor, working in the Department of Biology for over 50 years. Most of that time I've been a member of the ION, studying neurodevelopment in zebrafish, a species that my ION colleagues and I have promoted as a model organism for biomedical research, and that is now used in hundreds of science labs. Bill is a mere baby in comparison: He's been in the Department of Biology for less than half the time I have. Still, he enjoys worldwide recognition for his work on evolutionary genomics and evolution of development. Now that I'm in Bill's lab, the fish species of the moment is not the zebrafish, but the threespine stickleback, with which Bill has worked since his days as a graduate student.

Bill's lab in the IEE provides a cordial and interactive environment. My chief mentors in the lab are Senior Research Assistant Mark Currey, graduate student Hope Healy, and postdocs Susie Bassham and Clay Small. Some years back, Susie and Mark discovered what is likely a remarkable interaction between cranial bones and a sensory neuronal system termed the cranial lateral line, which detects movement of the water as the fish swims through it. In every other fish species I know of, the sensory organs of this system, neuromasts, are predominantly buried deep within hollowed-out "canal" skull bones. But, seemingly uniquely, in threespine sticklebacks we see sensory lines across head bones where the neuromasts are more exposed, resting within bony open 'pits' as Susie and Mark call them. We have hypothesized that this evolutionary partial resurrection from the grave-like canal could be due to a truncation of the developmental process that makes the canals in other species, including stickleback ancestors. How this canal-to-pit transition has changed the water velocity and acceleration detection properties of the sensory system is an open question that my ION colleagues could undoubtedly help us with. Our immediate interest is in the biological variation of the pit line-cranial bone complex. Variation is an important subject in biology: Since Darwin, we have understood that variation is the stuff that underlies evolution ('survival of the fittest'). Furthermore, variation manifested in human disease complicates both diagnosis and treatment, as is well illustrated by the current pandemic.

Mark and I are exploring variation in the shapes of the pit line and bones in a McKenzie River stickleback population. We're steering this work toward comparative genomics, hoping to use this method to identify regulatory genes that underlie the morphology and function of the system. Deeper anatomical understanding the pit-neuromast structural relationship and its variation involves Hope, Susie, and the Xradia, an X-ray microscope available on the now open Knight Campus for the Acceleration of Scientific Impact. Many things have changed here over the past 40 years, and they continue to change, but we adapt and adjust, and keep constant our rich and collaborative research efforts that seek to understand how our genomes have evolved, and how they orchestrate the developmental processes that make our lives possible.

My Life...and Then Some – A Memoir?

by Herb Wisner



The book I have most enjoyed reading this year is Herb Wisner's autobiography, published this summer. One of our most admired and respected mentors, Herb has been a member of the Eugene Natural History Society (ENHS) since arriving in Eugene in 1966. He began the ENHS newsletter in 1967, which morphed into Nature Trails in 1975. All members and friends will simply love this book. It is available only from Amazon, where an excellent review is found. All that is missing from the review is the passing of Ruth Wisner just before the publication. We miss her and hope Herb will be with us for a long time.

David Wagner

Featured Awards

Alice Barkan NAS
Alice Barkan was elected to the National Academy of Science. She is a member of the Institute of Molecular Biology. Her research focuses on genes that are required for photosynthesis—the process carried out by plants that produce the food we eat and the oxygen we breathe. Her work uncovered new mechanisms of gene regulation that are now being exploited for practical purposes, such as the production of biofuels and plant-based pharmaceuticals. "*I was deeply honored by the news. And enormously grateful to the members of my lab and to colleagues in the Institute of Molecular Biology for fostering a collegial and stimulating research environment that encourages pushing boundaries in creative ways.*"

Stilianos Louca Sloan Award
Research by UO biologist Stilianos Louca on microbial life has been boosted by a 2021 Sloan Research Fellowship worth $75,000. The award honors extraordinary researchers who stand out as the next generation of scientific leaders. "*I feel honored to have received this prestigious award and to be joining an amazing community of previous Sloan fellows,*" Louca said. "*This recognition encourages me to keep pursuing tough and bold scientific questions.*"

Lauren Hallett NSF Career Award
Lauren Hallett received a five-year NSF CAREER grant to examine the processes that maintain plant biodiversity and predict how biodiversity will respond to global change. The grant will also support her work to integrate data science across the undergraduate curriculum and train graduate students in collaborative science. "*I am honored to receive this award and excited to pursue the proposed creative and student-driven research.*"

Karen Guillemin AAAS
Guillemin is a member of the Institute of Molecular Biology and director of the Microbial Ecology and Theory of Animals (META) Center for Host-Microbe Systems Biology. Her group studies how animals co-exist with their resident microbial communities, and how this co-existence can go awry in different disease states. Election as a Fellow of the American Association for the Advancement of Science is a great honor that reflects the collective accomplishments of lab members over the years.

In the News

Diana Libuda, Institute of Molecular Biology, was awarded the Faculty Research Mentor Award for her individualized mentorship of undergraduates and graduates.

Diana Libuda and **Nicola Barber** were honored with the UO Remote Teaching Award. This award recognized faculty who transformed traditional face-to-face teaching into a remote teaching environment that maintained a professional, inclusive, engaged, and research-informed teaching.

Daniel Grimes, Institute of Molecular Biology, was a recipient of the 2021 Faculty Excellence in Universal Design award. Universal Design in Learning (UDL) strives to ensure equity and access for all learners.

Kelly Sutherland of the Oregon Institute of Marine Biology and **Cris Niell** of the Institute of Neuroscience were awarded the UO 2021 Faculty Excellence Award recognizing their excellence in creative accomplishment, education, research, and scholarships. **Sutherland** was also awarded the Alec and Kay Keith Professorship. This award will provide Sutherland a substantial salary stipend and annual research fund for three years with the possibility to renew for another six years.

David Garcia and **Daniel Grimes**, both members of the Institute of Molecular Biology, received NIH Maximizing Investigators' Research Awards (MIRA). These awards, worth nearly $1.9 million each, will fund their research for five years with the possibility to renew. **Garcia** and **Grimes** also received awards from the Donald E. and Delia B. Baxter Foundation. The Baxter Foundation supports new investigators at the Assistant Professor level as they begin their careers.

Brendan Bohannan of the Institute of Ecology and Evolution was selected for the Humbolt Research award in recognition of his distinguished academic career. Award winners are invited to carry out research projects of their own choice in cooperation with specialist colleagues in Germany. **Bohannan** was also named a 2021 fellow by the Ecological Society of America recognizing his fundamental contributions to the unification of microbiology and ecology.

Jeff Diez, a member of the Institute of Ecology and Evolution, received the 2021 George Mercer Award from the Ecological Society of America recognizing the research paper, "Disentangling the abundance impact relationship for invasive species".

Lauren Hallett of the Institute of Ecology and Evolution received the University of Oregon Sustainability Award for her innovative and applied ecological research and sustainable agroecology projects. Hallett's projects include work on the Willamette Valley's hazelnut farms, and a collaboration with Eastern Oregon ranchers to develop more sustainable grazing plans.

Shawn Lockery, a member of the Institute of Neuroscience, was elected to the National Academy of Inventors. The NAI is known for recognizing and encouraging remarkable innovation producing technologies that aspire to bring real impact on the welfare of society.

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In the News

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David Wagner was named a Fellow of the Native Plant Society of Oregon in 2019. Fellows may be elected once a year for their service to the society. His election recognizes 45 years as member and officer of the society and his contributions to the conservation and study of Oregon's flora.

Faculty were awarded a large number of impressive grants to fund their research, including **Bill Cresko**, **Jeff Diez**, **Lauren Hallett**, **Santiago Jaramillo**, **David McCormick**, **Cris Niell**, **Lauren Ponisio**, **John Postlethwait**, **Peter Ralph**, and **Monte Westerfield**.

Graduate Program Manager **Jen Strong** received the Lokey Graduate Science Award for the Department of Biology. This $8000 award was used to defray relocation costs for this year's in-coming, low-income graduate students.

The 2020-2021 biology Teaching awards went to Faculty: **Kelly Sutherland**, Graduate Employee: **Max Spencer**, Teaching Assistants: **Dimitra Fellman** and **Rima Pandit**. Congratulations to this remarkable group for their commitment and distinction in teaching!

Peter Wetherwax, known for his inclusive, engaged, and research-led approach to teaching, received the 2021 Career Teaching Award recognizing his many years of service and exceptional teaching.

Seeing the Wine for its Microbes in Oregon Vineyards

By Kaye Shek and Krista McGuire

Undergraduate researchers Alana Birkeland and CJ Paulino assisting Kaye Shek collecting samples from Iris Vineyards in early Spring 2018.

Image of a typical soil core collected from the rhizosphere of grapevines in 76 Oregon vineyards by the McGuire research group across four seasons of 2018.

The McGuire lab group collecting soil cores from King Estate vineyards in Winter 2018.

When you sip your next glass of Oregon Pinot Noir, you may want to consider the incredible diversity of the microbes that made it from soil, to vine, to barrel. Kaye Shek, a fifth year Ph.D. student in the Institute of Ecology and Evolution is studying just that. In collaboration with Max Spencer, a fourth year Ph.D. student, their P.I. Krista McGuire, and faculty from Linfield University, the team is using vineyards in Oregon as a model system to evaluate the factors structuring agricultural soil microbiomes.

With a network of 76 vineyard sites spanning all of the major grape growing regions in Oregon, they generated a massive dataset comprising over 4,000 soil samples collected throughout the 2018 growing season, to examine the fungal and bacterial communities present in each. They also met with all of the vineyard owners and managers to gather detailed management information that relates to sustainability efforts. Does the use of chemical fertilizers, pesticides, and herbicides alter how your wine tastes in the glass? It appears that it may. In the winemaking business, there is a highly regarded concept of *terroir*, which describes the sensory distinctiveness that is imparted to wine by the environment in which it is produced. Traditionally, this concept has been attributed to soil type, climate and topography of the vineyard where the grapes are grown. Interestingly, the biotic components of soil – particularly soil microbes – were never truly considered when defining a wine's *terroir*. Microbes not only reside in the vineyard soil, but disperse onto vine tissues aboveground, such as the bark, leaves and grapes. In the fall when the grapes are harvested, vineyard microbes hitch a ride to the winery, and likely contribute to the flavor profile of the resulting wine. Despite this seemingly obvious connection between vineyard microbes and *terroir*, we lack specific evidence linking wine flavor compounds with the microbes likely producing them, and how vineyard management might influence these relationships. Using a multi-omics approach, the team is linking the microbial composition in these samples with the chemical composition of the wine samples.

The McGuire lab is also interested in how different sustainability efforts and management practices affect the soil microbiome in vineyards grown across different regions and climates. More than 50% of Earth's land is currently under agricultural management, and climate change pressures present a threat to the productivity and stability of agroecosystems. Soil microbes perform essential functions within these agricultural landscapes, as they control nutrient cycling dynamics and can prevent crop damage by drought or pathogen invasion. In other words, maintaining diverse communities of fungi and bacteria in the soil can provide natural solutions to pressing issues in agriculture such as limited nutrient

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Goldwater Award Mikala Capage

I began at the University of Oregon with a clear idea of what I wanted to do-major in Biology and gain experience with research in molecular biology, preferably in epigenetics. I didn't know anything about epigenetics, but I had read about it in high school and thought it was the coolest thing! I wasn't sure if I would like biology or research or how I would know if it wasn't for me. Luckily, the opportunity arose to join Dr. David Garcia's lab in the Institute of Molecular Biology (studying epigenetics, no less!) I haven't second guessed my passion for biology or research since.

The Garcia Lab uses budding yeast as a model organism to investigate prion proteins as a beneficial epigenetic mechanism that allows cells to respond to stressors in their environment. My project aims to identify and confirm the existence of novel prions in the yeast proteome, focusing especially on RNA modifying enzymes. Performing experiments in the lab is only a part of my experience as an undergraduate researcher. I have had the opportunity to disseminate my findings in papers and presentations, attend seminars and conferences, and apply for research funding through the University of Oregon. I am a part of the community in the Garcia Lab and the Institute of Molecular Biology and my time at the University of Oregon has been richer for it.

To have my commitment to a career in research recognized by the Goldwater Foundation is an honor. Winning this award would not have been possible without the support of my mentors, Dr. Garcia and Dr. Graboyes, as well as support from the Office of Distinguished Scholarships. At UO I found what I love and I am excited for what my future holds.

Graduate Spotlight Ross Whippo

My path to a PhD has been far from a straight one. I worked in theatre for years as a stage manager and technical director for various venues around Seattle. But after a fateful SCUBA diving trip abroad, I realized that I had a deep curiosity for the ocean. So, I returned to school for an undergraduate degree at the University of Washington, then a Masters at the University of British Columbia. During this time, I had the opportunity to explore kelp habitats around the San Juan Islands in Washington State and seagrass meadows on Vancouver Island.

My research focused on the ecology of marine invertebrates and how their behavior and distribution can change subtidal communities. I then went to work for the Hakai Institute and the Smithsonian Institution as a marine technician, gaining valuable field experience and participating in coastal marine research in a wide variety of habitat including rocky reefs and mangrove forests. My experiences as a technician fostered my desire to continue my education and lead my own research. That brought me to the lab of Dr. Aaron Galloway at the Oregon Institute of Marine Biology. Our lab is interested in the trophic ecology of aquatic environments using SCUBA diving and fatty-acid biomarker analysis to describe communities and trace pathways of consumption within them.

We study food webs to understand how these communities might change with future ocean conditions. Two years ago, I was fortunate enough to travel to Antarctica with my lab and study habitat-forming seaweeds along the Western Antarctic Peninsula. We made collections during our two-month cruise and managed to SCUBA dive as far south as 69°S. Our work will be the first comprehensive description of seaweed cover along a latitudinal and ice-cover gradient in Antarctica, and further our knowledge of how seaweed is utilized by higher consumers. Closer to home, I've also been able to collect kelp forest data for the Oregon Department of Fish and Wildlife in the Oregon Marine Reserves, and the Kelp Ecosystem Ecology Network in the Salish Sea.

I hope to continue working on these projects beyond graduation to understand how kelp abundance and resilience may change throughout our region. I've come a long way from the theatre and am excited to see where my path will lead me next.

Oregon Vineyards

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availability for crops and fluctuating weather conditions limiting food productivity. Sustainable agricultural practices are implemented to try and promote biodiversity in the soil with hopes to mitigate these negative effects and limit chemical inputs. However, our current understanding of the effects of different agricultural management practices on the soil microbiome, and the essential functions it performs, is largely inconclusive and requires large-scale research projects spanning different environmental contexts. The McGuire lab is using the vineyard project to better understand the ecological patterns and processes in agricultural soil microbiomes under different management practices, and whether they respond differently under changing climate scenarios.

All of this work is currently in progress, so stay tuned for results from the McGuire lab's Vineyard Microbiome Project. Cheers!

The Department of Biology is committed to advancing the education and scholarly mission of the University of Oregon. If you would like to support our mission by making a contribution you can do so at ***biology.uoregon.edu/welcome/giving****.*

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The inaugural Week of Research was hosted this spring by the Office of the Vice President for Research and Innovation and the Division of Undergraduate Education and Student Success. This event offered a number of presentations, panel discussions, and workshops among other features to showcase the breadth and depth of research and creative scholarship across campus. We kicked off this event with the Undergraduate Research Symposium Keynote speaker, UO alum Tamela Maciel.

The 11th annual Undergraduate Research Symposium had 267 presenters supported by 240 faculty mentors from all across campus. Our own Diana Libuda was awarded a Faculty Research Mentor Award! Graduate student research was showcased in a highly engaging three-minute thesis competition. The Week of Research also highlighted three Provost Initiatives: Environment, Innovation and Entrepreneurship, and Sport and Wellness. Other exciting features were a keynote speaker on gender equity in the academy by Ann Austin, a culturally responsive mentorship workshop, and a feature on the Center for Science Communication Research.

Rehearsals for life hosted an interactive discussion on how to navigate difficult dialogues, and the Oregon Humanities Center presented a work in progress by Timothy Williams. Most events were recorded and can be viewed on the OVPRI YouTube channel.

OVPRI YouTube channel
www.youtube.com/channel/UCavQWYQsu3zfzIO-2qPUqng
By Nadia Singh