SAFS NEWS

SPRING/SUMMER 2024

SCHOOL OF AQUATIC AND FISHERY SCIENCES

INSIDE

From the Director

To borrow a phrase, this newsletter feels like déjà vu, all over again. Last year, I was excited about the newsletter's showcase of new areas of research for the School, and how this showed how SAFS was evolving to tackle new methods and new questions and adopting new disciplines to do so. Now, I realize that was just a teaser for this edition, which is a full-blown celebration of the diversity of research topics currently being explored by members of our community.

We're studying microplastics in corals, invasive lionfish in the Caribbean, tiny cryptic fish in Tonga, parasites in very old canned salmon, drone surveys of California coasts, the impact of Navy jets on people's health, and Puget Sound shoreline restoration. Important work on beluga and humpback whales is being done by our graduate students.

We have great people working to change the culture of aquatic and fishery sciences by bridging Western and Indigenous knowledge systems and management practices and implementing practical ways to foster engagement with nature across a more demographically diverse population.

We celebrate the lives and mourn the loss of two members of our community who passed away this year. The SAFS community was devastated by the passing of Tonie Kalena Kattil-DeBrum, a PhD student and leader in our program. No words can adequately express the loss our community feels from Kalena's passing. Thank you to all her friends, colleagues, and staff who helped make our community event—which brought us all to tears in the best possible way—so perfect. We also look back fondly on the outstanding career and contributions of Professor Gilbert (Gil) Pauley, former leader of the Washington Cooperative Fish and Wildlife Research Unit.

Finally, it is my great pleasure to introduce two new additions to the SAFS faculty: Jessica Gephart and Marjorie Wonham. You can read about their exciting work in this issue. Welcome, Jessica and Marjorie.

We hope you enjoy reading about the School's varied activities and research in this issue of *SAFS News*.

—Tim Essington, *Director*

SCHOOL OF AQUATIC AND FISHERY SCIENCES
COLLEGE OF THE ENVIRONMENT
UNIVERSITY OF WASHINGTON

Masthead, photo: Kristin Laidre; inset: College of the Environment

Listening Closely: Using Acoustics to Study Greenland's Marine Mammals

Marie Zahn recently completed her PhD, which was focused on marine mammals in the Arctic waters surrounding Greenland. Her dissertation research provides a deeper look into two species: narwhals and belugas.

Belugas and narwhals make a variety of sounds, such as whistles and echolocation clicks, for communicative and sensory purposes. Scientists use underwater recordings to identify when animals are present to learn about their distribution and behavior, but it can be difficult to distinguish between beluga and narwhal sounds when they're in the same areas. A main question tackled by Marie was: can echolocation clicks be used to distinguish between the species in acoustic recordings?

The short answer is yes. Using multiple acoustic datasets from West Greenland, including recordings from hydrophones attached to moorings on the seafloor left for years at a time, Marie had to figure out how to differentiate between beluga and narwhal echolocation.

Echolocation clicks are high-frequency signals used by toothed whales for navigation and identifying physical surroundings. Most of the energy produced by narwhals and belugas is inaudible to humans, but scientists can create plots to show how much energy exists at different frequency bands, and then calculate different characteristics of the sound. From this, they can tell the two species apart, a process known as acoustic classification.

Marie's research has shown that belugas produce higher frequency echolocation signals—around 30 kHz and higher—whereas narwhal clicks have a clear lower limit of energy and drop off around 20 kHz. She also demonstrated that the ratio of total energy within specific frequency bands, called one-third octave levels, is a robust metric for acoustic classification.

This research is important because the Arctic is warming at rates three times faster than the rest of the globe, with ecosystems and habitats changing dramatically in short periods of time. Subpopulations of belugas and narwhals in West Greenland are generally still understudied but face growing risks, such as climate change, habitat loss, and increases in vessel traffic.

Passive acoustics is an important tool to deliver deeper insight into how they're being impacted by habitat change and how their behavior may change as a result. For instance, belugas and narwhals actively communicate with their pods as they migrate, the same route that overlaps with vessel traffic. Big tankers can obscure whale communication and disturb animals. Passive acoustic monitoring that measures underwater noise levels and species presence can provide data on long-term changes in beluga and narwhal migration and behavior.

Passive acoustics gives researchers the where, when, and which animals are present in a particular location. Marie went a step further in her dissertation and used

Photo: Kristin Laidre

oceanographic data, like temperature and salinity, to study the characteristics of narwhal and beluga habitat.

Narwhals return to the coastal waters near glacier fronts every summer in northwest Greenland, going right up to the glacier face. But why? Is it because of feeding opportunities or protection for rearing calves? Are there specific features of these glaciers and fjords that attract them?

With two years of continuous temperature and salinity measurements, Marie found a clear seasonal pattern in ocean properties. As temperatures warm during summer, glacier ice and sea ice melt, and cold, fresh water is released along the coast. The Greenland Ice Sheet melts every summer, with large volumes of meltwater draining through to the coastline. These large meltwater plumes create a biological event that acts as an upwelling system, where buoyant meltwater moves straight up to the surface, bringing nutrients with it. This enhances biological productivity and could be why narwhals return year after year.

By studying temperature and salinity over time, researchers can understand the major processes occurring and how they impact the system's biology and ecology, helping to paint a clearer picture of what's happening and what's important in this habitat. ■

Read the story online.

Photo: Kristin Laidre

Alumni Update

We thank our alumni for their continued support of the SAFS program. Visit the below website to give today:
fish.uw.edu/alumni-community/giving

To sign up for the email version of the SAFS newsletter, please visit:
fish.uw.edu/news-events/newsletter

To update your record, visit:
washington.edu/alumni/services/update

FINS Merch!

Need a cool sweatshirt?
Looking for a great T-shirt and other swag?
Interested in supporting SAFS graduate students?

LOOK NO FURTHER...

The sale of FINS merchandise goes toward helping SAFS grad students present at national and international conferences and take part in research expeditions.

- FINS has just launched a new set of designs for sweatshirts, t-shirts, hats, and more. Get yours now!

Check out the range of merch online at:
bit.ly/finsmerch

Make a Gift to SAFS

Your philanthropic support of SAFS makes a difference! Make a gift today to the Director's Fund for Excellence in Aquatic & Fishery Sciences as we address emerging research and teaching needs, student funding, special projects, and other school priorities determined by SAFS Director Tim Essington.

If you have questions about making a particular gift or impact, please contact:

Ben Johns, Associate Director of Advancement, College of the Environment
206-940-8205 bkj108@uw.edu

Illustrations: iStockphoto.com/Vyazovskaya_Julia

Welcoming New Faculty

Jessica Gephart

Jessica Gephart joined SAFS as an Assistant Professor in January 2024, bringing her expertise in global food trade systems and setting up her Seafood Globalization Lab.

Jessica began her career in aquatic ecology and modeling before becoming involved in projects focused on food systems and food trade. She explained: "I was interested in the modeling approaches that parallel these systems and realized that a lot of studies didn't look at fish at all. Most food system studies looked exclusively at crops and livestock."

Jessica started to consider how answers would change if fish were brought into the picture, and how this would impact questions around sustainability in these systems: "I discovered that there was a much bigger question here, and it needed more attention," she said.

Moving more in the direction of aquatic food systems, Jessica began a deep dive into the trade side of fisheries, using network-based approaches. "One thing I find surprising is that when it comes to the big questions about characterizing our food systems, a lot of basic information is unknown," she said. "When I first started working in this space, questions about linking consumption to environmental impacts led me to questions about distinguishing between wild-caught and farmed fish. But the way that data is collected about aquatic food systems, these questions aren't answered, and we didn't know the most basic things, such as the quantity of trade of wild versus farmed."

Sharing that one of the reasons she loves working on food is because of how interdisciplinary it is, Jessica noted: "You have to recognize that you don't have all the answers, and this opens up so many opportunities to learn from other people and disciplines about their approaches to solving parallel or related questions." ■

Read the full story online.

Marjorie Wonham

As much as she loves research, Associate Teaching Professor Marjorie Wonham, the newest faculty member in the UW Marine Biology program, is passionate about teaching. Marjorie is based at Friday Harbor Laboratories (FHL), where her expertise as a researcher in marine invasion ecology and as a leader in pedagogy in the marine sciences and field-based education are wonderful educational assets.

Marjorie grew up in Toronto, with no ocean in sight. Her first time at the ocean was on a summer field class to the Huntsman Marine Science Center in New Brunswick, Canada, where she said, "two things blew me away." She described these two experiences: "One of our tasks was dissecting a sea cucumber, which doesn't look like much from the outside, but the inside was incredible. So many intricate colors and shapes. The second was marking limpets with nail polish to map where they went. How did they find their way home every day? As I encountered the mind-blowing mysteries of marine invertebrates, I thought: *These are my people*."

Lots of things excite Marjorie about her new position. She highlighted two: "The chance to help contribute to building this relatively new Marine Biology major is very exciting. A lot of hard work has gone into creating it, and as it comes into its own, we have a chance to shape and develop it into a superb and signature UW major that really stands out. I'm very much looking forward to collaborating with my new colleagues on this."

Marjorie said that the second exciting thing is focusing on the integrative field experience component of the major at FHL. She wants to develop a diversity of experiential ways for students to experience marine biology by doing field work, doing lab work—really "doing marine biology." ■

Read the full story online.

Photos: College of the Environment

AQUATIC SCIENCES OPEN HOUSE

Record attendance this year!

The number of people diving into aquatic sciences during our Open House more than doubled this year, with 1,200 visitors of all ages joining us for a day of hands-on activities.

The event is hosted by the University of Washington (UW) student-led outreach program SEAS (Students Explore Aquatic Sciences). Guests were treated to displays from the entire breadth of science relating to water—from peering at tiny organisms under a microscope and watching demos of remotely operated underwater vehicles to dressing up as a narwhal and exploring Arctic waters. Thirty booths from across the UW and partner research organizations were on view—many with interactive activities.

Brand new this year, and big crowd pleasers, were a face-painting booth and a raffle, sponsored by the education research organization foundry10. At the face-painting booth, kids could choose from a variety of marine species designs, such as whales, dolphins, and octopuses. Raffle prizes included microscopes, waterproof cameras, tidepooling guides, and a children's book written by SAFS Professor Jackie Padilla-Gamiño.

At midday, the R/V *Rachel Carson* was opened for tours of its deck, galley, and research stations to demonstrate what on-board life is like for UW scientists.

One visitor commented that "the variety of topics was expansive yet not redundant, and the activities were fun and engaging. The students and staff were great with the children and knew how to speak at their level."

#SEASOpenHouse

As always, one of the main drivers of the Open House is to make aquatic science accessible to local communities and show how important research is in tackling environmental issues both here in Washington and further afield. Opening up science and making it engaging, fun, and inspiring go a long way to demonstrate to youngsters that there are fulfilling, impactful, and successful careers to be had in aquatic science. ■

"Open Houses like this are really important for the University to highlight what we're doing in this area and also for engaging the next generation of scientists. It's been great seeing how many young kids are here taking an active interest in science along with their families."

—Corey Garza, SAFS Professor and Associate Dean for Diversity, Equity, and Inclusion, UW College of the Environment

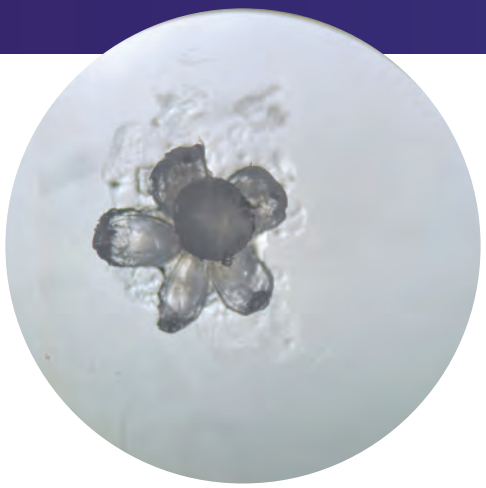
"Young folks are often not aware of the wide array of jobs within specific industries. The Open House is an energizing and engaging environment that paints a broader picture of career pathways and specializations through first-hand demos and displays run by industry professionals, which helps demystify large industries like aquatic sciences."

—Handa, Yoh, Career Connected Learning and Life Skills Team Lead, foundry10

Visit the Open House webpage.

Photos: Niamh Owen-McLaughlin

Spotlight on SAFS Research...



Taking a deeper look: using fish eye lenses to explore invasive fish impacts on native fish communities

PhD Candidate Jess Diallo has been exploring the impact of invasive fish on native fish food webs in a tributary to the lower Colorado River.

By collecting and using fish eye lenses for stable isotope analysis, Jess studies how fish move throughout the food web. "The two main characters in this story are the native roundtail chub and the invasive green sunfish," Jess said. "Studying the impact of invasive species is important as the whole ecosystem can be impacted by predation and competition."

"This is a really cool method," Jess said. "The eye lens grows in concentric spherical layers. When you dissect this tissue, you can look through time into how the fish moved through the food web."

Jess has seen clear results from the stable isotope data. "The lifetime trophic trajectories of native fish species are displaced within the food web when they're in streams containing invasive species compared to when they are in native-only communities."

Another area of Jess' work is using otoliths to age the fish and link the chronological record of stable isotope values to time. "These parts of a fish are two records of a fish's lifetime. This is novel research, linking the otoliths to eye lenses, so it's very exciting work to be involved in," she said.

Read the full article online.

Small but mighty: studying cryptobenthic fishes on Tonga's reefs

Coral reefs are home to an astonishing and highly visible diversity of fishes. However, there is a "hidden half" to this diversity: cryptobenthic fishes, so-called for their habit of hiding away. For her PhD research, Marta Gómez-Buckley focused on one cryptobenthic fish in particular: gobies.

Marta said that most cryptobenthic reef fishes are so small that you could fit hundreds in your hands at one time. She explained: "Cryptobenthic fishes are very small and are normally overlooked, yet they play a big role as a prey resource. In my research, I investigated new techniques for collecting such small specimens."

"While on my research trips to Tonga to study gobies, I also collected species never housed before in the UW Fish Collection." Home to more than 12 million preserved specimens from around the globe, the collection is a critical resource for SAFS scientists, students, and other researchers.

Another part of Marta's work is uncovering how many species comprise the populations of the adorned dwarfgobies clade; she came to the conclusion that there are at least seven species that haven't been described.

Frequently asked why her research is so important, Marta shared: "How can you study relevant ecological questions about coral reef ecosystems if you don't know about half of the fish species that inhabit them?"

Learn more online.

Photos, l to r: Jess Diallo, Ray Buckley

From Micro to Macro

Why are some protected species failing to recover?

Sparse monitoring data and persistent knowledge gaps can hamper wildlife conservation efforts. Led by SAFS PhD student Amanda Warlick, a new study set out to tackle this issue for federally endangered Cook Inlet beluga whales by developing an integrated population model that capitalizes on all available information, including mark-resight and aerial count data, to understand factors that may be affecting survival, reproduction, and population viability.

Cook Inlet belugas have declined by 75% since the 1970s. The major results from the study predict the decline will likely continue, with a 17–32% probability of extinction in 150 years and a low probability of reaching recovery targets in that time frame.

The research team included USGS Washington Cooperative Fish and Wildlife Research Unit Leader and Associate Professor Sarah Converse, Montana State University, Cook Inlet Beluga Whale Photo-ID Project, and NOAA AFSC's Marine Mammal Laboratory.

Many questions remain about why some protected populations fail to recover despite managers' best efforts. This study highlights the utility of integrated population modeling for maximizing the usefulness of available data to identify factors limiting the recovery of declining populations. The hope is that this model can be used to better understand what is happening with Cook Inlet belugas as more data become available, while also inspiring the development of similar models for other declining species.

Learn more online.

Being an ecological detective: modeling population dynamics for humpback whales

Since 2017, Kristin Privitera-Johnson has been working with André Punt on creating a population model for North Pacific humpback whales as part of the work of the Scientific Committee of the International Whaling Commission. This population is modeled using various datasets—new, old, hidden, lost. They're uncovering new ways to deliver deeper insights into this population of humpbacks, including use of genetic and photo IDs data on population connectivity.

With a migratory lifestyle, North Pacific humpbacks breed in warmer waters, and when they feed, they move northwards. In Kristin's words, they are loyal to where they feed and breed, and return to the same places year after year.

Now a PhD student, Kristin builds models to test biologically driven hypotheses posed by her collaborators, related to the population structure of humpbacks. Kristin describes this as being an ecological detective—how do we model who is where, and where do they keep coming back to? Do we have enough data to test the hypotheses? Part of the artfulness of this work is, if we assume some of these hypotheses about breeding and feeding habits, how can mathematical and statistical models be built to reflect this?

Many factors potentially impact the North Pacific humpback population, from ship strikes and entanglements to climate change and sea ice regression opening new travel pathways.

Read the full article online.

Photos, l to r: Paul Wade (NOAA), IWC-Power

SAFS Researchers Study Issues Big and

*** Read each full research story online by clicking on the photo or text.**

Salmon, scales, and spectrometry: analyzing historical fish scales to explore food web changes over time (Grace Henry, MS) *Photo: Grace Henry*

What four decades of canned salmon reveal about marine food webs (Natalie Mastick, PhD) *Photo: Freshwater and Marine Image Bank/UW Libraries*

Vital communications among the critically endangered Cook Inlet belugas may be masked by ship noise (Arial Brewer, PhD)
Photo: Arial Brewer / NOAA Fisheries

Looking to the past to inform the future: historical ecology and data-limited fisheries stock assessment methods shed light on threatened Puget Sound Yelloweye Rockfish (Markus Min, PhD) *Photo: WDFW Marine Fish Science Unit*

Lionfish research in the Caribbean waters of Curaçao (Sarah Yerrace, MS)
Photo: Sarah Yerrace

Examining the impact of settler colonialism on Indigenous food systems (Nicole Doran, MS)
Photo: University of Washington

Navy Growler jet noise over Whidbey Island could impact 74,000 people's health (Giordano Jacuzzi, Graduate Student) *Photo: UW News*

Background photos: Niamh Owen-McLaughlin; IStockphoto.com/Tammy61; The Cook Inlet Beluga Whale Photo-ID Project/ 6 MMPA/ESA Research Permit #22222; IWC-Power

Small (and Everything In-Between)*

Will the tides change on tidal energy in the US? Quantifying fish encounters with tidal turbines (Jezella Peraza, MS)
Photo: Jezella Peraza

Studying toxic metals in fish in southeast Asia's largest freshwater lake (Shorna Sabikunnahar, PhD)
Photo: Shorna Sabikunnahar

Microplastics in the marine environment: research in Tetiaroa (Kat Lasdin, PhD)
Photo: Kat Lasdin

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Science diplomacy at work: tackling illegal, unreported, and unregulated fishin (Jessica Gephart, Assistant Professor) *Photo: Jessica Gephart*

Letting nature be nature: restoring Puget Sound's shoreline (Simone Des Roches, Research Scientist)
Photo: Jason Toft

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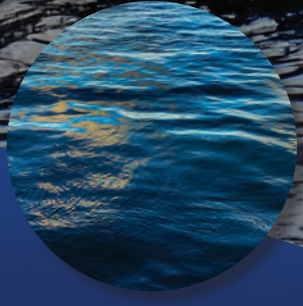
A view from above: using drones for coastal research in California (Corey Garza, Professor)
Photo: Corey Garza



Looking ahead: what does climate change have in store for Pacific coast fis (Julia Indivero, PhD)
Photo: University of Washington

Degrees Awarded AUTUMN 2023–SUMMER 2024

On June 7, 2024, SAFS celebrated graduation, 105 years after the inception of a Fisheries program at the UW. Many thanks to Samantha Scherer and Michael Martínez for making this event a great success. Visit the 2024 SAFS graduation page at *fish.uw.edu/spring-graduation* to learn more about our graduates. Our student research encompasses numerous and diverse disciplines, including biology, ecology, fisheries management, disease, genetics, physiology, and statistics—as well as interdisciplinary subjects—in pursuit of improving our understanding of the interactions among humans, our environment, and the resources upon which we rely.

BS Degrees

Keegan Bach
Emma Bell
Tyler Martin Cordova
Hailey Dockery
Baxter Givans
Kip Howell
William Le
Jessica Pineda
Yajaira Ponce Moran
Katherine Bond Rogers
Cristian Swift
Eric Wang

MS Degrees

(advising professors in parentheses)

Nicole Doran (Mark Scheuerell) Exploring culturally meaningful definitions of justice and resilience through the lens of sovereign Indigenous foodways

Emily Jameson (Julian Olden) Lakeshore development and lake food web structure in the Puget Sound lowlands

Liam Pendleton (Sarah Converse) Evaluating responses and behaviors of two sentinel seabird species in the Salish Sea

Jezella Ileana Perzaza (John Horne) Probabilistic empirical and agent-based encounter-impact models for fish and tidal turbine interactions

Emily Sellinger (André Punt) Characterizing and forecasting fish recruitment in a changing world

Kali Stone (Tim Essington) Hatch timing, growth, and condition of juvenile Arctic cod (*Boreogadus saida*) in a warming Arctic: insights into overwinter survival strategies

PhD Degrees

(advising professors in parentheses)

Grant Adams (André Punt) Development and testing of single- and multi-species models for fisheries management under climate change

Jeremy Axworthy (Jacqueline Padilla-Gamiño) Climate change and microplastics: their impacts and interactions with corals and coral reefs

Eileen Bates (Jacqueline Padilla-Gamiño) Impacts of climate change and habitat on the health and recovery of Salish Sea shellfish

Marta Cristina Gómez-Buckley (Luke Tornabene) Cryptobenthic coral reef fishes: resolving critical gaps in taxonomy, phylogenetic relationships, and sampling techniques

Melissa Krigbaum Merscher (Chris Anderson) The economic dynamics of gear choice in U.S. west coast sablefish fisheries

Jessica Lindsay (Kristin Laidre) Ringed seal (*Pusa hispida*) lair habitat, emergence timing, and reproductive ecology in relation to snow characteristics in a changing Arctic

Brielle Kwarta Thompson (Sarah Converse and Julian Olden) Quantitative modeling tools for invasive species management decisions

Marie Zahn (Kristin Laidre) Quantifying features of Arctic odontocete echolocation and marine habitat variation in West Greenland

Photo: iStockphoto.com/joebelanger

Diversity, Equity & Inclusion (DEI)

SAFS DEI Update

—Michael Martínez
SAFS Diversity Specialist and Undergraduate Adviser

DEI Committee

- Held a workshop on Giving and Receiving Feedback and the annual Undergraduate Community Building event.
- Contributed funding to a community building event for the UW Chapter of SACNAS (Society for the Advancement of Chicanos/Hispanics and Native Americans in Science).
- Reviewed guides and documents on the SAFS DEI webpage, including the Code of Conduct. The Committee regularly revises materials in response to community needs.
- Two graduate students, Julia Indivero and Claire Vaage, received the SAFS Diversity, Equity, Inclusion and Justice (DEIJ) and Community Service Recognition Award this year. Consider giving to the fund at **fish.uw.edu/givin**

Affinity Grou

- The Environmental BIPOC Affinity Group and Environmental Queer & Trans Affinity Group met biweekly throughout the year.
- The Environmental Queer & Trans Affinity Group held two educational events, a panel for Transgender Day of Visibility and their third annual (not so) Stupid Queeries event, with panels pulling students, staff, and faculty from across the College of the Environment. The Trans Day of Visibility panel was supported by funds from the Associate Dean of DEI.

DEI Learning Group

- The SAFS DEI Learning Group met biweekly to discuss current topics related to DEI in STEM, and read books, including: *Lessons from Plants, As Long as Grass Grows,* and *From Equity Talk to Equity Walk*.

—continued on page 15

A conversation with Xochitl Clare, an ambassador for diversity in marine science

Photo credit: Chris Knudson

Dr. Xochitl Clare, a postdoctoral scholar in the Padilla-Gamiño Lab at SAFS, recently contributed to a special *Oceanography* issue: "Building Diversity, Equity, and Inclusion in the Ocean Sciences." In her paper, Xochitl expressed her thoughts about her identity as a first-generation Afro-Latina marine biologist and performing artist and co-author of a paper on an initiative to support inclusive mentoring practices.

We caught up with Xochitl to learn about her journey to becoming a marine biologist and what inspires her to be a mentor who works toward diversity, equity, and inclusion.

Tell us about the importance of being involved in the special Oceanography issue.

The first thing that comes to mind is that I represent a lot of identities and peoples. I'm from a first-generation immigrant family—my mother is from Jamaica and my father is from Belize. I'm the first in my family to pursue higher education in marine science and embark on ocean exploration.

I never had access to the ocean growing up in Glendale, California. I learned to swim in college and became certified as a scientific diver in under five years. This was a huge and intense experience for me, going from not spending much time in the ocean to doing lots of marine biology fieldwork in the ocean. Because of that, being a mentor is really important to me. To conduct marine biology fieldwork, you need to feel welcome in the outdoors. To reach this goal of welcoming people of all backgrounds into nature, I've become a strong advocate for diversifying the outdoors.

Can you share some of the specific initiatives to diversify the outdoors that you're involved in?

What's special about this publication is that it is focused on a mentoring series for a program called Field-based Undergraduate Engagement through Research, Teaching, and Education (FUERTE), which aims to get people more comfortable working in nature. These can be unwelcome places—either directly or indirectly—for a lot of BIPOC people. We're undertaking this effort to train the mentors, as we believe that when people are better prepared as mentors, then more people will come to the field, especially from diverse backgrounds.

Read the full conversation online.

IN MEMORIAM

Tonie Kalena Kattil-DeBrum

August 9, 1992–February 15, 2024

Photo: Courtesy of the Obama Foundation (obama.org)

Tonie Kalena Kattil-DeBrum was born and raised in the Republic of the Marshall Islands (RMI), where she developed an early interest in the ocean as an avid diver, fisherwoman, and lover of nature. A sense of responsibility and empathy was fostered in Kalena at an early age, as her family was known for their legacy of advocating for environmental and social justice, stemming from her grandfather Tony DeBrum—champion of nuclear justice in the RMI.

Kalena earned her BS degree from Chaminade University in Hawaii and an MS in the Environment and Society at University of Waikato in New Zealand. Kalena returned to the RMI after graduating and was hired by the Marshall Islands Marine Resource Authority, where she served as chief scientist of coastal fisheries until her passing. She was instrumental in working with communities to establish local fisheries management plans and protected areas and was soon widely considered to be one of the leading experts on coral reefs of the region.

Kalena moved to Seattle and joined the SAFS and Burke Museum communities in 2021, when she was hired to work as collections staff at the Fish Collection. Kalena began conducting research on the more than 15,000 specimens in the collection that were taken from the RMI by UW researchers before, during, and after the US tested nuclear weapons on the atoll, as part of the US Atomic Energy Commission's mission to study the effects of radiation on the environment. In spite of the painful legacy of this collection of specimens, Kalena began building a vision for what the collection could be moving forward. She proposed to use the specimens to study how fish communities in the RMI have changed over the last 70 years as a result of habitat degradation, climate change, and overfishing, and return that knowledge to the communities around the RMI so that they can make more informed decisions about the future of their oceans and livelihoods. The project was funded by the US Department of Energy, opening the door for Kalena to earn her PhD.

Kalena began her PhD in autumn of 2021, advised by her mentors Luke Tornabene, associate professor at SAFS and Curator of Fishes at the Burke Museum, and Holly Barker, teaching professor in Anthropology and Curator of Oceanic & Asian Culture at the Burke Museum. Kalena was instrumental in leading the PAC-ISLEs summer workshop on Pacific Islanders in STEAM (STEM plus the Arts) at the Burke Museum and was an invaluable member of the American Samoa study abroad program in 2023. She gave guest lectures for several of Dr. Barker's classes in the Anthropology department and was a deeply loved member of the Pacific Islander Research Family at the Burke Museum.

In 2023, Kalena made history as the first active PhD student to give an invited talk at the Bevan Series on Sustainable Fisheries, where she spoke about community-based fisheries management in the Marshall Islands. As a teaching assistant at SAFS, she was deeply loved and admired by the students she taught in Biology of Fishes and Conservation and Management of Aquatic Resources.

In her research and advocacy, Kalena was a rising star in the world of marine conservation and an exemplar for how community-based research should look. She was also a vibrant role model for younger scientists, especially Pacific Islander students at the University of Washington. Beyond her scholarly pursuits, Kalena found joy in a variety of creative outlets, including singing, dancing, karaoke, drawing, photography, video games, weightlifting, hiking, canoe paddling, and bringing together friends across her widely different social networks.

Kalena's untimely passing left the SAFS community shocked and heartbroken. A celebration of Kalena's life was held on March 12, as students, faculty, staff, friends, and loved ones gathered to share their memories. Stories and photographs gathered at the event will be commemorated in a memory book, copies of which will be housed at the Burke Museum and at SAFS. ■

IN MEMORIAM

Gilbert (Gil) Pauley

June 18, 1939–June 20, 2023

Photo: Martin Grassley

Gil Pauley in front of the SAFS Teaching and Research building, circa 2004.

Adapted from obituary on Dignity Memorial website

Gilbert (Gil) B. Pauley was a professor emeritus of SAFS and a past member and unit leader of the Washington Cooperative Fish and Wildlife Research Unit (Coop). Gil had a long, distinguished career at the School and Coop, serving from 1974 until 1997.

Gil grew up in Sumner, Washington, and graduated from Sumner High School. Gil (known as "Buddy" then) played a lot of baseball and enjoyed fishing in the local streams. His interest in fishing eventually led him to earn bachelor's and master's degrees from the University of Washington School of Fisheries. In 1963, while in graduate school, Gil was the recipient of the prestigious Thurlow C. Nelson Award for shellfish research.

Shortly after earning his degree, Gil married his wife Pat. After graduation, Gil was employed doing research at Battelle near Richland, WA. After doing research for a few years, Gil was accepted into the PhD program at UC Irvine, and the family was off to Southern California. After receiving his PhD in Immunology and Microbiology, Gil did research in fisheries in St. Michaels, Maryland, and Leetown, West Virginia.

In 1974, Gil was delighted to bring his family back to the Pacific Northwest and take a position at the University of Washington as assistant unit leader—fisheries at the Washington Cooperative Fish and Wildlife Research Unit and professor at the (then) School of Fisheries. During his tenure, Gil conducted research, taught classes, and mentored graduate students for over 25 years, and published more than 160 peer-reviewed research papers in his field. In 1997, Gil received the Outstanding Achievement Award from the US Fish & Wildlife Service.

Gil was appointed by Judge Boldt to advise the Federal Court on technical issues related to salmon and steelhead for the "United States vs Washington" case decision, commonly known as the "Boldt Decision." He served as Federal Court Technical Advisor for 14 years with three federal judges.

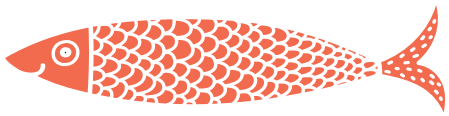
In 2002, Gil and Pat established the Gilbert B. Pauley Endowed Student Support Fund. The fund pays travel expenses for UW and Washington State University students conducting Coop research to attend conferences, where they can present their study results; the fund also provides awards for best oral and poster presentations at the Annual Cooperators Meeting.

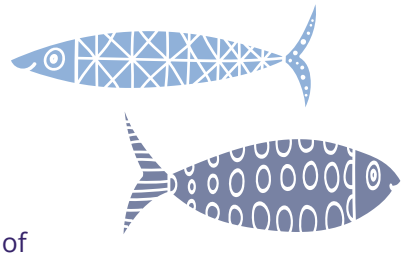
At the time the fund was established, Gil explained: "Attending scientific conferences is critical to student development. It gives students the chance to practice communicating in front of a group of peers about their work; and, by presenting their work before it's published, they have a chance to get some feedback. These conferences enable students to interact and network with the rest of the scientific community."

After his retirement in 1997, Gil worked for 20 years at Brookside Dental with his wife, daughter, and son-in-law, who are all dentists. Gil is survived by his wife, Patricia, his daughter, Cynthia Pauley Cave, his son-in-law, Brian Cave, and his grandsons, Tyler and Jordan. ■

JANUARY–DECEMBER 2023

Gifts





SAFS alumni, faculty, staff, postdoctoral researchers, and friends have a long history of generous giving. Our community continued this tradition during 2023, providing critical financial support for our students, faculty, and programs. We acknowledge and thank you for your sustained support.

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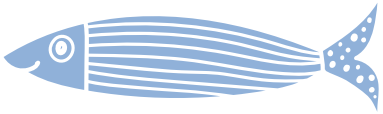

Illustrations: iStockphoto.com/Vyazovskaya_Julia

Awards & Honors

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SAFS Faculty Merit Awards
Kat Rogers, BS (Luke Tornabene, Capstone Adviser)
Nicole Doran, MS (Mark Scheuerell)
Jezella Peraza, MS (John Horne)
Jeremy Axworthy, PhD (Jackie Padilla-Gamiño)
Marta Gómez-Buckley, PhD (Luke Tornabene)
Marie Zahn, PhD (Kristin Laidre)

SAFS Diversity, Equity, Inclusion and Justice (DEIJ) and Community Service Recognition Award
Julia Indivero, PhD (Tim Essington)
Claire Vaage, MS (Julian Olden)

UW College of the Environment Outstanding Commitment to Diversity, Equity, Inclusion, Justice, and Accessibility (DEIJA) Award
Markus Min, PhD (Mark Scheuerell)

University of Washington Husky 100
Chris Mantegna, PhD (Steven Roberts)

Eugene Maughan Graduate Student Scholarship, Western Division of the American Fisheries Society
Claire Vaage, MS (Julian Olden)

North Pacific Research Board (NPRB) Graduate Fellowship and ***NPRB Graduate Student Research Award*** and ***UW EarthLab Future Rivers Fellowship***
Emma Christman, MS (Daniel Schindler)

Katherine S. McCarter Graduate Student Policy Award, Ecology Society of America
Helena McMonagle, PhD (Tim Essington and Ray Hilborn)

Washington Sea Grant Keystone Fellowship
Jezella Peraza, MS (John Horne)

NOAA Hollings Undergraduate Scholarship
Michael Han, BS

FACULTY AND STAFF

SAFS Outstanding Staff Award
Taylor Draper and **Kenyon Foxworthy**

UW Professional Staff Organization Diversity, Equity, Inclusion, and Belonging (DEIB) Excellence Award
Michael Martínez

UW Distinguished Teaching Award for Teams
College of Environment GEODUC Team (including **José Guzmán** and **Kerry Naish**)

Jack Williams Award for Applied Conservation Science
Tom Quinn

DEI

—continued from page 11

College of the Environment DEI Update

—Corey Garza
Associate Dean of Diversity, Equity and Inclusion, College of the Environment
Professor, SAFS

The College of the Environment (College) recently reconstituted its DEI Committee, which will sponsor a new College DEI Fellows program starting in fall quarter 2024. This program is designed to support faculty and staff interested in developing DEI initiatives. Fellows will engage in a comprehensive review of literature and best practices related to DEI in STEM and receive training and support in developing and delivering new DEI programs for their respective units.

The DEI Office will also begin to provide funding to support DEI pilot programs across the College and will make funds available to support community events centered around DEI-related activities.

The UW Society for the Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) chapter recently moved to the College. The DEI Office will host the first SACNAS meeting of the academic year on October 1.

In May 2024, Anastasia Schemkes joined our Office as the new DEI program specialist. She will help in the development and delivery of college-wide DEI programs and serve as a point of contact and DEI consultant for our College community.

Photo: Niamh Owen-McLauglin

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Comments are welcome.

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