

AQUATIC & FISHERY

SCIENCES

NEWSLETTER OF THE SCHOOL OF AQUATIC & FISHERY SCIENCES ■ UNIVERSITY OF WASHINGTON

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SPRING-SUMMER 2010

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Going Forward into the College of the Environment

After 25 years of history and prosperity in the College of Ocean and Fishery Sciences (COFS), our School joined the new College of the Environment (CoEnv) this spring. I have spent virtually my entire career in COFS, which has served as a strong and committed home for faculty to develop careers and for departments to evolve and reflect new challenge and promise.

But, what I know for certain is that life is never static, nor are universities and the academic structures that propel disciplines in exciting directions. Together with the other significant academic and programmatic units in CoEnv, the School of Aquatic & Fishery Sciences (SAFS) is keen to embrace opportunities that this new beginning can bring.

In some ways, life will go on as usual. All of our degree programs will continue, the focus on aquatic and fisheries sciences will remain our core, and your ongoing support will ensure the continued great success of our students, faculty, and staff. Yet, in other ways, we hope to partner with creative programs in new fields to offer even greater relevance to those who earn our degrees and use our science.

This plan to partner is already off to an auspicious start. Recently, SAFS hired a new tenure-track professor, Trevor Branch, in the area of marine population dynamics and stock assessment. This position has been made possible thanks to a unique partnership between CoEnv and the two NOAA centers in Seattle: the Northwest Fishery Science Center and the Alaska Fishery Science Center. The School has received extraordinary commitments from these partners for salary support to hire faculty who can serve as mentors to students who seek advanced degrees and who will be needed for sustainable management of fishery resources into the future. We are also receiving support from CoEnv to launch a faculty search for a resource economist, which represents our intent to increase multidisciplinary collaboration across CoEnv with other units, such as the School of Marine Affairs.

Members of CoEnv recently concluded the search for the new Dean of the college, and we are pleased that Lisa Graumlich (PhD, UW '85) has accepted the position. She will find in SAFS a tremendously committed organization that

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Students First

During 2007–2008, we were engaged in a campaign designed to fund an endowment that would provide financially disadvantaged students with access to our undergraduate and graduate programs. One of two Students First funds, the SAFS Students First Endowment was a huge success, with more than 80 donors contributing in excess of \$140,000. Thanks to the UW match, the grand total yielded nearly \$211,000, which enables us to distribute more than \$10,000 in scholarship awards annually.

Our other Students First fund is the Floyd E. Ellis Memorial Scholarship Fund, which was established in 1997 by Jim Ellis in memory of his father Floyd Ellis, a UW alumnus and former president of the Associated Students at the University of Washington. It focuses on students studying the preservation and improvement of North Pacific Fisheries.

Fast forward to spring 2010: We are pleased to report that the Students First funds are being put to work. The following articles profile two SAFS undergraduates who are benefitting from these endowments.

Ava Heston

Senior, BS, Aquatic & Fishery Sciences, 2010

Ava graduated this June with a SAFS major and Marine Biology minor. She attributes her interest in the marine environment to having lived on the coast at different times in her life. She has been determined to work in the aquatic sciences for as long as she can remember.

Because of Ava's background, college would not have been an option without financial support, including funding from the Students First endowment. After her mother's death, when she was one year old, she lived with foster families, distant relatives, and friends of friends. Ava moved out on her own when she was 17.

Despite the challenges she faced, Ava graduated from high school and earned an Associate of Science degree—both with honors. She summed this up: "I turned out to be the person I am because of my desire and willingness to work hard and my determination to be independent."

Ava chose the SAFS program because "There are no other programs like this in Washington." She was also attracted to the school having both undergraduate and graduate programs. She particularly enjoyed the many field opportunities. A highlight for Ava was the five-week Marine Invertebrate Zoology course she took at Friday Harbor Labs last summer—an "extensive, hands-on opportunity" she recommends for any undergraduate.

She also worked with faculty member Glenn VanBlaricom on his black abalone study at San Nicolas Island, California. She described this as a remarkable learning experience in which she became familiar with research methods and results, and management implications for an endangered abalone species. During this



Josh Fuller

same study, Ava pursued a project examining the kitchen middens of an extinct indigenous people to understand patterns of intertidal marine species as a source of food. For her senior Capstone project, she did a behavioral study on captive North American river otters at the Seattle Aquarium, using enrichment stimuli such as toys and food; VanBlaricom was her mentor.

Ava emphasized how important scholarships were for her: “I was supported by the Floyd E. Ellis Memorial Scholarship fund, which helped pay for my tuition. I also received the Kiyoshi G. Fukano Memorial Endowed Scholarship that helped pay for my Friday Harbor course. I would have not been able to obtain my degree if it weren’t for the financial aid and scholarships I received throughout my college career.”

Her gratitude also extends to SAFS academic adviser Lin Murdock: “Lin goes out of her way to help students take the right courses.” Ava also greatly appreciated the diversity of faculty research interests and the opportunity to learn about these specialties. She noted, “The faculty are very good at challenging you and helping you succeed.” And she spoke to the intimacy of the SAFS program: “Many of us took the same classes, quarter after quarter, becoming very familiar with each other. This made it easier to study together and to work on group projects together.”

Ava plans to take a year off from school and find a job relating to her area of study. She noted, “I also hope to continue to help with research projects and volunteer, and I plan to eventually apply to the graduate program at SAFS.” Ultimately, Ava hopes to become a marine mammalogist.

Jessica Randall

Freshman, SAFS

Jessica Randall is from Kingston, Washington, where she still lives. Growing up, she had many opportunities to be exposed to aquatic environments, from frequent family beach outings to spending many days at the Poulsbo Marine Science Center or a shell museum in Port Gamble. Her parents fostered her passion for learning by taking her to aquariums and helping her set up her own aquarium. Jessica credits the places she frequented and the individuals she met there for developing her interests in aquatic environments.

When asked why she chose SAFS, Jessica responded, “As long as I could remember, my life and interests revolved around water and the organisms that live in it.” Already sure of the field she would thrive in, Jessica felt the SAFS undergraduate program was “the natural choice.”



Courtesy of Jessica Randall

Both of her parents attended the university as well and had encouraged her to look at SAFS’ program. Thanks to a scholarship from the Students First Endowment, Jessica is able to attend the school of her choice.

During her freshman year, Jessica took the opportunity to explore the many different aspects of aquatic sciences. She also got involved in the zebra fish labs in the Biological Structures Department, University Medical Center, to gain lab experience and to explore a potential research subject as she progresses through her program. She admits, “I am particularly interested in fish and cephalopods but I’m sure my interests will only grow over time.”

Freshman highlights included a field trip to Friday Harbor for a trawl and an independent research project for Fish 250, the marine biology class. The Fish 101 class, Freshwater and Society, “prompted a new understanding of freshwater ecosystems and expanded my interests to encompass freshwater as well as marine environments.” When she required materials or supplies not readily available, the department was quick to supply the necessary resources: “SAFS not only gives me educational opportunities, it provides the means to pursue them and succeed.”

Like many of our students, Jessica especially likes that, in a large, complex university, SAFS provides a small, intimate community, with many, diverse opportunities: “Every day, I receive emails about upcoming events, seminars, lab work or other potential job openings. Professors, TAs, and advisers make the time to

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David Hall

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meet with you whether it's to discuss an assignment or help you map out the next few years of your life. Also, they eagerly share their experiences and knowledge, conveying their own passion for their research and classes."

She also gives kudos to adviser Lin Murdock: "She's been an invaluable friend starting even before I was a student here. Lin has played a pivotal role in my decision to declare a major, get involved on campus, and even in coming to UW." Particularly as a freshman, developing the relationships and friendships from peers up to professors has proven key to Jessica's attachment to the school.

After she earns her BS, Jessica hopes to attend graduate school. As for career, she believes her experiences as an undergrad—through internships, research, and class experiences—will help her determine what kind of direction to pursue. She has some ideas, already: "I hope to pursue research but with an educational component to help create opportunities for students similar to those that I've had. I am certain that some type of conservation effort, whether in a research or a political activism context, will play a role in my life. As with anything in the future though, I imagine this idea will continue to change and be redesigned through my next three years of school."

Alumni Updates

Many of our alumni have realized successful careers working in the academic and government arenas. Yet, other graduates have found rewarding jobs in the private sector. For this issue, we talked with two alumni who have pursued private-sector careers: Dean Adams is a commercial fisher (retired), and Vera D'Agostini works on conservation issues with a non-governmental organization.

Dean Adams

BS 1995, MS 1998

Components of variation in halibut bycatch by vessels in the BSAI Pacific cod bottom-trawl fleet 1990–1996

Dean Adams comes from a long line of halibut fisherman, including his grandfather, an immigrant from Norway, and three uncles. Born in 1956, Dean grew up in the Seattle area. He started fishing halibut on his uncles' boats in 1972, eventually getting his own boat in 1979. He became active in fishery politics by becoming involved with the North Pacific Fishery Management Council as well as serving as President of the Fishing Vessel Owners Association. Such endeavors ultimately led him to SAFS.

MD: Why seek a fishery science degree when you had a successful fishing career?

DA: In a word—the "Derby." When I started fishing halibut in the early 1970s, the industry was depressed. Catch rates and abundance were low—so were prices. By the late 1970s, the halibut resource had rebounded. Catch rates soared, prices rose, and the fleet was overcapitalized to the point where it became known as the Derby. The fishery eventually deteriorated such that by the late 1980s, I started looking for other options and decided to go back to school.

MD: Your commercial fishing perspective was valuable for you as a student, and to others at SAFS, and it led to an unusual research opportunity.

DA: This is one of my favorite accomplishments: I had a good relationship with Tom Quinn, partly because of my prior work. There were two classes I was required to take that Tom told me I should be teaching instead, and he persuaded me to "petition" and do a Columbia River study instead.

We investigated why shad, which migrate upstream based on water temperature, were arriving at Bonneville Dam earlier each year. I collected daily data on shad and

sockeye salmon counts and water temperature. We then compared the run timing of shad and salmon.

The results clearly showed increasing water temperatures over time, which indicated why shad were migrating earlier. But salmon migrate based on photoperiod—that is, the time of year—and each year they entered the river system, the temperatures were higher, which affected the fish’s metabolism. I got great pleasure seeing the fish physiologists make this connection.

We published a paper on this work in the *Journal of Ecology* in 1996, and to this day I think, “Wow, I got to do *that!*”

MD: Steve Mathews was your graduate adviser—one of the only times at SAFS that both the professor and student were commercial fishermen!

DA: I was also Steve’s last graduate student. Under his direction, I focused on a management issue known in fishery politics as the “dirty dozen” boats (US catcher boats) in the cod trawl fishery in the Bering Sea. I analyzed fleet statistics to look for a correlation between boat and incidental bycatch of halibut. The punchline of my study was that bycatch was absolutely random in the fleet. So, rather than penalizing the boats, management had to seek solutions from an entirely different angle.

During my graduate studies, I also assisted SAFS faculty Julia Parrish and Ed Melvin on a project to reduce bird bycatch by fishing vessels. They developed their mitigation protocol on my boat.

MD: Is a fishery science education necessary for a commercial fisherman?

DA: My first reaction was “Of course not!” But then I realized that, because of the aggressive political nature of all fisheries these days, the more articulate and educated you are, the better you’ll be able to represent your livelihood to management and other involved parties.

I can’t say enough good about my time at SAFS. The faculty provided me excellent research opportunities and the classes they taught were great, too: I wish I could lecture like them—it’s hard work and I respect people who do this well. SAFS was the right place for me to be because I had a passion for fish and the ocean. At SAFS, I got to learn more, not only about Alaska, but about the world oceans as well.

MD: What did you do after graduate school?

DA: I continued to fish until 2007, but to a much lesser degree than before my UW studies. I currently sit on the Policy Council of the University of Alaska Fairbanks Fishery

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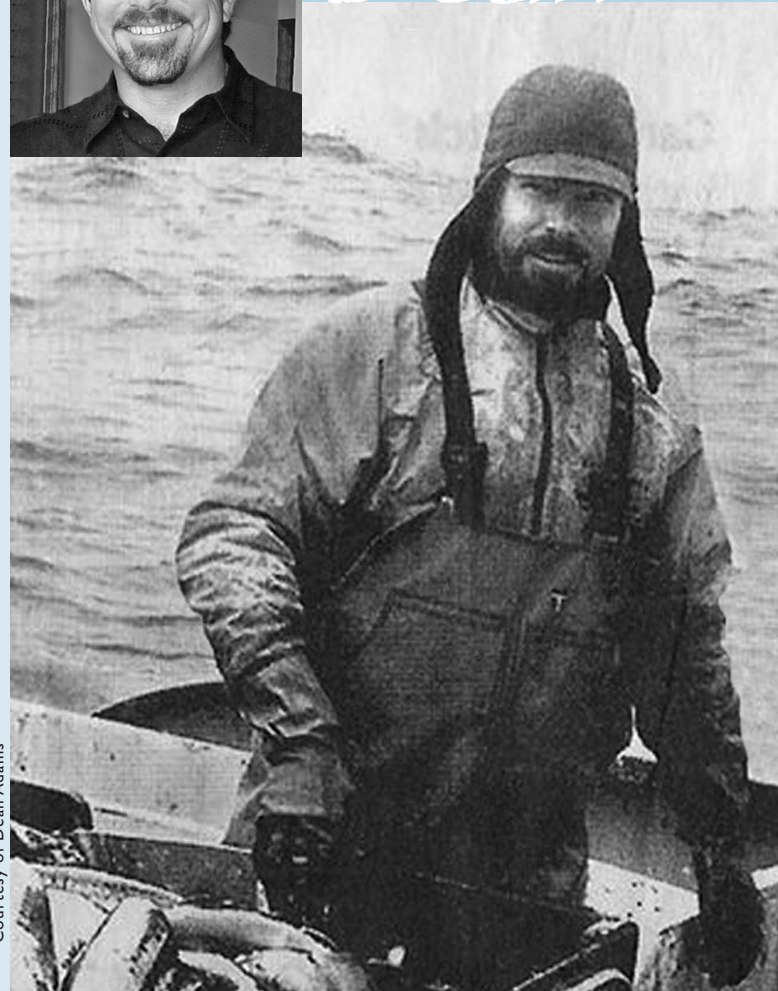
Hooked—A true story of fishing and coming of age on the Alaskan high seas

Dean is writing a coming-of-age story: When he was 15, he spent seven weeks fishing out of Kodiak, Alaska. In his book, he describes his interactions with the extraordinary characters on the boat, including his uncle, who was the captain. Dean notes that “it is a rugged existence to work on a halibut schooner and live on the ocean, and I wrote about that.”

His story includes a dramatic climax in which the boat hits a log and starts to sink. The crew makes a desperate attempt to save his uncle’s boat—with 70,000 pounds of halibut onboard—but they are forced to abandon ship in their life raft. How did this turn out? Dean’s not giving away the ending, except to say, “Obviously, I survived!”



Dean



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Industry Technology Center. I also served on the Research Advisory Board of the International Pacific Halibut Commission until couple of years ago.

MD: You support the SAFS program as a donor and a guest lecturer.

DA: I contribute to the discretionary fund annually because I'm grateful for the education I received here. I also helped raise funds for the Students First Endowment.

I especially enjoy lecturing at SAFS. In one class, I tell the story of the Seattle-based halibut schooner fleet: how the fishery deteriorated for the fishermen and how it then changed after Individual Fishing Quota (IFQ) implementation. I also do a fishing industry overview for the Fish 250 class. Most recently, I lectured for Ray Hilborn's Fish 513 course, where students were already familiar with management constructs, so I was able to delve into the complexities of IFQ issues.

Vera Agostini

PhD 2005

*Climate, ecology and productivity of Pacific sardine (*Sardinops sagax*) and hake (*Merluccius productus*)*

Vera hails from Rome, Italy, where she became enamored with the ocean at an early age. As a child, she spent summers on Giglio, a tiny island off the coast of Italy, "...marveling at the sea and spending every spare minute on the water." She credits this as influencing her choice of career path.



Courtesy of Vera Agostini

MD: What brought you to Seattle and SAFS for your PhD studies?

VA: After earning a Master's in Oceanography at SUNY Stony Brook, I taught for the Sea Education Association, which was wonderful. We were on the water for weeks—usually in exotic, tropical locales—and I got to teach college students the wonders of field sampling.

Because I wanted to pursue more applied research, I took a job with the UN Fisheries and Agriculture Organization, where I became interested in climate impacts on fisheries. This led me to pursue a formal fisheries training at SAFS because it was the place to study climate–fisheries interac-

tions. Also, the Pacific Northwest was uncharted territory for me...for a girl from Rome it was rather exotic!

MD: What was your research focus during your PhD studies and who was your faculty advisor?

VA: I investigated the relationships between natural climate variability (e.g., El Niño) and the life-history patterns of coastal pelagic species and how such relationships impacted management. My mentor, Bob Francis (Professor Emeritus), a leader in climate–fisheries interactions research, was an intriguing mix of being laid back, but also having high expectations of his students. He had a beautiful way of letting his students think big and out of the box! He taught us how science and art are intrinsically connected and he valued approaching it all with elegance.

MD: Since earning your PhD, what path has your career taken?

VA: First, I moved to the opposite corner of the US to work with the Pew Institute for Ocean Science at the University of Miami as a post-doc and then as a research scientist. This was my first foray into the world of conservation: the Pew Institute represented an opportunity to explore something new. After the Pew work, I took a job with The Nature Conservancy's (TNC) Global Marine Team.

At Pew and TNC, I focused on bridging the gap between conservation and fisheries. I have always been fascinated by the stories the ocean holds. Science is a way to piece together those stories. And marine conservation is a way to turn those stories into action.

MD: How do you turn these stories into conservation action?

VA: I try to help people relate to the story of a place so they can appreciate the importance of conservation: Relating to a place implies a visual understanding of its shape and connections. In the marine world, these are dynamic, often invisible (below the ocean surface) and occur within a framework we are just beginning to understand. Describing place in the ocean is important for understanding how it shapes the communities that live in and around it and engaging those communities to help keep it alive for generations to come.

At TNC, my Global Marine Team colleagues and I work across geographies. Connecting the dots brings a wide range of knowledge and expertise to bear on pressing local and global marine conservation problems. The power of operating across these scales is incredible, and working for a global program has allowed me to witness that day after day.



Awards & Honors

Degree track and faculty advisers in parentheses.

Faculty & Staff

Ray Hilborn was made a member of the American Academy of Arts and Sciences. His induction was in recognition of his long research career, encompassing the management of world fisheries, especially Pacific salmon, and wildlife with a long-term project in Serengeti National Park in Tanzania.

Julian Olden received the Society of Conservation Biology Early Career Conservationist Award. This award recognizes his extraordinary scientific contributions to global conservation ecology at an early career stage, and his leadership in the field. In the five years since he earned his PhD, Julian has published more than 85 papers and has made important contributions to the study of the establishment and spread of invasive aquatic species.

Last summer, **Charles “Si” Simenstad** received the Nancy Foster Habitat Conservation Award. Presented by NOAA Fisheries Office of Habitat Conservation and the American Fisheries Society Estuaries Section, this award acknowledges Si for his work in estuarine conservation ecology and habitat conservation, and recognizes his long career of leadership.

Each year, the College of Ocean and Fishery Sciences acknowledged outstanding faculty and staff. In 2009, the Distinguished Undergraduate Teaching award went to **Carolyn Friedman**. Outstanding Staff awards were given to research scientist **Jeffery Cordell** and graduate adviser **Scott Schafer**.

Katherine Maslenikov, Collections Manager of the UW Fish Collection, was elected President of the Gilbert Ichthyological Society for 2011. She will be responsible for organizing and running the 2011 meeting in Washington.

Students & Alumni

Kristi Strauss (PhD, Friedman) received the 2010 Thurlow C. Nelson Award, presented by the National Shellfish Association Student Endowment Fund. The award was based on her oral presentation at the March meeting: “Past, present, and future genetic variation in cultured and wild geoduck clam *Panopea generosa*.”

Chris Kenaley (PhD, Pietsch) received two prestigious awards from the “Encyclopedia of Life”: a Rubenstein Fellowship to contribute to a world-wide effort to create an electronic page for each species of organism on Earth; and a grant to organize and lead a Synthesis Workshop on deep-sea fishes at the Harvard Museum of Comparative Zoology. These awards, granted so early in his career, are testimony to his stature in the world scientific community.

Stephanie Carlson (PhD '06; Quinn) was awarded an American Naturalist Society Young Investigator Prize, which recognizes outstanding and promising work by investigators who received their PhDs three years preceding the application deadline or who are in their final year of graduate school. Stephanie is an assistant professor at UC Berkeley College of Natural Resources.

Teresa Mongillo (MS, VanBlaricom) won the Best Student Poster Presentation Award, Master’s level, at the 18th Biennial Conference on the Biology of Marine Mammals, sponsored by the Society for Marine Mammalogy. The competition was fierce, with 807 poster presentations. Teresa’s poster was titled “Estimated polybrominated diphenyl ether (PBDE) accumulation in the southern resident killer whale (*Orcinus orca*): Sex and age no longer matter.”

Gordon Holtgrieve (PhD '09; Schindler) won the Best Student Presentation, PhD Student, at the American Fisheries Society 2009 annual general meeting, Washington–BC Chapter. His presentation was titled “Marine-derived nutrients and ecosystem metabolism: reconsidering the role of salmon in streams.”

40th SAFS Celebration

Each year, we acknowledge award-winning students and their benefactors. Thanks to our alumni and friends, we have numerous endowments that help recruit outstanding students and support their education and research. Listed below are awards granted in the 2009–2010 academic year. We also thank our donors whose endowed funds were not used this year.

Melvin G. Anderson Scholarship in Fisheries

Joseph Bizzarro, Marine Briec, Nicola Follis, Rachel Hovel, KathiJo Jankowski, Miyako Kodama, Joel Kramer, Allison Linnell, Carey McGilliard, Sophie Pierszalowski

Achievement Rewards for College Scientists

KathiJo Jankowski

Donald E. Bevan Endowed Fund in Fisheries

Supports the annual Bevan Series on Sustainable Fisheries

Wilbert McLeod Chapman Memorial Scholarship

Dana Roberson, Kimberly Sawyer

John N. Cobb Scholarship in Fisheries

Heather Smith

Claire L. and Evelyn S. Egtvedt Fellowship

Christopher Eaton, Nicolas Gutierrez, Miyako Kodama, Teresa Mongillo, Samuel Urmy, Pamela Woods

Floyd E. Ellis Memorial Scholarship

Ava Heston, Louie Ke’Ale, Jeanelle Miller, Jessica Randall, Frank Stevick

Faculty Merit Award

Amanda Bradford, Mollie Middleton, Kristen Omori, George Pess, Ryan Simmons, Carl Young

Fisheries Memorial Award

Jordan Osborn, George Pess

Jack D. Geil Memorial Award

Audrey Djunaedi

DeWitt Gilbert Fisheries–Journalism Scholarship

Tyler Scott

Gilbert Ichthyology Research Fund

Rachel Arnold, Thaddaeus Buser, Ben Frable, Chris Kenaley, Dawn Roje, Kimberly Sawyer

Graduate School Top Scholar Award

James Thorson

Roy Jensen Research Fellowship

Marine Briec, Larissa Felli, Jennifer Griffiths, Louisa Harding, Susan Johnson, Carey McGilliard

H. Mason Keeler Endowment for Excellence

Michael Ackerman, Joseph Anderson, Joseph Bizzarro, Amanda Bradford, John Frew, Adam Hansen, Rachel Hovel, Kerensa King, Meryl Mims, Shannon O’Brien, Lauren Rogers, Emily Runnells, Michael Schrimpf, Samuel Urmy, Daniel Widener

H. Mason Keeler Lake Washington Fund

Joseph Anderson

Marsha Landolt and Robert Busch Endowed Fund in Aquatic and Fishery Sciences

Ryan Simmons, Carl Young

Vincent Liguori Fellowship

Christopher Eaton

Shao-Wen Ling Memorial Scholarship

Andrew Davison

Victor and Tamara Loosanoff Fellowship

Elene Dorfmeier, Mackenzie Gavery, Mary Hunsicker, Eric Larson

Galen and Helen Maxfield Fisheries Scholarship

Oisin Gunning

Gilbert B. Pauley Award

Brian Kertson

John G. Peterson Scholarship

Colleen Burge, Audrey Djunaedi, Mackenzie Gavery, Nicolas Gutierrez, Kimberly Sawyer

William H. Pierre, Sr. Fellowship

Colleen Burge, Pamela Woods

Edward Allen Power Scholarship in Fisheries

Anna McLaskey

Robert E. Resoff Scholarship

Benjamin Frable, Juliana Stephan

Richard T. Whiteleather Fisheries Endowed Scholarship

Charlotte Boyd, KathiJo Jankowski, Judith “Jodie” Little, Tyler Scott, Rachel Thompson

Degrees Awarded, Autumn 2008–Winter 2010

BS Degrees

Taylor Alton
Barney Baker
Aubrie Booth
Jason Borchert, *double degree, Biology*
Erin Burch
Yeu-Ru (Stephanie) Chou, *double degree, Chemistry*
Jerilyn Chun
Meegan Corcoran
Logan Dunphy, *University Honors, Cum Laude*
Michael L. Elam
Claire Ellis
Marc Ersfeld
Anna L. Fabrizio, *Minor in Marine Biology*
Jessica Gill
Robert Greiff
Ranae Holland
Michaela Howard, *double degree, Environment*
Laurel Kanawyer, *University Honors*
Joshua Kubo, *double degree, Biology*
Mariko Langness
Jingwen Li
Ashlee Maust
Christin D. Mclemore
Mollie A. Middleton, *with Distinction, Minor in Marine Biology*
Kristen L. Omori, *double degree, Environmental Science and Resource Management*
Andrew Richter
Kimberly A. Sawyer, *Minor in Marine Biology*
Marissa Smith, *with Distinction, Cum Laude*
Paul Son
Stephanie Spurr
Tiffany Stephens
Justin M. Stepura
Rebecca A. Stombaugh, *Minor in Marine Biology*
Kevin Swager
Amanda Thompson
Gretchen Thuesen, *Magna Cum Laude*
Jarid Waltz
Gemma S. Woodhouse, *double degree, Biology, Minor in Environmental Science and Resource Management*

Our students study a diverse array of disciplines, including acoustics, biology, statistics, ecology, disease, genetics, and physiology, as well as many interdisciplinary foci that recognize the importance of understanding the interactions between humans, our environment, and the resources we rely upon.

The following list illustrates the breadth of our students' research, with subjects including fishes, invertebrates, marine mammals, sea-birds, insects, and the ecosystems these organisms occupy; and issues including impacts on human communities, conservation, evolution, health, and fisheries management. (Advising professors in parentheses.)

MS Degrees

Adam, Patrick (Horne) Quantifying spatial and temporal variability of distribution patterns in acoustic backscatter density with synoptic airborne LIDAR
Arnold, Rachel (Pietsch) Evolutionary history of the teleost family Antennariidae (Order Lophiiformes): Evidence from DNA, reproduction, and geographic distribution, with notes on conservation implications
Beetz, Jessica (Mantua) Marine survival of coho salmon (*Oncorhynchus kisutch*) in Washington state: characteristic patterns and their relationship to environmental and biological factors
Berge, Hans (Beauchamp) Effects of a temperature–oxygen squeeze on distribution, feeding, growth, and survival of kokanee (*Oncorhynchus nerka*) in Lake Sammamish
Felli, Larissa (Young) Shedding light on mysteries of salmon reproduction: the potential role of non-retinal, non-pineal opsins in endocrine responses to light
Hammond, Carwyn (Conquest) Using reflex action mortality predictor (RAMP) to investigate if trawl gear modifications reduce unobserved mortality of *Chionoecetes* spp.
Lowery, Erin (Beauchamp) The trophic ecology of fluvial bull trout in the Skagit River, WA
Ono, Kotaro (Simenstad) Assessing and mitigating dock shading impacts on the behavior of juvenile Pacific salmon (*Oncorhynchus* spp.): can artificial light mitigate the effects?
Perkin, Elizabeth (Naiman) Soil moisture, nitrogen mineralization and riparian tree growth on the Queets River, Washington
Roje, Dawn (Pietsch) Molecular phylogeny and larval morphology: a new hypothesis of relationships for the flatfish family Pleuronectidae (Percomorpha: Pleuronectiformes)
Simmons, Ryan (Hilborn) The stock-specific patterns of rearing by juvenile sockeye salmon (*Oncorhynchus nerka*) under a changing landscape in the Chignik Lakes System, Alaska
Sternberg, Morgan (Grue) Efficacy, fate, and potential for non-target effects of larvicides used in West Nile virus control strategies
Young, Carl (Simenstad) Shoaling behavior as a tool to understand microhabitat use by juvenile chum salmon, *Oncorhynchus keta*

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PhD Degrees

- A'mar, Teresa (Punt; QERM) A management strategy evaluation exploring the national standards of the Magnusson–Stevens Fisheries Conservation and Management Acts with respect to the robustness of decision rules used for North Pacific groundfish, with applications for the U.S. Gulf of Alaska walleye pollock (*Theragra chalcogramma*) fishery
- Beaudreau, Anne (Essington) The predatory role of lingcod (*Ophiodon elongatus*) in the San Juan Archipelago, Washington
- Brandon, John (Punt) Quantifying uncertainty and incorporating environmental stochasticity in stock assessments of marine mammals
- Britt, Lyle Lynn (Miller) Ontogenetic changes in the visual ecology of Northeast Pacific marine fishes
- Cope, Jason (Punt; QERM) Issues and advances in data-limited stock assessment: experimentation through simulation
- Duffy, Elizabeth (Beauchamp) Factors during early marine life that affect smolt-to-adult survival of ocean-type Puget Sound chinook salmon (*Oncorhynchus tshawytscha*)
- Haltuch, Melissa (Punt) Modeling human and climate impacts on the management of the Pacific North West groundfish fishery
- Hamel, Nathalie (Parrish) Spatial ecology of Common Murres (*Uria aalge*) in the Pacific Northwest and implication for management
- Holtgrieve, Gordon (Schindler) Linking species to ecosystems: effects of spawning salmon on aquatic ecosystem function in Bristol Bay, Alaska
- Hunsicker, Mary (Essington) Evaluating the role of cephalopods within marine food webs and fisheries
- Little, Judith (Francis) Evaluating linkages in the social–ecological system of U.S. West Coast fisheries from ecological and spatial perspectives
- McClelland, Erin (Naish) Genomic approaches to examining evolutionary processes in coho salmon (*Oncorhynchus kisutch*)
- Pess, George (Quinn) Patterns and processes of salmon colonization
- Smith, Heather (VanBlaricom) Fatty acid variation in beluga blubber: implications for estimating diet using fatty acids
- Smith, Joanna (Parrish) Avian foraging ecology and habitat selection: life history constraints during breeding
- Sterling, Jeremy (VanBlaricom) Northern fur seal foraging behaviors, food webs, and interactions with oceanographic features in the Eastern Bering Sea
- Suydam, Robert (VanBlaricom) Age, growth, reproduction, and movements of beluga whales from the Eastern Chukchi Sea

Gifts 2008–2009

During 2008–2009, our SAFS alumni, faculty, and friends continued their long-standing, critical role in supporting our programs through their generous financial gifts. We acknowledge and thank our many benefactors for their sustained support.

Up to \$1,000

Dr. & Ms. James R. Adams
Ms. Rosa E. Allen
Dr. Stephen Alley & Ms. Amy Scott
Dr. & Mrs. Dayton L. Alverson
Aven & Shirley Andersen
Mr. Greg Anderson & Ms. Patsy Dickinson
Dr. Jill B. & Mr. Murray M. Andrews
Elizabeth A. Babcock, PhD
Mr. Jon D. Baker & Ms. Anne Windsor
Dr. & Mrs. William H. Bayliff
Mr. & Mrs. Kirk T. Beiningen
Mr. & Mrs. William C. Bemis
Mr. Jeffrey June & Ms. Amandalei Bennett
Mr. & Mrs. Mark A. Bentler
BioAnalysts, Inc.
Mr. & Mrs. Robert G. Bisordi
Mr. & Mrs. Jim Bodding
Mr. Richard E. Bohn
Mr. R. Critchfield & Ms. J. S. Bricker
Burke Museum Association
Dr. David Atherton & Ms. Moira Campbell
Dr. & Mrs. Rick D. Cardwell
Mr. & Mrs. Jose R. Carrasquero
Dr. & Mrs. Bobb Carson
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