The mission of the School of Aquatic and Fishery Sciences is to excel in providing multidisciplinary and experiential learning for undergraduate and graduate students interested in aquatic environments, to conduct groundbreaking research on topics pertinent to understanding and managing these environments, and to communicate our findings to regional, national, and international audiences.

The School of Aquatic and Fisheries Sciences (SAFS) values the strengths and professional experience that students, faculty, and staff bring to our community. We are committed to providing an excellent education to all of our students, regardless of their race, gender, class, nationality, physical ability, religion, age, or sexual orientation. We are proud of the different roles that our students, staff, and faculty play in the community of the School and the College of the Environment. We also recognize that science is richer and the SAFS community is more vibrant when a diverse group of people participate in research. To this end, we pledge to increase diversity among our students, faculty, and staff, and create a welcoming and supportive environment for learning and discovery.

_The University of Washington acknowledges the Coast Salish people of this land, the land which touches the shared waters of all tribes and bands within the Suquamish, Tulalip, and Muckleshoot Nations._
From the Director

The School of Aquatic and Fishery Sciences (SAFS) has evolved from a College of Fisheries with 13 students and 3 faculty under the leadership of the first director, John N. Cobb, to a School within a College of the Environment with 29 faculty, 175 students and post-doctoral fellows, and 75 research and administrative staff that has awarded almost 2000 bachelor’s, over 1000 master’s and over 500 doctoral degrees. The College of Fisheries was the first school in the US to offer education and training in the field of fisheries and remains at the academic forefront of fisheries and many other aquatic disciplines.

It is impossible to list all the significant events in the School’s history, but a number of them really stand out for me: the first students graduating from the School in 1921; the establishment of the Applied Fisheries Laboratory in 1943, which led to the hatchery; the creation of the Fisheries Research Institute in 1947 and the first field season for salmon research in Alaska the following year; Doug Chapman teaching the first statistics course in 1949 that began the legacy that defines SAFS as the “Gold Standard” of quantitative fishery science; and the change of the School’s name to better reflect our evolving mission in 2000.

Our research programs and the courses we teach have evolved with the disciplines that we represent. For example, food science—once a core part of the School—is no more, while almost half our faculty use genetic and genomic techniques, methods that did not exist when the School was founded. And, terms such as Ecosystem Based Fisheries Management and Invasion Ecology, which did not exist even when the School turned 50, are now fundamental to the work that many of us do.

This commemorative booklet represents the past—distant and recent—of the School. It outlines the School’s history; profiles a small subset of our many amazing alumni, faculty, and staff, spanning most of our century of excellence; and lists our endowments, without which we could not continue to fund our students and give faculty opportunities to explore new avenues of research. Our students are our ultimate legacy, and the faculty and staff of SAFS are proud to support their growth as students and their success as alumni. Our alumni are found worldwide in leadership roles, conducting fundamental and applied research in government and tribal agencies, academia, the fishing industry, consulting companies, and non-governmental organizations. Collaboration among individuals and institutions is a cornerstone of our success, and our alumni and affiliate faculty have played an essential role in building and maintaining these relationships.

The past is bright, but the future is brighter. We will continue to build on our history of innovation, application, and service, and our achievements over the next 100 years will be remarkable. I am proud that the School is striving to better reflect the community we serve by supporting efforts to transform the culture and practices of SAFS to make it a more inclusive, diverse, and supportive environment. Considering the investment into these efforts by our current SAFS community, I anticipate that in 2119, when the director writes the introduction to the bicentennial celebration, SAFS faculty, staff, and students will be fully reflective of the peoples of Washington State, and the School will continue its tradition as the premier institution for scholarship in fisheries and aquatic sciences.

—André E. Punt (March 2019)
SAFS 100-Year Timeline

This abridged version of our School's history highlights important events in SAFS leadership, curriculum, and evolution. The timeline was derived in part from former Director Robert R. Stickney's account of SAFS—from its inception in 1919 through 1985—in his 1989 book, *Flagship: A History of Fisheries at the University of Washington* (Kendall–Hunt Publishing Company). The historical timeline continues with significant SAFS activities and events from 1985 to 2019.

**The Beginning**

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1919</td>
<td>Thirteen students enroll in the first US College of Fisheries—established April 2 on the UW campus under the direction of John N. Cobb.</td>
</tr>
</tbody>
</table>

**1920s**

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1921</td>
<td>First five students graduate from the College of Fisheries. Cobb evaluates effectiveness of Yakima River fishways and recommends changes.</td>
</tr>
<tr>
<td>1929</td>
<td>Enrollment exceeds 100 students.</td>
</tr>
</tbody>
</table>

**1930s**

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1930</td>
<td>Dean Cobb dies; the College of Fisheries temporarily ceases to exist. William F. Thompson becomes Director of the UW Department of Fisheries. International Fisheries Commission (now International Pacific Halibut Commission) housed in UW Department of Fisheries.</td>
</tr>
<tr>
<td>1932</td>
<td>Lauren Donaldson begins trout mass selection program.</td>
</tr>
<tr>
<td>1935</td>
<td>UW Board of Regents approves name change to the School of Fisheries in the College of Science, under Acting Director William F. Thompson.</td>
</tr>
<tr>
<td>1938</td>
<td>First research vessel, the cabin cruiser <em>Kokanee</em>, constructed.</td>
</tr>
</tbody>
</table>

**1940s**

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1943</td>
<td>Only six enrollees because of WWII. Lauren Donaldson asked by the US Government to study effects of radiation on Columbia River salmon; leads to creation of the Applied Fisheries Laboratory within the School.</td>
</tr>
</tbody>
</table>

---

*Photo credits, left to right: University of Washington Libraries Special Collections, negative #15344, #39482, #UW2543 and SAFS Archives*

left to right: UW Fisheries Club, 1923; John N. Cobb (top); William F. Thompson; raceways behind wooden College of Fisheries building, circa 1924
1945 Canners in Bristol Bay, Alaska, ask to have research needs evaluated; precursor to the Fisheries Research Institute.
Lab established at Hanford near plutonium plants.

1946 Hells Gate fishway completed on Fraser River by Milo Bell.
Applied Fisheries Laboratory personnel witness detonations of atomic bombs at Bikini Atoll; conduct research into effects of radiation.
Southeast Alaska canners request evaluation of research needs.

Wilbert Chapman becomes Director of the School of Fisheries.
R/V *Oncorhynchus*, a Navy surplus personnel carrier, replaces *Kokanee*.

1948 Richard Van Cleve appointed Director of the School of Fisheries.
Salmon research begins in Kodiak, Alaska.

1949 Douglas Chapman teaches first statistics course, the start of a storied history of quantitative excellence at the School of Fisheries.

1950s

1950 Enrollment skyrockets to 150 students, mostly veterans.
Twenty-three thousand Chinook fingerlings released in Portage Bay; first UW salmon run.
Fisheries Center building completed, located along Montlake Cut.

1952 Applied Fisheries Laboratory personnel witness detonation of hydrogen bomb at Eniwetok, Marshall Islands.

1953 Twenty-three adult Chinook salmon return to fisheries raceway.

1955 High Seas Salmon project begins.
The R/V *Commando*, a halibut boat, replaces *Oncorhynchus*.

1957 Fern Lake research project initiated to study mineral cycling in a watershed; lasts until 1971.
Creation of the first six fisheries graduate courses.

1958 School of Fisheries becomes the College of Fisheries again under Dean Van Cleve.
William Royce becomes Director of the Fisheries Research Institute.

1959 Fisheries portion of Project Plowshare (exploration of use of nuclear explosives for peaceful construction) evaluates baseline levels of radionuclides in organisms in the Arctic.
First edition of *Research in Fisheries* published—the School's annual report, including research summaries, publication listings, student awards, and graduations.
Fisheries Research Institute develops forecasts for the 1960 sockeye salmon run to Bristol Bay, Alaska, the start of long-running predictions that continue to this day.
1960s

1960  Laboratory of Radiation Biology (formerly Applied Fisheries Laboratory) examines effects of gamma radiation on successive generations of salmon.

1961  Salmon return pond is constructed.

1961–1962  Fisheries hires first female faculty members: Rita Colwell (appointed Assistant Professor; Director of National Science Foundation 1998–2004; now Professor, University of Maryland and Johns Hopkins) and Frieda Taub (appointed Assistant Research Professor; now Professor Emerita). Computer application in fisheries science begins.

1963  Construction of the R/V *Malka*.

1965  UW purchases 270 acres bordering Big Beef Creek and harbor on Hood Canal to support research on salmon spawning behavior.

1967  US Fish & Wildlife Service Cooperative Fishery Research Unit (Coop) established with Richard Whitney as Unit Leader.

1968  Center for Quantitative Science (CQS) and Biomathematics graduate program founded under Douglas Chapman.

Robert Burgner becomes Director of the Fisheries Research Institute.

New wing of the Fisheries Center constructed.

Research barge *Kumtucks* is acquired.

1969  Institute for Food Science and Technology is founded under John Liston.

1970s

1970  Record enrollment: 168 undergraduates and 130 graduate students register.

Fisheries segment of Western Coniferous Biome Studies is funded.

1971  Douglas Chapman appointed Dean of the College of Fisheries.

1972  Food Engineering Laboratory completed.

1975  Fisheries Research Institute administers National Marine Fisheries Service observer programs for foreign fishing vessels.

Coop's strategic advisory role contributes to the Boldt Decision, reaffirming Washington tribal rights to harvest and co-manage state fisheries.

1977  Fisheries investigates Satsop Nuclear Power Plant blowdown effect on salmonid reproduction.

1978  Lease agreement signed with the City of Seattle for Seward Park Hatchery to produce and stock rainbow trout in Lake Washington.

1979  First “Gutshop” workshop—organized by Charles “Si” Simenstad and colleagues—promotes standardization of methods for fish stomach content analysis.

---

left to right: John Liston and Rita Colwell circa 1961, Frieda Taub circa 1962, Big Beef Creek weir
1980s

1980  Don Bevan becomes Dean of the College of Fisheries.
      R/V Alaska acquired from NMFS.
      Effect of Mount St. Helen's ash on salmon migration patterns studied.
1981  College of Ocean and Fishery Sciences (COFS) formed. The College of Fisheries becomes
      a School within COFS.
      Don Bevan appointed Director of the School of Fisheries.
1983  Cooperative high-seas salmon tagging program initiated with the Soviet Union.
      Marine Studies building completed.
1985  Robert Stickney appointed Director of the School of Fisheries.
1986  Robert Francis appointed Director of the Fisheries Research Institute.
      Observer program initiated with Alaska fishing industry.
      Center for Streamside Studies created under the direction of Ernest Salo.
1987  Western Regional Aquaculture Consortium (WRAC) established at the School of Fisheries
      under the direction of Ken Chew.
1988  Triploid (all season) “sexless” oyster developed for commercial use by School personnel
      at Manchester.
      The Coop expands to include a wildlife research component.
      Coastal Observation and Seabird Survey Team established, led by Julia Parrish.
1989  Biomathematics program becomes Quantitative Ecology and Resource Management (QERM)
      graduate program.
      Effects of Exxon Valdez oil spill evaluated by School personnel.
      Chris Grue appointed Coop Unit Leader.

1990s

1990  Fisheries Teaching and Research Building opens.
1991  Marsha Landolt appointed Director of the School of Fisheries.
1992  Ellen Pikitch takes over as Director of the Fisheries Research Institute.
1993  Fish Collection curated by Ted Pietsch rated fourth in North America among regional collections.
      Molecular Biology Lab initiated with Oceanography.
      John Skalski becomes Director of CQS.
      The Coop becomes part of USGS National Biological Survey.
1994  The School celebrates 75 years of colorful history.

left to right: Don Bevan (top), Bob Stickney, Marsha Landolt, Ted Pietsch in the UW Fish Collection

Photo credits, left to right: SAFS Archives, Courtesy of Bob Stickney
1994  Faculty provide expertise and testimony in the Rafeedie Decision, affirming Tribes’ rights to half of the Washington shellfish harvest. Paul Bentzen sets up Marine Molecular Biotechnology Laboratory, run jointly by the School of Fisheries and the School of Oceanography.

1996  Columbia Basin Research program formed under the direction of James Anderson and John Skalski.

1997  Ken Chew assumes role as Interim Director of the School of Fisheries. Wetland Ecosystem Team established under the leadership of Charles “Si” Simenstad and Ron Thom.

1998  David Armstrong appointed Director of the School of Fisheries.

1999  New Fishery Sciences building opens.

2000s

2000  School changes name to the School of Aquatic and Fishery Sciences (SAFS) to better reflect expanding breadth and scope of programs. Bevan Series for Sustainable Fisheries initiated by Julia Parrish. Made possible through the Donald E. Bevan Endowed Fund in Fisheries, established in his memory and funded by his wife Tanya and niece Susan.

2001  Undergraduate curriculum broadened to include conservation habitat protection and restoration, biodiversity, and user conflicts. Freshwater Initiative formed, offering students linked courses across three Colleges, exploring freshwater ecosystems.

2004  Graham Young appointed Executive Director of WRAC.

2005  Vince Gallucci appointed Director of CQS.

2007  SAFS ranked first in “fisheries science & management” for faculty scholarly productivity by the National Research Council (reported in the Chronicle of Higher Education). Jim and Lisa Seeb establish the International Program for the Study of Salmon Ecological Genetics.

2010s

2010  SAFS joins the newly formed College of the Environment. NOAA provides funding for two Quantitative Ecology and Socioeconomics training positions at SAFS.

2011  “Fishes of the Salish Sea,” a mural by artist Ray Troll, installed in SAFS lobby. New curriculum focused on exposing students to breadth of subjects in aquatic sciences, and improving skill sets.

2012  André Punt appointed Director of SAFS.


2017  Sarah Converse appointed Coop Unit Leader. Tim Essington appointed Director of CQS. QERM program transferred to College of the Environment and merged with CQS.

2018  Marine Biology major established, with Kerry Naish as inaugural Director. SAFS faculty obtain their 6th UW Distinguished Teaching Award, more than any other department or school on campus.

2019  SAFS celebrates its centennial year.
SAFS Stories
ALUMNI, FORMER FACULTY & STAFF

Photo credits: top row, left to right: Courtesy of Donna Houser, SAFS Archives, University of Washington Libraries Special Collections Neg #15301; 2nd row: Courtesy of Oswald family, Ximing Guo, and Ivonne Ortiz; 3rd row: Courtesy of Noble Hendrix and Kendra Daly, University of Washington Libraries Special Collections Neg #15483
Dean Adams  
BS, 1994; MS, 1998

My experience at SAFS in the 1990s was nothing short of magical. I returned to UW when my livelihood in Alaska—commercial fishing for halibut and sablefish—came under threat owing to overcapitalization and severely reduced fishing seasons. I needed to diversify my talents and expand my capabilities by completing a bachelor’s degree.

I was an outlier and an older student. I was a veteran of Alaska longline fishing, as well as an experienced fisheries advocate. I remember smiling when I listened to my profs lecture—Ted Pietsch, Tom Quinn, David Armstrong, Ray Hilborn, Loveday Conquest, Don Gunderson and others—I got to learn from the best in the field.

As an undergraduate, I contributed to the School by guest lecturing in Kane Hall to several hundred students in FISH 101, primarily arts and humanities majors, who knew FISH 101 as a “fun” science requirement class. I also presented to the then School of Marine Affairs regarding fisheries “limited-entry” management, a dynamic and highly charged political issue in Alaska at the time.

I became part of the SAFS network. Julia Parrish and Ed Melvin asked me to review their research proposal concerning seabird bycatch mitigation. This opportunity morphed into a voyage onboard my fishing vessel—the Quest—where Julia and Ed established protocols for a large study that tested seabird deterrent devices. I am very happy to have been associated with this project, which led to regulations requiring the use of mitigation devices in the North Pacific longline fisheries.

If I had to pick my highlight at SAFS, it wouldn’t be my MS project, proving or disproving whether a so-called “Dirty-Dozen” group of trawlers existed in the Alaska fleet... (results “disproved” the moniker). Rather, the all-time highlight began during an undergraduate lecture by Tom Quinn, when he offered a nebulous project to his entire Fish Ecology class—studying fish migration in the Columbia River. No takers then; however, some time later when

Tom advised me on how to tick off all the boxes and complete my degree, he said I should consider doing this project, and as a tradeoff, he would petition to omit a couple of required courses regarding fishing gear technology and world fisheries issues. I pondered for a moment and took him up on his offer. I am so thrilled that I did...it evolved into a 1996 paper in the journal Ecology with Tom and me as authors. It is a wonderful and oft-cited paper concerning global warming affecting the migratory timing of anadromous fish.

Finally, and directly related to my experience at SAFS, is my confidence in academic discipline, without which I would have never been able to take on the enormous project of writing a book—Four Thousand Hooks, published by UW Press in 2012. Tom and Ray Hilborn are in the book’s acknowledgments.

I am so very grateful to have been part of UW SAFS.
My years at UW are among the best in my life! I joined the MS program with a Chilean government scholarship, poised to obtain expertise in stock assessment and to go back to my job at the Undersecretary of Fisheries. But life took me in different directions. I needed to develop analytical expertise to inform management, and no appropriate programs existed in Chile.

I heard José Lobo Orensanz and Vince Gallucci talk at a conference and added the Center for Quantitative Sciences to my search list. When I visited Seattle, I knew it would be our next home. We moved to Seattle in spring 1983. Our living situation was ideal, and many people I met became friends for life.

As a foreign student, I encountered challenges and many funny moments. Ana Parma and I were classmates in Vince’s population dynamics class, and we became known for laughing at his jokes 5 minutes later, after having them translated.

For my thesis, I developed a method to age a mollusk species, and also implemented a growth model. My studies included a summer in Friday Harbor, where I met my future husband, Edgar Meyhofer—my kids loved living in the huts, fishing at the pier, and exploring new worlds under the microscope. I continued into the PhD program under Bob Francis, with Ray Hilborn as a committee member. My dissertation was on dynamics of Pacific hake and a Kudoa parasite.

I loved the school-wide seminars, where I spoke with faculty and other experts in a relaxed atmosphere. Also, I am a visual artist and Bob a jazz musician, so we both understood creativity. Close to graduation, the International Pacific Halibut Commission hired me to study halibut bycatch. Eventually, we moved to Germany, my husband’s home country. I worked for six years at the Institute of Fisheries at the University of Hamburg before returning to the US. I stayed connected with SAFS through research on marine protected areas with Ray and Raquel Goñi at the Oceanographic Institute in Baleares. But by the time I was able to speak German fluently, my husband was considering a job at the University of Michigan.

We moved to Michigan in 2001, and I joined the School for Environment and Sustainability, where I’ve had opportunities to incorporate the arts. I’ve mostly focused on the Great Lakes, where fisheries and habitat deterioration are causing species extinction, invasive species and climate change are ruling lake dynamics, and management’s preferred tool is fish stocking. My fascination with understanding nature transformed into a mission to protect nature and work towards a more just world. I am channeling most of my energy through teaching, outreach, and engagement, creating courses and other opportunities that bridge environmental sciences and the arts. Teaching is a privilege and an act of love.
I came to the SAFS from Rome, Italy, my birthplace. After several years teaching on schooners with the Sea Education Association, and as a visiting scientist with the Fisheries Department of the FAO, it was time to get a good grounding in fishery science. I hesitated at first—the only fisheries management course I had taken was very boring—but a desire to engage in science with real-world application moved me to take the leap and do my PhD at UW.

I was lucky to join Bob Francis’ lab, which had attracted a group of bright and fun scientists studying issues related to climate change impacts and ecosystem dynamics. Bob pushed us all to think outside the box and fostered a spirit of inquiry that I still greatly appreciate. I was lucky to also find many good friends and colleagues in the rest of the SAFS community and beyond, including Warren Wooster, Anne Hollowed, Ray Hilborn, André Punt, Julia Parrish, and Dave Fluharty. All of them thoughtfully supported my research and development. My dissertation focused on understanding the response of Pacific hake and Pacific sardine to climate variability, and teasing out the implications for managing these two species.

After my PhD, I took another leap and joined the world of conservation, doing my post-doc with Ellen Pikitch at the Pew Institute for Ocean Science. Then I joined The Nature Conservancy’s Global Marine Team. There, I found myself carrying the flag of fisheries, focusing on bridging the gap between what sometimes seemed like unnecessarily distant communities, fisheries, and conservation. I happily learned about conservation and resource management in, and travelled to, distant areas of the world, and engaged in projects on, and strategy development for, mainly tropical areas. Foci included marine spatial planning, and climate adaptation of coastal communities.

After 10 happy years with The Nature Conservancy, I decided it was time for another leap. Recently, I again joined the Fisheries Department of the FAO, United Nations, back in Rome—this time as its Deputy Director. There, I am back helping to bridge the gap between fisheries and conservation, but this time from the other side.

Just like my study species, I have clearly been migratory, living in and adapting to distant places like Seattle, Miami, and Rome. I fondly remember and keep in touch with many friends and colleagues in the SAFS community. As the years progressed and I became engaged with other research communities, I realized how lucky I was at SAFS: The faculty support we received, the exposure to the Seattle NMFS labs, and the sense of community SAFS fostered between faculty and students were unique and critical to my development. I miss that, and sometimes get a glimpse of it—through even a brief communication with SAFS colleagues and friends—that I know will remain for a lifetime.
Alexandre Aires-da-Silva
PhD, 2008

I first visited SAFS in February 2000. With a Fulbright scholarship in my pocket, I was “shopping” PhD programs in fisheries stock assessment. I felt instant chemistry with SAFS. The new building had just been inaugurated, and the atmosphere was so friendly. A stroll around the beautiful UW campus was the first of many that I would come to enjoy.

Vince Gallucci, who would become my major advisor, mentor, and friend, hosted me for that first visit. He had just started his Shark Research Lab and was interested in my work on blue shark fisheries in the Azores.

Vince’s background was the paper-and-pencil “analytical” school of thought in fisheries stock assessment, but he understood I was more interested in the highly computational “numerical” approach and helped me strike the right balance between the two. Outside SAFS, I particularly enjoyed the calculus and intro to math stat courses and John Skalski’s courses in QERM; at SAFS, Ray Hilborn’s (and later André Punt’s) FISH 458 and 558 courses introduced me to the “ecological detective” mindset and the use of maximum likelihood and Bayesian analyses—after which there was no return to the Virtual Population Analysis that I learned in Europe.

Vince also gave me the key to my dream dissertation: thanks to him, my previous work in the Azores expanded into a study on blue shark population dynamics over the entire North Atlantic. This included working with scientists from the Apex Predator Program at the National Marine Fisheries Service’s Narragansett Laboratory.

My SAFS experience went beyond advanced education. Backstage at this wonderful program was a priceless human experience. I feel privileged and honored to have shared my path with a talented and kind group of students. I shared an office with Ian Taylor, with whom I learned so much. I rode the roller-coaster of grad school with an amazing cohort of international students, including Vera Agostini, Carlos Alvarez Flores, Billy Ernst, Jesús Jurado Molina, Carolina Minte-Vera, Arni Magnuson, Juan Valero, Alex Zerbini, and many others. Our profound companionship is still going strong, and fisheries aside, the immersion in Latin American culture they gave me has proved invaluable in my subsequent career.

Since 2007, I have worked at the Inter-American Tropical Tuna Commission (IATTC), first under Rick Deriso and later Mark Maunder. I am honored to follow the many SAFS graduates who have served on the world-renowned IATTC staff, including William Bayliff, Martín Hall, Michael Hinton, James Joseph, and Carolina Minte-Vera. Working with Mark, the most complete but humble stock assessment scientist I know, has been a particular privilege. In 2017, I stepped into Rick Deriso’s shoes as IATTC Coordinator of Scientific Research. Largely thanks to my SAFS experience, I was ready for this next stage of the long journey that started when I boarded that plane for Seattle....
I attended the University of Maine, enrolling in an MS program in Zoology. There, I discovered shellfish aquaculture, and I was fortuitously appointed as research assistant on a project to make triploid salmon. In time, these two paths merged, and I was integrally involved in creating the first triploid shellfishes—oysters, clams, and scallops.

While I was in Maine, the developing aquaculture industry was conjuring new ways to grow salmon, oysters, clams, mussels, seaweed, and the like. I experienced their growing pains and appreciated the value of practical research on questions of profitability. This has lasted my whole career.

At that time, the Maine aquaculture industry was not interested in triploids, a value-added process. I was therefore ready to swear off triploid shellfish. However, while wondering where my future lay, I realized I needed a research license! I searched for a PhD program that combined aquaculture and genetics, making a grand circuit of potential schools including the UW. More logical places were available, but UW Fisheries felt like home. Plus, iconic shellfish pioneer Ken Chew was there.

Having sworn off shellfish, I immersed myself in Pacific Northwest salmon, subjecting several species to triploid induction. But, I learned about the large-scale, hatchery-based oyster aquaculture industry in the Pacific Northwest—the exact template needed for integrating a genetic improvement such as triploidy. I applied practical shellfish research, working with the oyster industry—Coast Oyster, Taylor Shellfish, Wescott Bay Shellfish—to commercialize polyploid technology. Overlapping my stay was fellow grad student Ximing Guo, who pioneered research on tetraploidy induction in oysters.

A cadre of Fisheries grad students were interested in genetics. We named ourselves the “old gonads”—several of us were beyond the typical cohort age—and we took courses in recombination and mutation, molecular genetics, chromosome behavior, and population genetics. Better yet, many of us benefited from the mentorship of the “founding father” of fishery genetics, Fred Utter, and his extraordinary stable of graduate students and alums. My first official meeting with Fred was on the back of his 350 Honda motorcycle, taking a trip to Goldies for hamburgers, beers, and science.

Thanks to my UW background, I landed a faculty position with Rutgers University at the Haskin Shellfish Research Lab in the late 1980s. Ximing joined me eventually, and we developed tetraploid oysters, which have influenced shellfish aquaculture worldwide. After Rutgers, I moved to the Virginia Institute of Marine Science as the Founder and Director of the Aquaculture Genetics and Breeding Technology Center, which supports one of, if not the largest, oyster breeding programs in the world, and we provide broodstock improvement and management for a large segment of the industry on the East Coast.

Looking back, I realize that magical, formative period during my tenure at UW was, hands down, the most influential in my career.
I began graduate school at UW in 1971 after graduating from Penn State. I had worked in the genetics lab of Jim Wright at Penn State, and he recommended that I attend UW because a former student of his (Bill Hershberger) had recently joined the Fisheries faculty.

UW Fisheries was not a good place to study genetics in the early 1970s. Don Hagen, then Curator of Fishes, was an outstanding ecological geneticist working on sticklebacks. I remember talking with him when I was a new graduate student. He felt that his basic science was not appreciated by the College of Fisheries.

My early studies were frustrating. I remember telling Jim Wright that things were not going well. He suggested that I visit with Fred Utter at the nearby Montlake Lab of the National Marine Fisheries Service. After talking with Fred for less than an hour, he offered me a space in his lab and a desk. I literally began working with Fred the next day, and, as they say, I never looked back.

I spent a fantastic, fun four years working with Fred. His support and enthusiasm were tremendous. Allozyme electrophoresis had just been developed, making the study of natural population genetics possible for the first time. Those were exciting times! In 1971, Alyn Johnson and I were the only grad students in Fred's lab. We would later be joined by Bernie May and Jim Seeb before I graduated in 1975.

My difficulties with the College of Fisheries persisted because Fred could not be my primary supervisor—he was an affiliate faculty member. Dean Doug Chapman was extremely helpful during those difficult times. Eventually, Fred and I obtained funding for my studies of steelhead from the Washington Department of Game. This funding came through the Washington Cooperative Fisheries Unit under the supervision of Dick Whitney. Dick became a member of my committee, and he was very supportive during my graduate school career.

I received my MS in Fisheries, but I did not want to pursue a PhD in Fisheries because I was primarily interested in genetics. Joe Felsenstein in the Department of Genetics suggested that I apply for an Interdisciplinary Individual PhD under his co-supervision. I was successful and received my PhD in Fisheries and Genetics in 1975.

My graduate school career at UW worked out very well for me. I did a post-doc at Aarhus University in Denmark during 1975–76, and I have been at the University of Montana since 1976. Today, the SAFS faculty has several world-class geneticists. Back in the 1970s, we were excited at being able to detect a few polymorphic gene loci. Today the geneticists at SAFS are studying whole genomes of many species!
Lee Alverson’s career spanned over 45 years, during which he attained some of the loftiest heights in the fisheries research arena. He played a formative role in the development of US fisheries and ocean policy in the 20th century and was recognized by industry, academia, and government for his scientific contributions and as an effective and insightful leader.

After receiving his BS degree, Lee worked for the Bureau of Commercial Fisheries’ (BCF) Exploratory Fishing and Gear Research Base, starting as a biologist and becoming the Director in 1958. After earning his doctorate in 1967, Lee went to Washington, DC, taking on the role of Associate and Acting Director for Fisheries, as well as Associate Regional Director for Resource Programs for the BCF.

Returning to Seattle in 1971, he assumed directorship of the Northwest and Alaska Fisheries Center. Then, after a stint as Special Assistant to the Assistant Administrator for Fisheries (National Marine Fisheries Service), Lee retired from the government in 1980 and co-founded Natural Resources Consultants, Inc., which provides assessment services to industry, governments, and individuals: for example, they helped assess the impacts of the Exxon Valdez oil spill.

Lee influenced many aspects of legislation, including the process for domestication of US fisheries and establishment of the fishery management councils and their scientific and statistical committees. His vision regarding the balance of responsibilities among the councils, the regional offices and the science centers is as powerful today as it was when President Ford signed the bill in 1976.

When asked why he chose UW Fisheries for his BS and PhD, Lee said that the UW catalog entry for the School made it look very attractive—living next to a beautiful stream and operating a hatchery. That was his concept of fisheries at the time! At UW, Lee studied the ecological complex of demersal fishes of the northeast Pacific, including flounder and rockfishes.

Reflecting on changes in fisheries during his career, Lee said, “I spent the first 25 years of my professional life looking at methods and concepts that related to development, and the last 10–15 years looking at...how to deal with...overexploitation.” Because of this “sea change,” he noted, UW Fisheries expanded its focus to serve the broader clientele, including conservationists, recreationists, aquaculturists, and the public.

With this expansion came more specialization and more emphasis on computing, but Lee cautioned against what he called “computer myopia.” He said, “If you don’t know a little bit about the life history, natural mortality, and growth rates of the animals...and can’t picture how that animal’s biomass is distributed over time, you’re not likely to see it on the computer.”

During his career, Lee maintained close ties with UW Fisheries, first as a lecturer, and then as affiliate faculty for over 25 years. With over 50 years in the government and private sector, Lee had a unique perspective of the world of fisheries research.
The ink was drying on my PhD as Jan and I loaded three small kids into a VW van for the trip north to Seattle and our new life. Dean Doug Chapman had called me 7 months earlier to express regrets that I didn’t get the invert fishery faculty job, but said my interview went well. Two weeks later, he called again to ask if I still wanted it; choice #1 had backed out. Second place was just fine with me and so, for the staggering nine-month salary of $7200, we moved north. One week I was a graduate student, and the next a new Assistant Professor in UW Fisheries. I showed up for work in my California attire of new Hawaiian shirt and shorts, and was quickly advised that an unwritten dress code might factor into my future tenure evaluation; I changed my ways...sort of.

I was immediately assigned some of Ken Chew’s new graduate students interested in crustaceans (my topic) and quickly learned the huge value of students in a faculty’s program. I had never taught a course of any sort and scrambled to compose lectures and labs for several classes—times have changed for the better as we now focus much of candidates’ interviews on teaching ability and philosophy.

With some highly motivated graduate students, I moved into crustacean programs that generally combined ecology and life history with major real-world issues. The list grew to include recruitment dynamics of commercial crab species in the Eastern Bering Sea, Army Corps dredge impacts on Dungeness crab in coastal estuaries, adverse effects of pesticides sprayed on tideflats to kill shrimp that were affecting oyster culture, impacts of the Exxon Valdez oil spill on commercial crustaceans, advice to the tribal council in the Rafeedie decision concerning shellfish rights, dredge waste disposal in Puget Sound, potential impact of exotic crabs on local fauna, and many more. From all of this, 35 MS theses and PhD dissertations were written, and I am very proud of all those people who were in my program. I’m sure I learned more from them than they from me.

At some point, a tendency to have opinions about wiser ways to run a department overcame my better judgment, and so I competed for the —continued on page 18
position of Fisheries Director. To my surprise (and other people's horror), Dean Arthur Nowell selected me to head the School in 1998. At the time, the School faced a challenge: a previous academic review done by the Graduate School was very critical of many aspects of the overall program and structure of UW Fisheries. Morale was low, we were silos within silos, and allegiance was to discipline-based “units” rather than the School as a whole.

What seemed a huge task of turnaround took concerted effort, but was achieved thanks to the united conviction and actions of our faculty. We wrote a strategic plan, disbanded the “units” and merged into a more cohesive faculty, changed the School’s name to indicate a broader range of science themes, and hired many new faculty in traditional and emerging fields of science.

I learned quickly that a faculty is a force unto itself, and that on a good day a director might persuade the faculty to take a particular action. Better was to put authority into the hands of highly motivated people—as chairs of leading committees—to push for change and reform, as I worked with them to define new directions. We achieved our turnaround, and the next academic review in 2003 was glowing.

In 2012, after 14 years as director, it seemed time to step down. The School clearly needed a more quantitative director to maneuver through the emerging metrics of UW and the new College of the Environment as profound changes reshaped how resources given to departments were calculated. And so Director André Punt came to be.

Across the 14 years, I grew into the job as director and felt like the faculty and I became a good team. The most gushing compliment I received came in an off-handed way as a faculty visited one day to say he had accepted an offer elsewhere. After handshakes and “good luck,” he got to my office door and turned around: “I just want to say that you’re not nearly as bad as I thought you’d be.” There you have it...a job sort of well done.

David, with former students and colleagues Juan Valero, Tim Loher, Lobo Orensanz, and Noble Hendrix.
William (Bill) Aron  
MS, 1956; PhD, 1960

William Aron was the Director of the National Marine Fisheries Service's Alaska Fisheries Science Center in Seattle from 1980 to 1996. During that time, he was responsible for managing over 400 staff and a budget of $25–30 million.

Bill came to UW Fisheries somewhat by random chance: friends of his parents knew he was interested in genetics and fish, and suggested he contact their friend, Wilbert Chapman, who was Director of UW Fisheries at the time. Several letters later, Bill enrolled in the school, noting “It was much easier to get into graduate school back then!” At UW, he studied genetics for his MS and ocean ecology for his PhD.

After graduating in 1960, Bill went to work for General Motors’ Sea Operations Department in Santa Barbara, headed by former Assistant Director of the UW Applied Physics Laboratory (APL) Dave Potter, an expert in underwater acoustics. Prior to the GM job, Bill had been interested in how sample accuracy was impacted by animals avoiding sampling nets. At that time, APL had a torpedo that was acoustically controlled from the surface, which he learned about through his handball sessions with Dave Potter and APL Director Stan Murphy. He told Stan, “When you tow a plankton net through the water the towing cable scares animals away and your sample is badly compromised.” Bill fit a plankton net on the front of the torpedo and had it pushed through the water: “The resulting samples were absolutely incredible.”

Bill demonstrated his plankton sampler at GM for the cost of an airplane ticket and access to a handball court. He was offered a job and spent six years at GM, where he developed sampling gear that helped him understand the causes of sampling variability.

After working for GM, Bill went to the Smithsonian, where he headed the Office of Oceanography and Limnology. There, he studied the role of the Suez Canal as a pathway for fish migration between the Red Sea and the eastern Mediterranean.

When NOAA was established, Bill became involved in an administrative capacity, acting as liaison between the Administrator, Bob White, and the environmental community. Coincidentally, Bob’s office was next to the best handball courts in town, which tells you the critical role that handball played in Bill’s life!

Bill eventually headed National Environmental Policy Act operations for NOAA. He recalled, “I got involved in big environmental issues, the biggest of which were those tied to marine mammals, porpoises, and whales.” Bill went on to lead the Office of Marine Mammals and Endangered Species, but in 1980, when Lee Alverson resigned as Director for the Northwest and Alaska Fisheries Center, Bill took the helm, remaining there until retirement.

On reflecting about the School, Bill said “Where else is there an equivalent of the School of Fisheries? This almost is a monopoly.” He observed that the School’s faculty and students provide a critical resource for addressing research issues that are beyond the capacity of NOAA to handle.
Bill Bayliff
MS, 1954; PhD, 1965

During summer 1950, I enrolled in UW Fisheries’ MS program. I had never been on the West Coast but was immediately favorably impressed.

There were six professors at the School: Director Richard Van Cleve taught population dynamics; Arthur Welander taught classification of fisheries; Allan DeLacy taught three courses in three subjects; James Lynch taught invertebrate zoology; and Lauren Donaldson taught courses on various aspects of salmon culture. I took all of Arthur and Allan’s courses, along with physical oceanography from Clifford Barnes (UW Oceanography), and statistics from Doug Chapman.

During my first quarter, fisheries classes and laboratories were held in some wooden buildings that had been built during World War II. Over that Christmas break, I helped move virtually everything in the old buildings to a new building under Allan’s supervision. It was hard work, but I needed the money, and Allan was wonderful to work with.

In summer 1951, I worked for the Oregon Fish Commission, where I touched a live salmon, and many other fish species, for the first time—a great learning experience! At the end of winter quarter 1952, I interrupted my schooling to work for the Washington Department of Fisheries (WDF). Shortly before that, I co-wrote a paper with Kelshaw Bonham—published in *Copeia*—about a better x-ray machine for fish, which the Smithsonian purchased almost immediately.

I completed my MS in spring 1954, and immediately received a notice from my draft board to report for a physical examination. I was drafted in January 1955 and shipped to Korea; fortunately, the fighting was over. On returning home, I briefly worked for WDF again, but then took a job at the Inter-American Tropical Tuna Commission (IATTC). I was hired to work in Panama, where we tagged anchovetas. I perceived that our research could be used for a PhD thesis, so I received permission from Milner “Benny” Schaefer, IATTC Director, to use the results for that purpose. I returned to UW Fisheries, where Gerald Paulik took an interest in my data and encouraged me. I received my PhD in 1965.


My work for IATTC included writing and editing, and serving as head of its tuna tagging program. Years earlier, when I was in high school, I had read the books about the mutiny on the *Bounty*. I never dreamed that I would visit Pitcairn Island and meet the descendants of the mutineers, but that is exactly what happened. Also, we charted a small boat in Hawaii to tag tunas in the South Pacific. About halfway there, in the middle of nowhere, the boat caught fire! We managed to put out the fire, and made it to our destination with a sail for power.

Bill (right) and Witek Klawe (left) at IATTC.
I have always loved fishing and science, and was intrigued by what influenced the behavior and productivity of trout—melding my interests into a career in fish biology seemed natural. I also seriously considered becoming a professional musician but realized music was probably better as an avocation than a career.

In high school, I discovered I could earn a fish biology degree, thanks to my cousin, SAFS alum Dave Pflug. Through my fisheries classes and research, I realized I wanted to discover what made aquatic communities tick, working from the perspective of individual fish up to populations and food webs. My first fisheries jobs—helping grad students studying estuarine ecology of juvenile salmon on the Skagit River Delta and responses by bass, bluegill, and crappie to lake restoration in Long Lake—laid a nice foundation for exploring other topics.

Dick Whitney mentored me through an MS on life history and ecology of Arctic grayling and then a PhD on the ecological role of hatchery rainbow trout in Lake Washington. Back then, salmon were managed by the Department of Fisheries while trout were managed by the Department of Game. These departments seriously disagreed over the effects of hatchery rainbow trout predation on sockeye salmon in Lake Washington. Dick calmly persuaded the departments to address the issue using a study and facts (my PhD) rather than fake news... how refreshing!

After my PhD, I worked halftime as a scientist for the Washington Cooperative Fish and Wildlife Research Unit. My office was in what's now the Agua Verde Café on Boat Street. It was rundown, with ceiling plaster crashing onto desks spontaneously, but it was a great office arrangement! I'll always treasure the vibe, with the grad students and techs working all hours, punctuated by coffee breaks to talk “science and life.”

I eventually took a post-doc at Utah State University, studying native fish ecology in Lake Tahoe. That transitioned into a research faculty position and then Assistant Unit Leader–Fish at the Utah Cooperative Fish and Wildlife Research Unit. My wife and I spent the 1990s in Utah, building our careers and starting a family, but we yearned to return to the Northwest and were thrilled when I was selected for the Washington Coop Unit position. After a 10-year exile in the desert, I was allowed to come back to SAFS.

I thoroughly enjoyed my 17 years on the SAFS faculty, where I conducted a balance of basic and applied research while working with resource managers, researchers, and stakeholders. Working with my colleagues has been an incredible experience, one I continue to nurture in my current position at the USGS Western Fisheries Research Center.

I've been so fortunate to spend most of my adult life in the SAFS community. Being surrounded by passionate, caring, incredibly smart and interesting colleagues has been a tremendous privilege. I have many fond memories of my SAFS experiences and treasure the lasting bonds we've formed!
“Hey, what does your Leslie matrix look like?”
Anne and I were already good friends and study buddies by the final quarter of my MS in 2004. We shared mutual embarrassment when Don Gunderson, looking over our shoulders, could barely hold back his disappointment as we struggled to fill in an age-structured Leslie matrix. Our early days as friends shaped our future together. Anne believes she shifted my dreams of semi-pro bass fishing and lure testing to PhD fisheries researcher. In turn, I honed Anne’s research acumen by increasing her acceptance of salmon and freshwater ecosystems as legitimate, interesting study subjects. —Chris

“Have you ever tried a drop-shot rig for lingcod?”
This was said during Chris’ intensive bass fishing phase, when he tried to bring his warmwater recreational sensibilities to a San Juan Islands marine preserve. The drop-shot rig worked great, as did sight fishing for aggressive lingcod. Many volunteers helped me fish for science over the years, but Chris was the cream of the crop. He had the highest catch-per-unit-effort of any volunteer and also picked the best snacks. We wrote a rap together about the life and times of Jethro, an acoustically tagged lingcod, as we tracked his stealthy movements through the night. Field trips were where we really got to know each other. Chris helped me hook lingcod in the San Juans, and I helped him pull gillnets on Lake Washington. In the early days, we debated about the merits of fresh- versus saltwater ecosystems; in the end, we found shared curiosity and wonder in both places. —Anne

“We can move wherever you want, except to an island.”
It was time for Anne to find a fulfilling faculty position. I did my best to keep an open mind about potential locations. Juneau—with no connection to a continental road-system and surrounded by impassable icefields—pushed the limits of my comfort zone. But we did it, and seven years have flown by. Anne is an Associate Professor of Fisheries at University of Alaska Fairbanks and I am an ecologist with the National Park Service. We still go fishing and even write the occasional paper together. In 2014, we welcomed James Neil Sergeant and have enjoyed watching him become a resilient, puddle-loving Alaskan kid with an intense interest in everything around him. —Chris

“Hey Dad, the velcro star has a lot of pedicellariae.”
Our stomachs dropped. Was our only child going to become an invertebrate biologist? Until recently, our young son was not fond of boats, and we would have to lure him (pun intended) onto ours with donuts. Fortunately, James seems to enjoy all aquatic creatures—finned, spiny, squishy, slimy. Chris and I still do a lot of fieldwork, so James is often parented by one of us at a time in summer while the other is off doing “fishy work.” We think he'll soon be right alongside us in the field, teaching us how to identify sea stars and reminding us of the joy we felt when we held our first fish. —Anne
I didn't start off a “dolphin hugger,” but rather came to appreciate the unique attributes of marine mammals while pursuing my BS in Marine Biology at Texas A&M University at Galveston. There, I had an incredible mentor, Bernd Würsig, who invited me to join a summer field study of the western gray whale population off northeastern Sakhalin Island (Russian Far East) after I graduated in 1998.

Bernd also encouraged me to think critically about my graduate path and interests. While I didn't have a quantitative background, I had become keenly interested in marine mammal population dynamics. I applied to three graduate schools in early 1999, but UW was the one I wanted to attend. I wrote to Doug DeMaster—then Director of the National Marine Mammal Lab (NMML) and affiliate faculty with UW Fisheries—about working on a population study of western gray whales. He was open to collaboration, but could not supervise students, so he put me in touch with Glenn VanBlaricom. I was thrilled when I was accepted as Glenn’s student.

I went back to Sakhalin Island for four months in the summer of 1999, which required taking independent study credits in the fall; so I didn’t start classes until winter quarter 2000. In May 1999, I visited the School of Fisheries in a dated old building along Portage Bay. In January 2000, I entered SAFS in a shiny new facility on Boat Street! Being offset a quarter from my cohort was challenging: All the prime office space was claimed; getting to know people took a long time; I had to take courses out of sequence; and so on.

Over time, I began to thrive, largely thanks to the dynamic, tight knit group of students within Glenn’s lab. Those of us studying marine mammals at SAFS felt somewhat on the fringes and looked to each other and to NMML staff for support. For some of us, this need diminished as SAFS diversified. The arrival of André Punt and his army of quantitative students, several working on marine mammal population dynamics, made a big difference to me and helped me overcome numerous analytical hurdles.

The first decade of the 2000s was a special time to be a SAFS student. Besides a broadening emphasis on aquatic sciences, the School began focusing on conservation, recovery, and resilience, especially in light of environmental change. The groundbreaking analytical framework presented in *The Ecological Detective* by Ray Hilborn and Marc Mangel became formalized in classes, as did working with Program R. Also, there were many international students and projects at that time. My grad work encompassed data from 10 summers spent in the Russian Far East, so being part of a program with international ties was essential to my growth and development.

A few months before I graduated from SAFS, I took a position with the Pacific Islands Fisheries Science Center working on cetacean stock assessment. I’m still here and am waiting for more SAFS alumni to join me!
“How do a Japanese guy and a French girl end up in the US? This might have been the question we were asked the most when we lived in Seattle,” said Marine.

Kotaro and Marine met in graduate school in France. Although Kotaro is Japanese, he grew up in Africa, attending French schools. He then moved to France for higher education and that’s where they met. Their first introduction to SAFS was during summer internships. Kotaro found an internship first in the Wetland Ecosystem Team led by Charles “Si” Simenstad. Marine thought it would be fun to follow him for the summer and contacted Kerry Naish, convincing her to host her for the summer. The goal for both of them was to get hands-on research experience and to decide whether they would like to pursue this type of career. Arriving in Seattle, Kotaro was convinced he wanted to obtain a PhD; Marine was convinced research was not for her at all!

That four-week internship changed their lives! Kotaro assisted Emily Howe with lab and field work in Padilla Bay. Marine worked with Kristi Straus to assess the population structure of pinto abalone and went to Mukilteo almost weekly for wet lab work. During their short internships, they quickly became part of the SAFS family and started what would become lifelong friendships. They loved the work environment so much, science and people alike, that they decided to return to Seattle. Marine started a PhD with Kerry Naish in Population Genomics and Kotaro a (second) MS with Si, followed by a PhD in Quantitative Fishery Science with Ray Hilborn. They enjoyed working at SAFS so much that they each did a post-doc there as well. Their four-week internship lead to nine years at SAFS!

Marine and Kotaro observed that SAFS is an amazing place to do science because of its great scientists and because of the alumni and the agencies and research institutes nearby with whom collaborations are numerous. Beyond the science, SAFS is an amazing community: “We had such a great time during TGITs, intramural softball games, SAFS picnics, holiday parties and latte carts, and the wine club,” said Marine.

Their SAFS friends were their family away from home, so much so that a large delegation of SAFS folks came to their wedding in France. They consider themselves very lucky to also have had them around when their son Paul was born in 2015. Marine said, “It takes a village to raise a child, and in our case, that village is our SAFS family.”

They moved to Norway in December 2016 for post-docs—Marine on population genomics of Atlantic cod at the University of Oslo, and Kotaro on quantitative ecology at the University of Agder. Starting this June (2019), Kotaro will be working at the Institute of Marine Research in Bergen, Norway, as a research scientist.

In January 2018, they welcomed a new addition, Emma. And, although they love Norway, SAFS will always be the place where they received the scientific foundations for their careers and the place that made them what they are today.
The Buckley/Gómez-Buckley family “score card” at SAFS reads BS - 2, MS - 3, PhD - 1, with 1 PhD on the horizon. Theirs is truly a family with continuing adventures in marine science that have ranged from the Arctic Ocean to the Coral Sea, and from the Philippine Sea to the Indian Ocean.

Ray Buckley started the family’s long association with marine sciences with a BS (1963) and MS (1969) from UW Fisheries. For 45 years (1963–2008), Ray was with the Washington Department of Fish and Wildlife (WDFW), where he specialized in recreational fishery enhancement and marine fish research.

In 1972, Doug Chapman appointed Ray Affiliate Assistant Professor to provide expertise on marine fishes and artificial reef habitats on graduate committees—he served in this role until 1990, when he started his PhD program. Research on substrate-associated recruitment of juvenile rockfishes in the Salish Sea led to a PhD in 1997, followed by re-appointment as Affiliate Assistant Professor.

Ray’s career has included many diversions for research in the tropical Pacific, Caribbean, Indian Ocean, and the Red Sea. When Ray was Chief Fishery Biologist in American Samoa (1985–1987), his son,
Troy, received a BS in 1987 from UW Fisheries, and worked with Ray in American Samoa at the Department of Marine and Wildlife Resources (DMWR). This started the family’s adventure in marine science. During 1987–1990 at DMWR, Troy studied yellowfin tuna food habits near fish aggregation devices for his 1995 MS at UW Fisheries. Troy subsequently worked with NOAA’s Alaska Fisheries Science Center on the feeding ecology of north Pacific marine fishes from the Channel Islands, California, to Barrow Canyon, Alaska.

In American Samoa, Ray and Troy conducted research on and under the tropical Pacific, played on the Nu’uuli Village soccer team, and Troy paddled outrigger canoes for the Fetūlele Canoe Club. A “world-class” highlight was walking along the plumeria-scented beach of a barely inhabited atoll, with father and son sharing the load of a bag full of hard-won spiny lobster, under the light of a rising half-moon. Ray’s comment, “It just does not get any better than this.”

However, it did get better. At a 1990 conference in the Canary Islands, Spain, Ray met Marta Gómez-Llorente, a marine biologist studying at the Universidad de Las Palmas. In 1991, Marta transferred to UW Fisheries, became Marta Gómez-Buckley, and received an MS (2001) for research on drifting kelp mat habitats as conduits for recruitment of juvenile rockfishes. Marta has been a research biologist, raised their daughter, and taught high school science and Spanish. Marta also joined Ray and Troy in mentoring many SAFS Capstone students. Marta fully returned to SAFS in 2017 for her PhD, studying the genetics of cryptobenthic reef fishes in Tonga.

A common thread through much of the Buckley/Gómez-Buckley family’s graduate careers has been Bruce Miller, now Professor Emeritus, who was a continual source of expertise on the ecology, biology, and life history of marine fishes—a unique area of expertise at the school. Bruce was committee chair on Troy’s MS, Ray’s PhD, and Marta’s MS, and he continues as a close family friend and colleague.
Sarah and Andrew first met in Loveday Conquest’s QSCI 482 class. Statistics isn’t necessarily known for romance, so it wasn’t until the Fisheries Interdisciplinary Network of Students meeting several months later that they realized they liked each other. From then on, Andy looked forward to QSCI 482 more than ever and thinks that his continued interest in statistics is a result.

Sarah studied the impacts of sea otters on sea urchins and kelp with Glenn VanBlaricom, which involved much underwater work in the San Juan Islands. Andy spent many nights on Lake Washington, studying the impact of largemouth and smallmouth bass on salmonids with Tom Sibley. While Andy’s MS was finished by 1996, Sarah’s MS took several more years.

Since Andy stayed in Seattle while Sarah finished her MS, she thought it only fair to move to Madison (Andy’s hometown) in return. They both got jobs with the Wisconsin Department of Natural Resources — Andy as a quantitative fisheries policy analyst, and Sarah as a wildlife damage biologist followed by other positions having little to do with sea otters.

A couple of years later, they decided to have a child and start a PhD at the same time — clearly a questionable decision! Andy earned his PhD in Biological Sciences (Fisheries) with a minor in Statistics from the University of Wisconsin–Milwaukee a few years later. During this time, they had three children. Sarah must have been a bit delirious, as she interviewed for a PhD position when her youngest child was just 2 months old. But it turned out to be wonderful. Sarah noted, “There’s nothing like 10 years on a job working with hunters and farmers with very strong and varying opinions about deer to remind you just how fun graduate school is.” Four years later Sarah completed a PhD in Forestry from the UW–Madison.

After a post-doc in Fort Collins, Sarah is now a landscape ecologist with the US Geological Survey. She juggles her time between balancing sage-grouse conservation, oil and gas development, and a myriad of other uses across the West for the Bureau of Land Management, and pursuing outdoor activities with Andy and their kids in Colorado.

Andy taught for several semesters at Colorado State University and also coached soccer, home schooled the kids for 6 months, and did substitute K–8 teaching. He currently is the Monitoring Program Manager for a local non-profit (Big Thompson Watershed Forum) and somehow still finds time to coach soccer, teach limnology online at Green Mountain College, and cook great fish for the family!

It has been a crazy ride since Sarah and Andy met at UW Fisheries: “You never know where the twists and turns of life are going to take you,” they said. “SAFS gave us a science foundation that allowed us to be flexible in location and topic in our subsequent adventures. We’re grateful for the fun times we had at SAFS and the amazing education we received there.”
In 1969, I had a degree in economics and mathematics from the University of Michigan, but I really wanted to attend graduate school and build computer models of marine ecosystems. I interviewed at several oceanography departments, which all turned me down because I lacked undergraduate credits in biology. UW was my last stop. Tom English interviewed me and said I didn't have a chance of getting into Oceanography. “But,” he said, “Fisheries might take you.”

Fisheries did. Jerry Paulik took me into the newly formed Center for Quantitative Science, where he, Doug Chapman, Brian Rothschild, and Don McCaughran taught courses in population dynamics and such. It was just what I was looking for.

Quantitative fishery science was early on in 1969. Computers were primitive and computer time was expensive. Methods of numerical minimization we all use today to fit models had not yet been devised, never mind automatic differentiation. My doctoral dissertation was a virtual population analysis of the Peruvian anchoveta fishery. It was state of the art. Imagine that.

My dissertation research in Peru, arranged by Jerry Paulik, was done under the auspices of an FAO project there, which led to a job at FAO headquarters for four years. In 1979, Doug Chapman recruited me for a UW research faculty position assessing great whales. I also taught, including Fish 558. On Don Bevan’s recommendation, I served as technical advisor to the federal court in the Boldt case. In the mid-1980s, I worked for Washington State—mostly line management—but also sat on the scientific committees of both the Pacific and North Pacific fishery management councils. I returned to technical work in 1988 when Don McCaughran hired me as a biometrician at the International Pacific Halibut Commission (IPHC).

When I first sat on the regional fishery management councils’ scientific committees in the mid-1980s, modern age-structured, numerically fitted stock assessments were new. But, few stocks were actually assessed that way. The problem partly was a dearth of age data, but more important, a dearth of qualified people—I wasn’t one of them. Fortunately, I was working at the IPHC with Pat Sullivan and Ana Parma, who had just completed PhDs at SAFS and moved in the orbit of Dave Fournier, Ray Hilborn, Carl Walters, André Punt, and Jim Ianelli. That same army supplied the present generation of highly capable people doing state-of-the-art stock assessments for Alaska and the West Coast today.

Although retired now, I still attend Alaska groundfish meetings and SAFS seminars. Quantitative fishery science has advanced dramatically since my student days, requiring constant study to stay abreast. Thanks to SAFS, and a little help from my friends, I’ve been able to do that. In 2019, which is the School’s centenary, I will have been a SAFS student for 50 years.
Rita Colwell
PhD, 1961

Rita Colwell has come a long way since her days as a Fisheries graduate student. In 1988, she became President of the University of Maryland (UM) Biology Institute, where she administered academic and research programs for over 400 faculty, staff, and students. She served as National Science Foundation Director during 1998–2004, and is still on the UM faculty as well as on the Johns Hopkins Bloomberg School of Health faculty. In 2008, Rita founded the bioinformatics company, CosmosID.

For her PhD, Rita investigated the systematics and ecology of bacteria associated with marine mammals. She was attracted to UW and Fisheries because of its “excellent reputation in chemistry, microbiology, and life sciences in general, and marine biology and oceanography in particular; then there was a young Assistant Professor, John Liston, from Scotland, who was well known for his work in marine microbiology.” Rita served on the UW Fisheries faculty as an Assistant Professor in 1961.

Rita accepted a post-doc at the Canadian National Research Council in Ottawa, continuing her research association with John Liston. Subsequently, she spent the next few years as an Assistant and Associate Professor at Georgetown University in Washington, DC (“I was...in the microbiology department where President Clinton was a student”). She accepted a full professorship at the University of Maryland College Park and has been establishing and then directing a major research program in marine microbiology, and serving a four-year stint as Academic Vice President.

Rita's longstanding research on cholera and its origin led to confirming the source of cholera as environmental, and developing a rapid-diagnostic kit to detect cholera within 5–10 minutes. She also worked on deep-sea microbiology, determining the effects of pollution on the ocean system—a continuation of her interest in systematics and biodiversity, which “stems from my days as a graduate student, with much influence from Liston.”

In addition, Rita studied the molecular genetics of marine bacteria, including the use of nucleic-acid sequencing.

When asked why marine biotechnology is so important, Rita said “Microorganisms are at the base of the food chain, play a role in climate, and are very useful for bioremediation.” She described how early work in the 1970s helped establish the significant role of naturally occurring bacteria in dealing with oil spills.

Rita is very proud of being a UW graduate, crediting the flexibility and excellence of education there with enabling her to grow in her career: “The connections made as a graduate student with colleagues in Japan, Europe, and Latin America were very important in shaping my career as a scientist. Marine sciences have long been nurtured at UW, and now they are a major component of research on biodiversity and global change. I think the UW will continue to be at the forefront of research in higher education and I'm pleased to be part of its history.”
Loveday Conquest
Faculty, 1978–2014; Emerita, 2014–present

After the Soviets sent up the Sputnik satellite in 1957, the US ramped up the space program and launched “new math” programs for students, including females—a bold move back then. Promising female students were encouraged to pursue mathematics and other STEM fields. I was one of the lucky ones.

At Pomona College, I was one of three women math majors. Many math professors—all men—were determined that we would attend graduate school in whichever fields we wished. I completed an MS in Mathematical Statistics at Stanford. I then entered UW for a PhD in Biostatistics through the then Department of Preventive Medicine (now School of Public Health).

I began my academic career in 1975 at the University of Hawaii. I then took a temporary position in UW’s School of Business, expecting to be there for one year. Then Doug Chapman encouraged me to apply for a faculty post in UW Fisheries, teaching probability and statistics through the Center for Quantitative Science in Forestry, Fisheries, and Wildlife, and conducting quantitative research in natural resource management (NRM). I started that job in September 1978, unsure how to integrate statistical science into NRM problems. But so many quantitative issues arise in NRM that it was easy to find eager Fisheries and Forestry collaborators.

I have participated in many interesting projects: I worked with Frieda Taub on her Standardized Aquatic Microcosms. Vince Gallucci, students, staff, and I pursued a multi-year quantitative fisheries project in Costa Rica and the Philippines. I participated in the Quantitative Ecology and Resource Management (QERM) program. At the Center for Streamside Studies, I worked with Bob Naiman and students from Fisheries, Forestry, and QERM.

I worked on an NSF-funded project promoting marine science education. Graduate students from UW schools were paired with high school environmental science teachers. Teachers gained from graduate students bringing current research to high school students. The graduate students gained from presenting science to essentially lay audiences—valuable training for anyone.

In the early 1990s, I became Associate Dean of the former College of Ocean and Fishery Sciences (COFS). I worked with student and faculty groups underrepresented in COFS and UW in general, leading to my involvement with the American Indian Science and Engineering Society (AISES). I served as inaugural Director of the UW Teaching Academy, followed by a stint as Associate Director of SAFS. I also directed the QERM program for about 15 years.

I still occasionally help with various UW “Career Day” experiences for the students and attend the annual AISES conference, where I am inspired to see hundreds of Native American, Alaska Native, and Native Hawaiian students presenting their STEM research and being recruited by major companies.

In retirement, I have served on boards and committees for education, the arts, literature, Children’s Hospital, and the downtown Women’s University Club, which emphasizes continuing education. And I treat myself to short courses at Oxford or Cambridge, living in the dorms and experiencing the best part of college life.
I developed an interest in fish at an early age, and—thanks to television, *National Geographic*, and Jacques Cousteau—a fascination with the ocean. When it came time for college, I wanted to enroll in an oceanography program. I had an older sister in Seattle, and with UW offering oceanography, off I went to college in summer 1973. After arriving in Seattle, my brother-in-law pointed out that there was a College of Fisheries. On further investigation, I determined that fisheries science appealed to me much more than oceanography, so I changed majors.

At college, two aspects of fishery science especially appealed to me—quantitative and computers/computer programming. In my junior year, I was hired by Allan Hartt as an intern for the Fisheries Research Institute’s High Seas Salmon Tagging project. The objective was to determine the stock origins of salmon migrating through the Adak Island area using tagging, and then perform scale-pattern analyses to determine the region of origin. The field and analytical experience I gained from my three years on this project formed the basis of my professional career and is directly responsible for all my later career opportunities, my enjoyment of the work, and the longevity of my career.

After finishing my BS in 1978, I continued as a biologist on the High Seas Project. This led to an offer from the Alaska Department of Fish and Game (ADF&G) in 1981 to sponsor an MS project to develop in-season methods of stock separation using scale-pattern analysis for the Chignik sockeye run. This project allowed me to further hone my analytical and computer programming skills.

After receiving my MS in 1983, I was hired by ADF&G, and my wife Miki and I made the long trek north. During my six years at ADF&G, I worked for both the commercial and sport fisheries divisions, and acquired new job skills (such as creel surveys, mark-recapture studies, and simulation modeling).

In 1989, a biometrician job opened up at the Northwest Indian Fisheries Commission (NWIFC). By this time, my family had grown, and we missed having regular contact with our families in the lower 48. I applied for the job and was hired.

I currently manage the Fisheries Service Division, supervising biometricians and biologists who provide statistical analysis and modeling support to the Tribes in their role as co-managers with the State of Washington. May 2019 will mark my thirtieth year at NWIFC. I have enjoyed my time there immensely, working with the Tribes on diverse problems involving a variety of species and quantitative methods. I also have represented the Tribes as a technical member on committees in the Pacific Fishery Management Council and Pacific Salmon Commission.

I deeply appreciate the opportunities that my education at UW and the School provided me professionally and personally. Also, my wife was a nursing student at UW, and my twin sons graduated from UW with BS degrees in computer science in 2007.
The first time I visited SAFS, it was a misty, slightly cold Friday morning in November 2001. I flew in to meet with André Punt about becoming a graduate student in his lab. I was finishing my MS degree at Moss Landing Marine Laboratories in California, where Novembers were a bit milder and less cloudy than this introduction to Seattle.

I entered the new-ish SAFS building that looked like a cannery straight from Steinbeck’s days and walked up the central staircase. My meeting with André was not for another hour, so I headed into room 203. FSH 203 is a room I became ultra familiar with in time: it was used for classes, seminars, workshops, meetings, defenses—including mine—and special occasions. I entered the room and was immediately greeted by Carolina Minte-Vera and introduced to the Quantitative Seminar, a long-running Friday seminar series hosted by SAFS graduate students.

What I particularly remember that day was meeting several international SAFS graduate students at the seminar and getting the strong sense that there was something very special about this institution. I then talked with André—a South African-born Australian citizen living in the United States—about the work in his new and expanding lab.

Throughout my six years at SAFS, I got to know many wonderful and talented people from around the world. From graduate students to visiting scientists, American and international scientists exchanged ideas, wrote papers together, and supported each other through challenging moments, becoming both colleagues and friends. I was able to witness so many people, whether from the United States or elsewhere, take their education from SAFS and transfer that knowledge to places far from the Seattle campus.

In 2007, I took a job with NOAA Fisheries’ North-west Fisheries Science Center, which remains my professional home. While my office is based in the beautiful Emerald City, I have had the wonderful opportunity to teach, work, and build technical capacity in fisheries science on six continents (still working on Antarctica), in addition to hosting visiting scientists and policy makers from numerous international institutions. While domestic stock assessment and fisheries management issues are our primary responsibilities, fisheries science is a global activity and outreach is democratic. I spend a large amount of research effort in this worldwide arena. In my professional endeavors abroad I repeatedly encounter SAFS graduates doing impressive and important work.

My view of the SAFS tradition is that it is intrinsically diverse, transferable, and broadly applicable. It is cross-disciplinary and fundamentally cosmopolitan. The inclusive nature of the student body is a heritage that encourages innovative thoughts, novel actions, and broad reach, and is notably one of SAFS’s greatest strengths and important legacies. May the next 100 years continue to bring scientists from all corners of our world, from varied backgrounds and cultures, unified in the profession of asking questions and seeking answers that boundlessly advance and redefine how to do fisheries science while unifying generations to come that perceive no borders.
It is a fitting time to write about my time at SAFS because it has been forty-two years almost to the day since I started working at the School. I was hired by Charles “Si” Simenstad in October 1977 and started at the Big Beef Creek (BBC) research station, sorting and identifying salmon diets and invertebrate samples for the impact studies of the new Trident submarine base on Hood Canal. This was ideal because, as a youngster, I loved collecting and identifying all kinds of little creatures—including zooplankton caught in a net made from my mother’s nylon stockings. I became particularly interested in copepods, which are important food for juvenile salmon. The expertise I gained in copepod taxonomy in my early years at SAFS has taken me all over the northern hemisphere and as far away as French Polynesia.

After a few years at BBC, I moved on campus to a “lab” at the long-gone Varsity Apartments—the only lab I’ve had with shag carpet and my own bathroom. I worked my way up to being Manager for our taxonomy lab, dealing with invertebrate samples from benthic cores to zooplankton. During this time, we sampled invertebrates in the Columbia River estuary, where I have worked throughout my career. Moving to campus enabled me to learn from other staff, graduate students, and faculty researchers, and to get my thoughts together about my future. In the early 1980s, I went to graduate school at UW Fisheries while continuing as Lab Manager. After receiving my MS, I stayed on at the School.

From the 1990s onwards, I have continued to broaden and refine my scientific skills and develop my own research projects. My favorite projects include conducting plankton surveys every four years (since 1992) in West Coast estuaries to document non-indigenous zooplankton; working with the Smithsonian Institution to investigate patterns of invasive invertebrates along both US coasts; evaluating floodplain and estuary restoration efforts throughout the region using invertebrate communities as indicators; conducting a 10-year study of non-indigenous organisms being discharged from ship ballast into Puget Sound; and working with various agencies on studies of the biology and ecology of the lower Columbia River.

Most recently, I have been fortunate to work locally, monitoring the function of restored wetlands within Seattle’s industrialized Duwamish Waterway, and helping develop and implement fish-friendly habitat into Seattle’s new seawall. The latter project has gained international notoriety. As a native Seattleite, I am grateful to be able to give something back to my home region.

SAFS gave me the opportunity to have a non-traditional career in an academic setting. As a non-faculty researcher, I doubt many places would have allowed me to stretch out intellectually, lead my own research, and mentor and support graduate students. My relationships with faculty, colleagues, and students have been so important to me over the years. Those I have worked with at SAFS have all been of the highest caliber, both intellectually and personally, and I have learned something from each and every one of them.
I received a BS from UW Oceanography. I then worked at UW Oceanography for several years, participating on oceanographic expeditions in Puget Sound, the tropical Pacific, and the polar regions. When I enrolled in UW Fisheries, it was to obtain a better background in quantitative science, population dynamics, and animal behavior. My advisor was Bob Francis, and Tom Quinn served on my supervisory committee.

I was not Bob's typical student. I worked full-time in Oceanography and went to school part-time. I had National Science Foundation (NSF) funding for a project in the Southern Ocean, which formed the basis for my MS thesis. I investigated the role of sea ice ecosystem dynamics on the distribution and behavior of Antarctic krill, Euphausia superba. I went to the University of Tennessee after my MS to work with a group of polar oceanographers. I received my PhD in 1995 in Ecology, with a research focus on Arctic sea ice ecosystems.

After a post-doctoral fellowship at the Department of Energy, I worked as a Program Director in Biological Oceanography at NSF for four years. It was a terrific experience that I highly recommend. I then accepted a faculty position at the University of South Florida in 2001. About that time, I became involved in planning and developing NSF's Ocean Observatories Initiative (OOI). Observing systems provide a continual presence in the oceans to capture episodic events and long-term trends of environmental data. I spent the next 17 years mostly working on this project, including a stint as Director.

The OOI has a variety of moorings and sensors located along the Washington and Oregon coasts, including a fiber optic cable stretching across the Juan de Fuca plate to Axial Volcano. Besides working on the OOI and in polar systems, I have investigated the impacts of oxygen minimum zones on marine ecosystems in the tropical Pacific and participated in both the IXTOC-I and Deepwater Horizon oil spill response efforts.

Despite my broad interests, my fisheries background has not been wasted. I was involved in the Global Ocean Ecosystem Dynamics and Comparative Analysis of Marine Ecosystems Organization programs, which had strong fisheries components. My students have worked on aspects of blue crab and stone crab fisheries in Florida. The statistics courses I took at UW were essential to my career. My favorite course was Tom Quinn's fish behavior class. My class project entailed quantifying the amount of time a reef fish spent on various activities, which opened my eyes to the complexity of fish behaviors. This lesson later changed how I have viewed Antarctic krill, which are very adaptable and still confound researchers' expectations today. Thanks to Bob and Tom for your help and support!
One of the joys of getting older is that a person can begin to appreciate the threads that bring one to this place in time and space.

My late wife Karen and I arrived in Seattle in fall 1983 to begin my PhD at SAFS with David Armstrong, who wanted me to spend significant ship time in the Bering Sea working on king crab population dynamics. However, because of my studies at Yale, my years of work under the tutelage of shellfish aquaculture pioneers in Woods Hole and Fishers Island, I had come to believe that sustainable protein production through farming the seas was actually possible. With David’s blessing, I went to work with Ken Chew for my PhD, a decision I have never regretted.

I worked at the UW shellfish hatchery that Ken established with the blessing of NOAA in Manchester. While I spent much time in the field, I also had three children deep in the heart of my PhD research. That, and starting a fledgling shellfish aquaculture business on tidelands Karen and I found on Hood Canal, slowed me down on my studies but also gave us the foothold in the Pacific Northwest that we had always wanted.

Early on and post-PhD, I co-taught Molluscan Biology and Aquaculture with Ken before joining Faye Dong to teach Sustainable Aquaculture. I’ve served as a SAFS affiliate faculty member since 2002 and on graduate supervisory committees, and I’ve conducted collaborative research with all the faculty who have shellfish interests!

I retired from Taylor Shellfish in 2015, after 20 years as Director of Hatchery Research, and while also growing a family and the family shellfish business, Baywater, Inc. I am a Senior Scientist with the Puget Sound Restoration Fund (PSRF), and am currently working with the Paul J. Allen Family Foundation to see if seaweeds grown at local scales can help mitigate the corrosive effects of acidified seawater on calcifiers, including mollusks.

I worked with the PSRF to establish the Kenneth K. Chew Center for Shellfish Research and Restoration. This facility is a fitting tribute to Ken and to his legacy in shellfish research—he is another shellfish aquaculture pioneer with whom I’ve had the pleasure to work. I served the National Shellfisheries Association for many years, including as President from 2009 to 2011.

Recently, I co-founded Pacific Hybreed, Inc., with Dennis Hedgecock, who was awarded the first SAFS Kenneth K. Chew Endowed Professorship in Aquaculture. Pacific Hybreed focuses on shellfish breeding, and coincidentally has its hatchery base in Manchester. My younger son Caleb is managing Baywater now, so the circle is complete there, too.

SAFS has been a big part of my career working in shellfish, and I treasure my time spent there, especially during the years following my degree, collaborating with SAFS faculty and students. Working with graduate students is a true joy, and I am most gratified to just help expose them to the wonderful world of shellfish.
Lauren “Doc” Donaldson
MS, 1931; PhD, 1939

Lauren “Doc” Donaldson was one of UW Fisheries’ most well-known celebrities. Born in Minnesota, Donaldson started at UW Fisheries in 1930, earning his doctorate at UW in 1939. In 1987 he received the UW’s highest award, the Alumnus Summa Laude Dignatus, in recognition of his national and international contributions.

Doc’s research in hybridization and selective breeding of trout and salmon resulted in the world-famous “Donaldson rainbow trout,” a particularly fast-growing, early-maturing and fertile strain. Donaldson strains have been introduced throughout the world and have had a direct, positive effect on the economy and diet of both rich and poor nations. Doc also was instrumental in the design and construction of the School’s renowned salmon spawning pond.

After completing his graduate studies, and a brief stint working for the US Bureau of Fisheries, Doc was offered a job by UW Fisheries Director William F. Thompson. He said, “That was one of the luckiest things that ever happened to me!” He added that UW Fisheries—with its facilities, Lake Washington and Puget Sound, and readily available fish—was the place to be. Most of all, “I pretty much had free rein to do what I wanted, which wasn’t possible in many departments. If we needed something, we built it.” The faculty even paid for fish feed and used their own cars for field trips.

A major chapter in Doc’s career involved radiation studies for the Atomic Energy Commission (AEC). This work entailed numerous trips to the South Pacific to study the effects of nuclear detonations on the marine environment. There’s a famous story about how Doc and his team swam in an atomic blast crater the day after the detonation. Doc elaborated:

“We were studying the initial effects. Sometimes within hours after the blast, we were collecting samples and taking measurements within the crater areas. We wore protective clothing but, by God, it was hot—sometimes 120°F. One day, my Executive Officer, Clarence Pautzke, had had enough. He stripped down to his jockey shorts and danced on the stern of his boat, shouting ‘If I’m going to die, I’m going to die comfortable!’ So everybody threw away their suits and we proceeded to get to work. Otherwise, we would have all died from the heat.”

Another AEC-funded project of Doc’s involved determining the environmental contribution of spawning salmon at Fern Lake—some people thought these salmon left behind nutrients essential for life, especially in nutrient-poor waters.
While some critics felt this nutrient contribution was insignificant, by using radioactive tags, Doc and his colleagues found that the nutrients, albeit in very small amounts, were tremendously important.

While Doc was “retired” from the UW—meaning they stopped paying him—in July 1973, he kept up with fisheries research until his passing in 1995. For example, he helped provide UW Fisheries-reared Chinook salmon for stocking in the Great Lakes: “We helped change not only the economy but the social structure of the Great Lakes area.”

It wasn’t always about research: For many years, Doc grew beautiful rose bushes outside the Fisheries Center and would routinely deliver bouquets of fresh-cut flowers to the staff.

When asked if he would still have chosen fisheries if he had to start all over again, Doc was unequivocal: “Oh yes. My father raised horses, but you can only get one or two sibs, or a dozen maximum, whereas here I can get 20-30,000 sibs from one fish. All the things you can do with that massive amount of material—it’s limited only by your imagination and strength to get things done.”

Even the ever-expanding need for red tape didn’t discourage Doc: “It’s fun to work your way through the bureaucracy [chuckles]. Besides, look at the information we have now. When I started we had hardly any literature. Now you have quality material by the truckload.”

Doc concluded with some advice for our students: “Get your feet wet! Pick a fish up, handle it, get your boots on and get out and have some fun. After that, then get your computer!”
Dawn and Brandon met at a Hilborn lab meeting when Brandon was reporting on a trip to the Serengeti. With a shared excitement for travel and adventure, they have spent the last ten years working and traveling together. After Dawn earned her MS degree with QERM, they moved from Seattle to Santa Barbara, where they worked at the Sustainable Fisheries Group at UC Santa Barbara. Then, after moving to Idaho and working with the Nez Perce Tribe for a year, they settled in Corvallis, Oregon, where Brandon is finishing his PhD with Selina Heppell.

When asked how SAFS has influenced Brandon’s life and career, it was not difficult to describe either. Some of his greatest friendships started at SAFS. While Ray Hilborn, André Punt, Tom Quinn, and Daniel Schindler were incredible mentors, they have also been great friends, providing him with plenty of personal advice and some indelible memories while working and playing. He also treasures the friendships he made with other SAFS students. Whether it was rafting with Allan Hicks, Juan Valero, Trevor Branch, and Arni Magnusson in New Zealand, or stranding Harry “Richie” Rich 10 miles up a remote river in Alaska after putting diesel in a gas outboard, these friendships have lasted almost 20 years.

When Brandon thinks of SAFS, what continually comes to mind is a pedagogy that Bob Francis, espoused—first principles. Everything is taught from the basic principles of ecology, statistics, genetics, and so forth. When Brandon was stuck on a problem, SAFS provided the theoretical tools to work backwards or to move forwards. And when those tools weren’t enough, which seemed to happen often, he had plenty of friends from SAFS to lean on.

Dawn feels incredibly fortunate to have landed at SAFS, working with Ray Hilborn and André Punt. With an undergraduate degree in mathematics and a strong desire to work in natural resource management, Dawn found the QERM program. For her, the curriculum was rigorous, with clear applications—exactly what was needed to work in fisheries management.

Since receiving her MS in 2009, Dawn has primarily worked with small-scale fisheries worldwide on a variety of applied research projects. She thoroughly enjoys her job at the National Center for Ecological Analysis and Synthesis and her co-workers at The Nature Conservancy, and knows that this was all made possible through her SAFS connection. Before her time at SAFS, she would never have known that this field and these possibilities were out there.

Brandon and Dawn are fortunate to have jobs that they enjoy, and they are grateful that SAFS provided them with the tools to succeed in a competitive and challenging field. But there is not a weekend that goes by where their family is not out camping, rafting, hiking, or fishing. Their family is what they are most grateful for, and they have SAFS to thank for that, too.
I started at UW Fisheries in 1979, seeking more stable income than the music profession afforded me. I was hired to do word processing—transcribing hand-written publications to digital files on 5-1/4” floppy disks on a big, hulking, black machine that would shut down and wipe out the data if I looked at it askance; once, it even caught on fire. That wasn't the only hazard: one time an intense storm literally blew my office window off its hinges (I kept working). Less dangerous, but more noxious, were the fumes coming from the basement when the food science crew were conducting their experiments. I remained undeterred by these minor hazards, as I soon realized Fisheries was a great place to work.

By the mid-1980s, the computer revolution had rendered my job obsolete. But multiple times through my years at Fisheries, the administration supported my learning new skills and taking on new jobs—it even paid for continuing education classes in technical editing, computer systems administration, and website development. I am forever grateful for the opportunities that enabled me to remain part of such an outstanding program.

Reflecting on my nearly 39 years at UW, I note several highlights:

In 1979, Fisheries was focused on resource extraction. But gradually, the School's mission expanded to support the development of sustainable fisheries in the broader context of the environment and society. Inevitably, I learned so much from the students, faculty, and staff, and I came to appreciate how everything in and around us is interconnected. I had read about this in philosophical writings, but SAFS provided demonstrable proof of this phenomenon.

Another, very satisfying shift was in gender balance. When I started at SAFS, it was a man's club. But over time, this changed considerably. During the 2000s, women averaged nearly two-thirds of the master's students, and about half of the PhD students. There's still room for improvement, of course, but the School and UW have “come a long way, baby!”

On a more personal note, SAFS was my second home for 35 years. I made so many friends there from all over the world. Also, Fisheries was always supportive of my musical pursuits. In fact, in the early years, I played at many of the holiday parties, and many SAFS denizens frequented the numerous gigs I played locally (thank you!). Alas, I stopped playing at the parties so I could get in on the great food before the grad students ate it all!

Another highlight was serving as editor for several books on subjects ranging from the ecology of Pacific Northwest salmon, to riverine restoration, to the history of the School and fisheries at large—very difficult work, but so rewarding. I gained substantive knowledge about aquatic ecology by diving deep into the subject matter for these tomes, and I got to know some giants in the field of aquatic sciences.

Thank you, SAFS, and I raise a glass for the next 100 years!
Eveline (Evi) Emmenegger
MS, 1994

Blake Feist
MS, 1991; PhD, 1999

Evi was born and raised in Alaska, where fish and fishing were a way of life. She spent summers commercial fishing for salmon with her family. Evi also worked in a salmon roe cannery, where she was particularly adept at layering the top “show row” of eggs. Her continued affinities for fish, and fascination with the mysteries of microbial pathogens, led to a double major in fisheries and microbiology at Oregon State University.

Evi returned home and worked for the Alaska Department of Fish and Game. From there, she went to the School of Fisheries, earning her MS on the development of a peptide vaccine against a salmonid virus. She now works at the USGS Western Fisheries Research Center, where she studies exotic and invasive fish viruses and the various stress factors that lead to disease outbreaks in aquatic animal populations.

Blake became fascinated by fish during the first week of his advanced biology class in high school. There, he found an abandoned 60-gallon aquarium with barely an inch of mineral-supersaturated, mostly evaporated water remaining after 12 weeks of suffocating hot Wisconsin summer. Surprisingly, he discovered a live bluegill in the aquarium, desperately clinging to life, starving, and forced to endure water hardness similar to that in the Dead Sea. Blake restored the aquarium, named the bluegill “Ted,” and nurtured said fish back to health.

Thoroughly impressed by his pet teleost’s tenacity, Blake pursued a BS in Zoology at the University of Wisconsin–Madison. After graduating, Blake worked in the UW–Madison Anatomy Department, where he was a lab technician studying the physiology of mammalian synaptic vesicles.

Still longing to study fish rather than mix chemicals in dark labs, Blake started graduate school at UW Fisheries. He earned his MS in 1991, working on the impacts of anthropogenic noise on various salmon species. During this time, Blake founded his own computer graphics and cartography business. This served as a brief career for him and supplemented his income while he worked on his PhD, studying the spatio-temporal dynamics of an exotic saltmarsh plant species in Willapa Bay.

Blake and Evi met while he was coordinating the 4th Annual School of Fisheries Graduate Student Symposium, and they hit it off, given their mutual love of the outdoors and fitness, and despite the fact that Blake initially irritated Evi with his
erroneous “corrections” of her Symposium abstract. They married in 1997 at the Seattle Aquarium, with SAFS alum, affiliate faculty member, and internet-ordained Reverend Paul Hershberger officiating.

Blake completed his PhD in 1999 and was hired as a landscape ecologist at NOAA’s Northwest Fisheries Science Center, where he has worked on projects ranging from Pacific salmon conservation to marine spatial planning and urban ecology.

Blake and Evi had their first child, Geneva in 1999, followed by a second, Olin, in 2001. Geneva is now a sophomore at the University of Washington and Olin is a senior in high school. Neither has expressed any interest in the natural sciences, much less anything having to do with fish.
I began my fisheries career in Santa Cruz, California, as a deckhand on a local fishing boat while also taking a course in biological oceanography from the University of California Santa Cruz. The course included climate variability and the impact on fisheries resources, with a focus on the rise and fall of both the California sardine fishery and the Peruvian anchoveta fishery. The fishing boat’s captain had experienced the collapse, as well as the then nascent recovery, of the California sardine first-hand. These combined perspectives set the hook in me for a fisheries science and management career, and clearly the UW was the best place to pursue this.

I started at the School of Marine Affairs (SMA), with a plan to keep a hand in science by working with Bob Francis on a paleoecology project he and PhD student Diego Holmgren were just launching. The following summer, Bob arranged for a whirlwind of fieldwork throughout Alaska to search for other potential sites for similar work. Although no sites we sampled proved promising, being able to experience so many types of fieldwork in such beautiful and productive waters was amazing.

My curriculum at the time was a joint program comprising fisheries science and fisheries management as well as several case studies in fisheries management. After completing that program, I went a very different direction and completed a Knauss Sea Grant fellowship in Washington, DC, which put me squarely at the intersection of science and policy. We held hearings on implementation of the 1996 Sustainable Fisheries Act, on the collapse of West Coast groundfish populations, and on the West Coast Dungeness crab fishery. As I wrapped up my year on Capitol Hill, the Ecosystem Principles Advisory Panel (EPAP) produced a report on ecosystem-based fisheries management. Although my Master in Marine Affairs studies had given me a taste of fisheries science and modeling, the report inspired me to work on a project with Bob to implement many EPAP report recommendations for the California Current fisheries.

My fieldwork took place in the library, where the deep dive into decades of literature became a fascinating journey through all the components of this complex ecosystem.

Rewarding as that was, I needed a job, and an opportunity arose at the Southwest Fishery Science Center (SWFSC) in Santa Cruz—just over a mile from where I grew up. I joined Steve Ralston and others in Santa Cruz to develop stock assessments of West Coast groundfish. Presently, I’m Chair of the Pacific Fishery Management Council’s Scientific and Statistical Committee, with no small number of other SAFS alums and affiliates as members. I continue to support groundfish stock assessments, as well as run the SWFSC’s Rockfish Recruitment and Ecosystem Assessment Survey.

The dedication and support of faculty and my fellow students at SAFS, SMA, and the School of Oceanography gave me a foundation of knowledge and abilities that would have been nearly impossible to find elsewhere. It is particularly rewarding to stay in touch with my fellow SAFS alums who continue to excel in academic, agency, and management arenas.
From 1919 to 1950, UW Fisheries was located in two one-story wooden buildings at the eastern edge of campus. Building #1, closest to the football stadium, was the domain of Art Welander, who taught taxonomy and anatomy of fishes, and Lauren “Doc” Donaldson, who taught hatchery biology and involved us in early feeding experiments in the mini-hatchery in the basement. In two-man teams, we were responsible for a trough of trout or salmon fingerlings, keeping track of growth and mortality rates. As I recall, Doc was then testing combinations of ground beef livers (which was the standard hatchery fare) and varying percentages of fish meal.

The rest of the first floor of that building housed some library rooms that we used for seminars; offices for the Washington State Fish & Game Department; the School Director, William F. Thompson's office; and the International Halibut Commission.

Building #2 was L-shaped, with a lab room in one part and a second lab area that was used mostly for research, I believe. This was James Lynch's domain, where he taught classes on both commercial and non-commercial invertebrates. Lynch was a rather stern and very knowledgeable professor from whom we gained much. His pet peeve was students who brought chocolate to class and smeared it on the microscope lens and mirrors.

I worked at the School several hours a week. One of my jobs was typing lab exercises for Lynch on special carbons. There were no copy machines then, so all copies had to be made by this slow process. The typed carbons had to be pressed onto a thin coat of gel-like material, which retained the typed copy. Copies could then be made by pressing single sheets on the gel. This was the best method we had at that time.

Arthur Welander received a large fish specimen and he gave me the job of injecting it with formaldehyde to preserve it. He gave me a 100-cc hypodermic with the instructions to try to do a thorough job. I found the fish in a vat about 5 by 4 feet, filled to approximately 2½ feet with formaldehyde. The fish looked like a huge grouper or sea bass, with scales three-quarters of an inch long and one-eighth inch thick. In the process of injecting, the needle fell off the syringe and down into the vat. I felt I had to retrieve that needle, but I had no idea what the formaldehyde would do to my arm. I turned the cold water on at a nearby sink, and plunged my arm down into the vat. After groping around in the “guck” in the bottom of the vat, I finally found the needle. After rinsing off my arm, I was able to complete my job, but I still remember how I felt at that time.

I much appreciate UW Fisheries, the education and training it gave me, and the friendships and memories that I cherish my whole life.
After receiving a BS degree from Shandong College of Oceanography, I began graduate school at UW Fisheries in 1985. My decision to join UW was influenced by Lauren “Doc” Donaldson, whom I met in Qingdao. Donaldson would become a mentor and a friend who influenced me greatly. Doc and I worked together to introduce rainbow trout to China. His Donaldson trout thrives in many places in China, carrying on his and UW Fisheries’ legacy.

Bill Hershberger was my major professor for my MS and PhD. I studied triploidy in rainbow trout for my MS. Jim Myers—Bill’s PhD student at the time—introduced me to polyploid induction. I was fascinated that fish can tolerate polyploidy so well.

Bill was great in giving his students the freedom to explore. UW was a wonderland to me: science in China in the 1980s was decades behind the West. I benefited greatly from the interdisciplinary training that included courses—like developmental biology, and molecular and population genetics—taught by renowned professors from other departments. Also, I was able to work in Fred Utter’s lab at the National Marine Fisheries Service, learning about allozymes and their applications in population genetics.

For my PhD, I turned to oyster genetics, focusing on tetraploids. At that time, Stan Allen and Sandra Downing were working on producing triploid oysters using chemical induction, a process that is complex and rarely totally effective, while Jim Myers was producing tetraploid rainbow trout for triploid production. I spent four years testing different ways of making tetraploid oysters, mainly at Coast Seafood’s hatchery in Quilcene. Tetraploid embryos were readily produced, but none would develop normally. The embryonic cells with abnormally large tetraploid nuclei suggested to me that the eggs lacked sufficient cytoplasm to support the large tetraploid nuclei, and viable tetraploids might be developed using large eggs from triploids. After graduating, I joined Stan’s lab at Rutgers University as a post-doc; we confirmed my hypothesis was correct, leading to production of viable tetraploids. Tetraploid oysters would soon be commercialized for triploid production, greatly impacting oyster farming worldwide.

My committee included Ken Chew, Marsha Landolt, Aimee Bakken (Zoology), and Ralph Elston (Battelle). Ken taught me the importance of working closely with the industry. Aimee shared her insights in developmental biology, and Ralph’s research led to an ongoing interest in oyster diseases.

I joined Rutgers in 1995 and, since 1998, have been directing the shellfish genetics and breeding program. Rutgers developed disease-resistant diploid and triploid oysters for the oyster farming industry. I later ventured into genomics and co-directed the International Oyster Genome Project, trying to introduce genome-based approaches to oyster breeding.

It has been a wonderful ride, and I owe much of it to my UW Fisheries education. I have maintained connections with SAFS faculty and former students. It is great to see the impact that SAFS has had worldwide.
For as long as I can remember, I wanted to be a marine biologist. My first experience with marine biology was during a high school class trip to Patagonia, where I saw right whales, elephant seals, and penguins. In college, I studied the breeding success in Gentoo penguins. That venture took me through population dynamics of penguins, to smelly studies of Antarctic fur seal diets, to routine impact assessments of human activities at King George Island.

I joined the fisheries world by interning at the Fisheries Institute in Uruguay. My job was to understand the spatial patterns of a newly developed scallop fishery. My mentor and long-time friend, Omar Defeo, introduced me to fisheries, but also convinced me that fishery science was not only fun, but also very much needed in our country and region.

A few years later, thanks to a Fulbright scholarship and SAFS generosity, I enrolled in the SAFS PhD program, with Ray Hilborn as my supervisor. My goal was to improve my quantitative skills and to learn as much as possible from SAFS faculty and outstanding students (including the “Latino group”—Julian Burgos, Alex Aires da Silva, Carolina Minte-Vera, Alex Zerbini, and many others).

At SAFS, I took some of the most challenging but rewarding and motivating courses of my career. I joined forces with my course mates, spending hours deciphering André Punt’s mind-boggling, clever exercises. But man, that feeling of actually solving them! But not everything was coursework: Ray sent me to Southern California to participate in an exciting community-based data collection program. This allowed me to understand fishery problems from the perspective of the fishing community itself. The data enabled me to develop a spatially explicit, individual-based model for exploring alternative scenarios related to cooperative fishing, and I also became very interested in understanding the basis for successful co-management, which led to a rewarding paper in *Nature*.

After SAFS, I took a position at the London-based Marine Stewardship Council as Head of Research. This was a great opportunity to apply my quantitative and analytical skills, together with some strategic thinking on how to use market-based incentives to improve fisheries sustainability. I now work for FAO in Rome, supporting the design and implementation of programs to assist countries in their tuna resource assessments, fisheries research, and management activities. I also work with academic and research centers to develop capacity building programs on fisheries assessment and management.

My time at SAFS was a true inflection point in my career. The courses were not only highly diverse, they had highly skilled and experienced teachers, hands-on labs, lectures by outstanding scientists showcasing real world examples, and in some cases, exciting field work (Ray’s course in salmon management in Aleknagik, Alaska, was hard to beat). SAFS is not just about academic training, it is about collaborating with all the constituents to truly understand how fisheries science works in the real world. I will be forever grateful for that opportunity.
After graduating in Marine Biology from the University of Buenos Aires, I went to Patagonia to conduct research. I was interested in management of the natural resources of the area, and I became involved in several projects. I realized that my training was not sufficient to produce solid scientific answers to the questions about sustainable harvest and other issues relevant to most developing countries. I decided to improve my training and I applied for and got a Fulbright Fellowship. I was offered a choice of schools and, after reviewing many catalogs and chatting with my friend Lobo Orensanz, picked UW Fisheries. The program had a very broad curriculum, with an emphasis on the quantitative subjects for which I felt I needed reinforcement.

It was an incredible opportunity—with a specialized, comprehensive library and an open system where you could take classes in many departments and create your individual program with the help of your advisor and committee. This gave me a sense of freedom, coming as I did from the very regimented systems of Latin American universities.

The most important change for me involved interactions with faculty and students. I had good professors in Argentina, but education was quite “vertical.” You had to learn what the professors taught and follow their lead. The professors seldom said, “I don’t know.” At the UW, I met many people who helped forge my future.

For example, my advisor was Doug Chapman, a famous researcher who never showed off, was very solid, and emphasized the quality of the science, and not “running outside your data.” When I had a question he couldn’t answer, he’d say “let’s explore that.” He was never arrogant, always patient. I had access to him anytime I needed it, even though he was active in many projects and had many responsibilities (he was the Dean of Fisheries at the time). He and his wife strove to make foreign students feel at home, organizing picnics where I saw him taking his first steps on a soccer field because the Latin contingent was into soccer. No fear of ridicule, just being friendly. We also learned what Thanksgiving was, and shared many with them.

Another example: I took an ecology class at UW Zoology with Gordon Orians. A revolution was in the making with the introduction of evolutionary ecology and he was a leader in the field. He emphasized the application of critical thinking and avoiding repeating concepts that were in the books, but had never been fully tested. Gordon is another wonderful human being who has been strongly tied to Latin America and supportive of many foreign students. He is loved and admired by everyone, and very approachable. He has always been generous with his time and challenged you to grow.

I am very proud of my degree. I am also proud to have helped bring many highly qualified and talented Latin American students to the School over the years. I have traveled all over the world, and I know many excellent universities, but still haven’t found a match to UW Fisheries.
Melissa and Juan started their Aquatic and Fishery careers long before moving to Seattle from Ohio and Argentina, respectively, to add School and Sciences. They found much more than that at SAFS.

Melissa grew up along Lake Erie. Her undergraduate fieldwork involved studying endangered freshwater mussels. She completed an MS at The Ohio State University (OSU), where she became interested in climate and climate change. While at OSU, she was awarded a National Science Foundation Summer Institute Fellowship to work in Japan, and then a John A. Knauss Marine Policy Fellowship to work on fisheries issues within the US Department of State, Office of Marine Conservation. This piqued her interest in applied quantitative fisheries research, leading her to pursue a PhD that integrated her earlier climate interest with fisheries population dynamics.

Melissa was introduced to Richard Methot (NMFS), André Punt, and Ray Hilborn, who helped her obtain a NMFS–Sea Grant Fellowship in Population Dynamics. She relocated to UW in 2002, lured by “the mountains, the sea, and graduate school.” She benefited from being in André’s first cohort of graduate students, and from his energy and enthusiasm for teaching. She observed, “Because we were probably the least quantitatively trained group of incoming students that André ever accepted, he created a series of special ‘off book’ classes that have since become for-credit courses within SAFS.”

Melissa noted that Seattle’s quantitative fisheries community is unique: between SAFS and NMFS, there is a critical mass of people focusing on fisheries issues. Many of these people are not only intellectual companions and colleagues, but are also friends and family. “To that end, one of the greatest things about SAFS was meeting my husband, Juan Valero, while we were both students,” says Melissa.

Juan is from a family of fishermen and seafarers and has always been drawn to the sea. Like Melissa, he grew up by the water—in Mar del Plata, Argentina.

—continued on page 46
However, Argentina had no formal graduate programs in fisheries, so it was time to move! There was only one university Juan wanted to attend: it was "UW or BUST!" Juan will be forever grateful for his graduate support not only from Fulbright, but also from SAFS funding. Moving to Seattle was difficult for Juan, but the SAFS community exceeded his expectations, with students, post-docs, and faculty from all over the world. Some became part of his family, figuratively and literally: many students, along with mentors like Janet and David Armstrong, Ulrike and Ray Hilborn, and Ana Parma and Lobo Orensanz, became dear friends—essentially adopted family; and Melissa Haltuch became his wife.

Like many other SAFS quantitative students, Melissa and Juan started post-graduate employment prior to graduating, attesting to the high quality of education at SAFS and the need in one of the fields that the School excels in worldwide. Melissa began working with the NOAA Northwest Fisheries Science Center, where she is assessing groundfish stocks for management and conducting research on climate and fisheries issues, stock assessment methods, management strategy evaluation, and West Coast groundfish fisheries. Juan was hired by the International Pacific Halibut Commission. His analyses contradicted the official view of a fast-increasing stock, showed persistent methodological issues masking stock declines, leading him to recommend ways to correct these problems. His views were not shared, and he eventually lost that job, but he kept his integrity and moved on with the support of the SAFS community, and has been vindicated by history. He is now an independent fisheries scientist conducting research, stock assessments, and management strategy evaluation for industrial, recreational, and artisanal fisheries worldwide.

Melissa and Juan are helping shape the next generation of SAFS students and future fishery scientists. Melissa is a SAFS affiliate faculty member, serving on graduate student committees, guest lecturing, and teaching classes, Juan is associated with the Center for the Advancement of Population Assessment Methodology, where he mentors SAFS students in real world fisheries work. In addition to teaching at SAFS, Melissa and Juan organize fisheries stock assessment and management courses and workshops internationally and maintain collaborations with institutions in Chile and Argentina.

Melissa and Juan conclude, “SAFS and the Seattle fisheries community have been foundational in making us the people we are today as individuals, family, and community. We expect this influence will extend to our daughter as she becomes exposed to the exceptional SAFS community.”
Carwyn Hammond
MS, 2009

A “few” years after I finished my BS at the University of Rhode Island in 1999, I moved to Seattle to work with the Washington Conservation Corps on a salmon habitat restoration crew. Several months into the job, our crew supervisor told us about an upcoming SAFS seminar. I attended the seminar, which was during the Bevan Series’ first year. I was hooked and signed up for future seminar notices.

In 2002 after a Bevan seminar, I met Craig Rose. During our conversation, it came up that I had some background in fishing gear. In July 2004, I started temporary work for Craig in the Conservation Engineering group at NOAA's Alaska Fisheries Science Center (AFSC). Craig knew I wanted to go to grad school, but as a temporary employee of NOAA, there was no mechanism for me to do so. However, he let me take a couple of classes—Tom Quinn’s salmon ecology course and Loveday Conquest’s statistics course—while I was working for him.

During Loveday's course, I discovered NOAA's Graduate Science Program (GSP). If accepted, the GSP would give me funding for two years to pursue an MS degree and a permanent job with NOAA. In Craig's group, we worked cooperatively with the Alaskan commercial trawl fleet to modify fishing gear to reduce bycatch and the impacts of fishing gear on the sea floor. He and I had started working on a grant to investigate whether modifying demersal trawl sweeps could reduce unobserved mortality of red king, snow, and Tanner crab, so we could easily carve out a piece of that project for my thesis.

Now that I had a project and potential funding, I needed a SAFS advisor. When the two logical options, Don Gunderson and Tim Essington, didn't pan out, Ed Melvin (Washington Sea Grant) suggested I talk with Loveday because of the project's heavy statistical component. But I was taking Loveday’s statistics class at the time and knew she was planning to be on sabbatical for the 2007/08 academic year. Regardless, I reluctantly reached out to Loveday, figuring she’d say no. After some discussions, and because I had just taken her course, she agreed to be my advisor. I could not have asked for a better advisor! Loveday was kind, generous, supportive, and she kept me on track (GSP had a fairly strict schedule) to finish my degree in just under two years.

I finished my MS in summer 2009 and received my permanent job with the AFSC. Also, some of my thesis was presented to the North Pacific Fisheries Management Council to aid in the decision-making process for what became a new fishing gear regulation for demersal trawls in the Amendment 80 fleet in the Bering Sea.

To this day, I still enjoy attending the Bevan Series and other SAFS seminars, as they are a great way to stay informed about interesting research being done in the fisheries world and to keep in touch with the SAFS community.
I grew up in Alaska. Wilderness was always at my fingertips and I was primed to study marine biology from my first undergraduate days at UW. Yet the transition to Seattle’s urban environment was challenging until I found a home at SAFS, where professors knew your name, your classmates were your allies, and learning was by experience. I started at UW as a biology major, but quickly learned that SAFS offered an educational intimacy unparalleled elsewhere.

In 2003, I earned double BS degrees in Biology and Aquatic and Fishery Sciences. I tend toward the top of the food chain, so I soaked up Glenn VanBlaricomm’s marine mammalogy course. Wrapping up my BS degrees, I yearned for more focused marine mammal ecology research as a graduate student and was lucky to slip into an MS project with Glenn and Eli Holmes (Northwest Fisheries Science Center), focused on habitat use of southern resident killer whales. Glenn instilled independence in his students and built a large research lab that encouraged collaborative science.

Upon completing my MS in 2006, I found myself well-prepared to work with NGOs and federal agencies in the US and Canada, and do environmental consulting. It took me five years, an infant, and a solid job on the farthest reaches of eastern Canada to decide to pursue a PhD—perhaps not everyone’s choice! I did not intend to return to SAFS and spent a lot of time examining other schools. However, the strength of SAFS’ program and finding a supportive and encouraging mentor in Kristin Laidre, an intriguing research project, and solid funding created the perfect match for my interests.

My dissertation examined distribution patterns, foraging ecology, and environmental influences affecting two beluga whale populations in Alaska over a period of significant sea ice habitat loss.

With my broad training as a marine mammal ecologist, I now work at the interface of oceanography, fisheries, and marine biology for applied conservation and management objectives. My recent research centers on the spatial ecology and habitat use of Arctic cetaceans and pinnipeds through quantifying their distribution, movements, and behavior in dynamic and rapidly changing environments that are increasingly exposed to anthropogenic influences. I have returned to Alaska, the state I have always called home, and to which I remain deeply connected.

As a Research Assistant Professor at the University of Alaska Fairbanks, my current and future research plans are driven by a suite of questions addressing the environmental factors and ecological interactions that influence ecological responses of sentinel marine species—and the indigenous people who rely on them—to dynamic and rapidly changing Arctic marine ecosystems. Increasingly, my research centers on community-based, collaborative research with Iñupiaq experts and focuses on impacts to changing Arctic Alaska coastal regions.
Like many SAFS alumni, my introduction to marine biology and fisheries came at a young age, with a rod and reel in hand. I attended Duke University for my BS. There, I discovered Duke’s marine lab on Piver’s Island where I would spend a semester during my junior year and cement my love of marine ecology. Following Duke, I worked as a field technician at the University of North Carolina (UNC), where I spent most days piloting skiffs to various study sites along the North Carolina coast.

After UNC, I went on a road trip with two college friends. We arrived in Seattle in August, and spent a month exploring the area. By the end of that month, I truly could not see why I should leave. After a year of volunteering with NOAA on several projects, I applied to SAFS with support from Frieda Taub and was admitted in 1994. Frieda also helped me obtain an ARCS (Achievement Rewards for College Scientists) scholarship, and I am exceptionally grateful for this support in the early years of my graduate career.

At SAFS, I focused on crayfish in the Florida Everglades. I was fortunate to team with the US Geological Survey (USGS), which was developing studies on freshwater ecology to support Everglades restoration under President Bill Clinton. I wrote several proposals with USGS colleagues to fund my graduate work through the USGS’ Washington Coop Unit at SAFS. This was an exceptionally good deal for me because I spent my winters in Florida, collecting data for my MS and seeing my family.

When I started my PhD, I had to choose between continuing to study crayfish ecology in the Everglades or developing quantitative skills to model crayfish population dynamics. I knew that SAFS faculty were strong in both areas. I chose Ray Hilborn and his lab of quantitative modelers, where I developed Bayesian models of crayfish response to hydro-management in the Everglades.


My SAFS experience led to collaborations with SAFS alumni on projects ranging from lobsters in Chile with Billy Ernst to humpback whales in Alaska with Scott Gende. I’ve also been fortunate to continue interacting with the SAFS scientific community by teaching classes, serving on committees (as an affiliate faculty member), and getting feedback on research ideas through the quantitative seminar series, which has been extremely valuable for me as an independent consultant. I am lucky to be a part of such a strong scientific community, and I look forward to contributing to this community for many more years.
In 1991, on wrapping up my BS at the University of Victoria, I cold-called Tom Quinn. I gave a spiel about my passion for salmon and my desire to do graduate work in his lab. After a modest silence, Tom said “It sounds like you would make an excellent graduate student but…you missed the application deadline by six months.” Momentarily crushed, my enthusiasm recovered when he suggested that I come work for him over the fall. Thus began a seven-year stint with Tom, studying salmon in Washington and Alaska.

The next year, I met the application deadline, applying at the same time for a graduate scholarship from the Natural Sciences and Engineering Research Council of Canada (NSERC). But NSERC denied me the option of taking my MS scholarship to Washington University, stating it didn’t have a very good fisheries program. I wrote back, politely stating that Washington University indeed was not well known for its fisheries program, but that UW was—and the latter was where I wished to pursue my studies. Regardless, I received an H. Mason Keeler scholarship that enabled Tom to take me as a student and, shortly after, I received a letter from NSERC saying, effectively, “Oops, sorry, our mistake. Here is your scholarship.”

Based on my inspiring first year in Alaska, I suggested to Tom several projects I might do there. Tom, as always, listened politely and then suggested I instead work on rapid evolution in Lake Washington sockeye salmon. This suggestion started my path to becoming one of the forerunners—along with my office-mate Mike Kinnison—in the study of rapid evolution.

Given my supervisor had suggested my MS project, I decided to do a PhD all on my own. I therefore suggested to Tom a project at Pick Creek, Alaska, on Pacific salmon reproductive energetics. Then followed two extremely intensive summers of field work at the Lake Nerka camp, not only conducting research, but also having a wonderful time experiencing and photographing nature. The 1995 field season was particularly memorable for probably 50 bear encounters, most of them pleasant and inspiring, but some rather scary. I worked at Lake Nerka until 2000, even after graduating, making it an even 10 summers of Alaska work with the School’s Fisheries Research Institute.

UW Fisheries was an outstanding experience for me. I especially appreciate Tom, who gave me great ideas, shaped my manic approach to manuscript editing, encouraged me to explore collaborations independent of him, and had a knack for filling his lab with exceptionally synergistic and energetic students. Especially formative for me was having my desk directly beside Mike Kinnison, now a professor at the University of Maine, for seven years. Although we played Doom and Doom II with a serial cable linking our computers between 10 pm and 1 am, we actually did research for at least as many hours before that!
Allan Hicks  
PhD, 2013

It was when I was a dockworker and unloading fishing boats in Port San Luis, California, that I realized I wanted to become more involved with the assessment and management of fisheries. After earning a BS in Fisheries from Humboldt State University and an MS in Statistics from the University of Idaho, I accepted a position in New Zealand as a fisheries modeler, which was an incredible learning experience. While in New Zealand, I met Ray Hilborn and learned more about the research and teaching at SAFS. I soon decided to pursue a PhD at SAFS.

I was very fortunate to be a part of the SAFS community, especially the 2004 cohort, which included Carey McGilliard, Lauren Rogers, Neala Kendall, George Pess and many others who are prominent in fisheries science today. I also met many other students and post-docs at that time who became good friends and collaborators, including Juan Valero, Melissa Haltuch, Arni Magnusson, Matt Baker, Jason Cope, Gavin Fay, Ian Taylor, and Nathan Taylor. The SAFS community enhanced my education and career, and I am forever grateful to those friends and for that experience. Furthermore, the faculty are exceptional! Ray Hilborn, André Punt, Tim Essington, and John Horne pushed me beyond limits that I did not think could be exceeded. They not only taught me about fisheries science, they provided many opportunities to gain experience working in fisheries and to further my career.

An advisor can influence and shape a student in many ways, and I am very grateful for the mentoring that Ray Hilborn provided. He gave me opportunities to continue working on stock assessments in New Zealand, sampling and tagging sockeye salmon in Alaska, attending conferences, and teaching classes. Outside of fisheries, I was able to experience spit roasting whole animals, fishing off the beaches of Puget Sound, kayaking and canoeing in many lakes, and tasting delectable wines from around the world. Ray also introduced me to many other prominent fisheries scientists that subsequently became good friends.

Before I finished my PhD in 2013, I took a job at the Northwest Fisheries Science Center, working with many other SAFS graduates on stock assessment of West Coast groundfish. Seven years later, I moved to the International Pacific Halibut Commission, where I am currently working on management strategy evaluation and harvest policy with Ian Stewart. I quickly realized that all of the major fisheries research centers in Seattle and beyond have a long history of employing many SAFS graduates.

Overall, I wouldn’t trade in my experience at SAFS for anything. The people associated with the School are amazing and have influenced me in so many ways. I am very impressed with SAFS and strive to remain involved however I can.

Riding the rapids in New Zealand. Allan Hicks (front starboard), Arni Magnusson (back starboard), and Trevor Branch (front port side).
Charles R. (Bob) Hitz
BS Zoology, 1958

I arrived at UW Fisheries in 1957 to finish the BS in Zoology that I had started at Washington State College (WSC) but which was interrupted owing to military service. Besides finishing my degree, I hoped to attend dental school. At that time, Dayton Lee Alverson gave a talk at UW COF about big changes in the world’s trawling fleet with the introduction of stern trawler-factory ships. These large vessels, with different methods of handling nets and catches, fascinated me. I had no idea what a dramatic effect Lee would have on me, or what consequences the foreign stern trawlers would have on US fisheries, but I knew that studying fisheries was the right choice.

The UW classes and the atmosphere at the college were so engaging that I applied to graduate school, where I studied the spawning times of brown and copper rockfish in Puget Sound. During my graduate work, I met with Lee Alverson, who was now Director of the US Fish and Wildlife Service’s Exploratory Fishing Division. I took copious notes, but as I was leaving, Lee snatched my notebook and began reading it, finding numerous misspellings. To say that I was embarrassed was an understatement.

I collected samples for my research on the COF trawler R/V Commando. During 1959–1960, we made 22 trips. There were three of us on the vessel: Tom Oswald Jr., the skipper; Olaf Rockness, the engineer deckhand; and me, a greenhorn deckhand and student. I had to run one of the winches to set and retrieve the trawl. There was a brake wheel on each winch, which could be unscrewed to release the brake. One day I unscrewed it completely and it sprang out of the socket. After many bad words from Olaf, he repaired the winch and I never unscrewed it completely again.

I eventually completed my research, but one requirement, to pass a French exam, held me back. Meanwhile, Lee, now Director of the Exploratory and Gear Research Unit in Seattle, offered me a job in 1960, which I accepted. This was the same man who corrected my spelling!

While I never finished my MS, the experience and education that I received at UW were what got me an exceptional job at such a unique time in the industry.
Throughout my career, I have maintained close ties with SAFS. In 1990, I graduated from SAFS with a PhD and found employment with the National Marine Fisheries Service (NMFS), Seattle. From there, I witnessed the impact of SAFS on fisheries science throughout the world over the last 30 years.

As an employee of the Northwest and Alaska Fisheries Science Center in the 1980s, I worked with Kevin Bailey and Bob Francis—a wonderful pair of mentors! I watched them write proposals to develop integrated fisheries oceanographic research with Gordy Swartzman and Warren Wooster (School of Marine Affairs). In 1986, Bob became Director of the Fisheries Research Institute within SAFS, unleashing his creative approach to fisheries science. The following year, Ray Hilborn joined SAFS, bringing new energy to the School. I recall how much fun these key people, and their students, had working together—they created a lasting legacy.

The late 1980s and 1990s were exciting for graduate students in fisheries science. Amendments to the Magnuson–Stevens Fishery Conservation and Management Act were being considered, and when the Act was reauthorized in 1996, the precautionary principle became the foundation for sustainable fisheries management. Fisheries oceanography was also emerging as an interdisciplinary field that bridged applied science, oceanography, and marine ecology. The big three quantitative fisheries courses at SAFS were part of the curriculum. Although the coursework was challenging, this training provided us with the foundation needed to develop innovations in stock assessment and ecosystem modeling.

When I arrived at SAFS, NOAA and UW had partnered to form the Fisheries Oceanography Coordinated Investigations (FOCI) program to bridge the gap between fisheries policy, fisheries management, fisheries science, meteorology, and oceanography. My major professor, Warren Wooster, worked with Karl Banse (Oceanography), Bob Francis, and Don Gunderson to develop an interdisciplinary seminar course. Many of us can trace the origins of our thesis projects to that seminar series. The interdisciplinary collaborations encouraged by UW led to renewed partnerships among the three schools that yielded important discoveries about the role of climate variability on marine fish stocks.

Today's professors share that same integrative, collaborative view of fisheries science. While many faces have changed, the energy remains. I am heartened that the interdisciplinary approach SAFS continues to prepare young scientists to address the challenging ecological and social questions of our time. The SAFS and NOAA partnerships continue to benefit natural resources, each organization, and the public. It is a joy to still be a part of it.

Collectively, SAFS professors, students, and graduates form a knowledge network that extends worldwide. They are working with international research partners or fostering scientific exchange through leadership within international marine science organizations. My classmates now work in Asia, Australia, Europe, and South America. As the next generation of graduate students endeavors to assess human impacts within the social-ecological marine system, I expect SAFS will play a key role in preparing them to tackle the complex questions facing the future.
It’s a well-kept secret that Willapa Bay is the most romantic spot in the western hemisphere. That’s because true love could only bloom between the aptly named points of interest, Cape Disappointment and Grayland. Thus, it seems inevitable that Sean and Kirstin would come together while doing fieldwork on those titillating tide flats.

Although Willapa Bay may have sealed the deal, it all started back at the turn of the century at UW. Kirstin and Sean affectionately remember boxes of data on punch cards and tape reels, clanking pipes, and TGITs in the brick behemoth down the road we now call “Old Fish.” They met in Lobo Orensanz’s crustacean fisheries course. And whether it was discussions of protandric hermaphroditism in pandalid shrimp or dinners and guitar serenades with Jan and their advisor, David Armstrong, the flame was kindled.

Despite growing up less than 50 miles from each other, Kirstin and Sean followed different trajectories before arriving at SAFS. Sean knew from an early age that he would be a marine biologist, and bobbed and weaved his way through aquarium docent gigs, internships, and eventually a stint at Shannon Point Marine Center in Anacortes. That’s where he met Greg Jensen and became acquainted with the wonderful world of carcinology. From there it was a short trip to graduate school and a pursuit of the vicious, voracious, cat-eating (probably), world-ending (possibly) European green crab for his PhD.

Kirstin’s path was no less direct, but perhaps less obvious. Raised in the cradle of Puget Sound and the San Juan Islands, her life was defined early on by the sea. However, when asked she sometimes says that her career really began with a jellyfish, with Ted Pietsch helping her identify the critter she’d seen during a sailing trip back to Seattle from Hilo. She went on to a summer course with the Alaska Salmon Program, where she met David Armstrong during a snorkel survey, and decided to pursue a PhD, with his guidance, studying Dungeness crab. Life after graduate school was a whirlwind of adventures, post-docs, and research. Eventually Sean found a home teaching in the UW Program on the Environment and continues his work on shell-fisheries, aquaculture, and invasive species in SAFS. Kirstin landed at NOAA’s Alaska Fisheries Science Center, where she studies the impacts of climate change and other factors on North Pacific fisheries and ecosystems. Along the way, Sean and Kirstin have been mentored and surrounded by amazingly talented friends and colleagues who, more often than not, have strong ties to SAFS.

Sean and Kirstin are now a fairly prototypical Seattleite family raising an amazing 8-year-old aspiring aeronautical engineer/artist/sailor chicken-expert daughter. They feel truly blessed to have found an academic home in SAFS, and know their experience there provided far more than a professional foundation…it was the start of life-long friendships as well.
Greg Hood
PhD, 2000

When I was a new graduate student at Florida State University (FSU) starting an MS on ant ecology, a post-doc told me to go somewhere else to get my PhD. “Why?” I asked. Had I made a mistake coming to FSU? Was there something wrong with this department? No, he just thought it was a good idea to spread your educational experience across more than one university, because each has a different academic culture, and you learn something different from each. It was great advice.

UW Fisheries in the 1990s had a very different culture from FSU. FSU emphasized natural history and ecological interactions among species and with their environment. UW emphasized population modeling, as one would expect for harvest management. Charles “Si” Simenstad’s Wetland Ecosystem Team (WET), where I worked, also emphasized the emerging discipline of landscape ecology. Working with ants allows you to work at a small scale, independently, and with minimum logistic complications; working on salmon is almost entirely the opposite, which required a significant adjustment for me.

The cultures of FSU and UW have had a lasting influence on me. My PhD was an example of blending cultures. I was interested in leveraging my entomological background in my new focus on fish ecology, and I was interested in interactions between terrestrial and aquatic ecosystems, so juvenile salmon predation on flies, aphids, and other insects in the Chehalis River tidal swamps was my initial subject. This evolved into an interest in how allochthonous insect prey and other organic detritus varied in abundance and export according to the size of a tidal channel. This then led to a fascination with tidal channel geometry. I applied what I had learned about organismal allometry during my FSU studies, and the emerging paradigm of fractal geometry, to tidal channels. This fascination with channel geometry continues, with the consequence that I have published more papers in geomorphological than ecological journals.

I now work for the Skagit River System Cooperative, a tribal natural resource management consortium. I conduct mostly applied research on tidal marsh ecology and geomorphology in support of estuarine habitat restoration to provide rearing habitat for juvenile salmon, especially threatened Chinook. I also serve on a committee that evaluates federal habitat restoration in the Columbia River Estuary, where I sometimes cross paths with old WET friends, Laurie Weitkamp and Jessica Miller.

Grad school is more than an intellectual experience. The large, international Latino community at the School in the 1990s also had a big influence on my life. I remain close friends with Diego Holmgren, Billy Ernst and Carolina Parada, Juan Valero, Anna Parma, Jesus Jurado-Molina, Julian Burgos, and Eugenia Bogazzi. It was through them that I met my Chilean wife, Ximena Grollmus. Thanks to them I speak as much Spanish at home as English, as do my two children. And from them I learned to say, “Chao, pesca’o!”
Pam and Greg came to SAFS via two very different routes that converged on crabs. Pam grew up in Nevada and was a biology major at the University of Nevada–Reno, with little idea of what she wanted to study in graduate school. Then, for an upper-level invertebrate biology class, the instructor had live marine invertebrates flown in. This motivated her to look for schools with marine programs. Greg grew up in Bremerton and was hooked on marine biology at a very young age, exploring local tidepools and learning to SCUBA dive as soon as he was old enough to take the class.

Pam moved to Washington and volunteered in Robert Paine's zoology laboratory until deciding to apply to SAFS for graduate school. Shortly after she talked with David Armstrong about working on crustaceans, the Exxon Valdez ran aground, and funding from Exxon for king crab studies became available. A year later, the lawyers struck—all research, including student theses, was to remain under wraps until all lawsuits were settled! Fortunately, David persuaded Exxon to provide funding to study the reproductive cycle of female Dungeness crab. Pam did much of her work at the NOAA Mukilteo seawater facility.

During Pam's first dissection of a crab, she discovered a reproductive organ involved with sperm storage, which led to an expansion of her thesis and ultimately to a PhD. The questions of paternity raised by the discovery of this organ required a molecular biology approach. Pam completed her dissertation with Paul Bentzen while also serving as the manager of the Marine Molecular Biotechnology Lab (MMBL), preparing her very well to work at the Alaska Fisheries Science Center (AFSC).

After completing his undergraduate degree in the UW's Zoology department, Greg worked seasonally for NOAA and the International Pacific Halibut Commission. He then worked full time in David Armstrong's “crab lab” on a Pribilof Island king crab study and started graduate school when that funding ended. His doctoral work addressed questions of porcelain crab distribution that had puzzled him since his childhood beach explorations. Greg supported the unfunded work with TA positions and consulting, and serving as the chief diver/collector for Pam's project. He taught the shellfish class for many years, and now serves as the Capstone Coordinator for SAFS. In his spare time, Greg has authored several books on the marine life of the West Coast.

There is a strong network of capable scientists at the AFSC, many of whom graduated from SAFS. When Pam started at the AFSC, she recognized about a third of the names on the office doors as SAFS graduates. Pam—together with fellow MMBLers Mike Canino, Rolf Ream, Bobette Dickerson, and Ingrid Spies—created a molecular group at the AFSC. The skills she learned at SAFS and the people she met continue to aid her every day in her career.
I grew up on the Olympic Peninsula, where I had access to fresh oysters and spotted shrimp straight from the bay. Every day I did something outside that involved animals, mostly feeding domestic ones and harvesting wild ones.

The choice to go to college was simple. If I was in school or working on the farm, my parents would pay for my horse addiction; attending school seemed easier than farm work. The harder choice was deciding what I wanted to study. It had to involve animals and the outdoors, but I didn't want to be a farmer and didn't think I was smart enough to be a veterinarian. Consequently, I thought my options were being a zookeeper or game warden.

While attending the University of Puget Sound, I found that I loved biology. I particularly enjoyed learning about population dynamics because I could relate it to the hunting and fishing regulations I attempted to skirt around while growing up. The classes were hard at first because I did not take biology in high school, but I didn't mind the challenge. More importantly, I learned that biologists could work outside. Eventually, I landed an internship, and then a job, at Cascadia Research Collective, a non-profit marine mammal research group in Olympia. Soon, I realized I needed quantitative skills to analyze the data we were collecting.

Despite finishing my MS in Resource and Environmental Management at Simon Fraser University, I wanted more skills. I set my sights on SAFS. I believed UW was the best university for teaching quantitative skills in an applied sense, and it was within commuting distance from my family. I gained profound respect for André Punt's ability to teach quantitative concepts to people without mathematical backgrounds and for the approachability of SAFS faculty in general. Initially, I found it difficult to ask for help from other students, but once I found the courage, the benefits were immediate and substantial. By my second year, I was learning more from working on side projects with my peers than attending organized classes. Soon everyone was trying to teach me how to say “No” to new projects.

Graduate school can be rough, but if I never do anything related to my PhD again, attending SAFS was still worth it. Also, fortunately SAFS is not an “if you ain't first, you're last” community. Instead, it thrives through the sum of its parts. Once I accepted that everyone there—past, present, and future—knew more than I did about something, I began to grow as a researcher. The collective knowledge of the SAFS community is a never-ending resource. SAFS taught me how to learn. I am genuinely excited that, as a biologist at NOAA's Northwest Fisheries Science Center, I still feel like I am a part of the SAFS community. Maybe one day, I too can lure a graduate student away from their dissertation to work on a side project that helps them learn how to learn.
My experience with UW and SAFS started in the 1970s when I was teaching at Lopez Island High School and helping with AquaSea, a net-pen operation on the island. On the weekends, I worked with one of the employees, Tom Scribner, a kayaking buddy who had just graduated from UW Fisheries.

One weekend, a UW Professor, Ernie Brannon, showed up and was talking to Tom (Ernie was his major professor). I was surprised to see someone so well-dressed on the docks, but he was amazingly knowledgeable about salmon behavior, feeding, and health. In the short time I spoke with him, I learned more than the previous few months had taught me.

I had previously worked on salmon tenders and gillnetters, and my image of fisheries biologists was limited to folks who counted dead fish or tried to produce more hatchery fish. Now, I had met someone who was knowledgeable about the nuances of fish ecology and life history.

I took a class at the Friday Harbor Labs taught by Ted Pietsch (it was his first class at UW). I also met Bruce Miller and was very impressed with his research on tumors in flatfish.

I returned to Seattle, got a job at the new Seattle Aquarium, and applied to the UW Fisheries graduate program. The faculty I wanted to work with already had too many graduate students, so I visited NOAA geneticist Fred Utter (also Fisheries affiliate faculty). In short, we talked genetics, and I was totally enamored with studying this in salmon and other aquatic species. Fred and I discussed music, allozymes, and polyploidy, and he mentioned that Gary Thorgaard had recently noticed that some returning salmon had been triploid instead of the normal or more common diploid.

At UW Fisheries, I obtained a Sea Grant fellowship and started investigating triploidy in Pacific salmon. We were determined to create sterile triploid Pacific salmonids for rearing in seawater net pens and land-locked mountain lakes. We succeeded in creating various types of triploid salmon by using heated water to shock the salmon eggs and block migration of the chromosomes on the cell's spindle fibers.

I was hired as a geneticist by NOAA after finishing my PhD on triploidy in Pacific salmon with guidance from Bill Hershberger, and Fred and Ernie. I continued my relationship with UW, teaching classes at the School of Education and at Fisheries.

I also became interested in the American Fisheries Society's Student Subunit program, which underwrites financial support for student tuition and travel grants to attend meetings. I am particularly proud that the WA–BC Chapter of AFS has created a fellowship honoring the late Professor Jeff Cederholm (Washington Department of Fish and Wildlife biologist and Evergreen faculty), which each year funds a BS, MS, and a PhD student.

Working with UW Fisheries students has been a high point of my career and an inspiration for the future. These students are smart and dedicated, and I feel honored to have worked with them.
I grew up in England and, as an undergraduate, interned at the Fisheries Laboratory in Lowestoft. I helped with a juvenile fish survey aboard a small research vessel. We tied up in a different port each night and went ashore to sample the local beer. I liked the idea of doing this kind of work for a living!

I began my MS studies at the College of Fisheries in January 1973. I focused on evaluating the effects of water-level fluctuations on the limnology of Banks Lake. Jerry Stober was my supervisor. After finishing my MS in 1975, I began a study with Bruce Miller and Charles “Si” Simenstad on ichthyoplankton and juvenile fish ecology in northern Puget Sound and then under Bruce’s supervision, conducted PhD research on the biology and management of Pacific cod in Port Townsend. Through my studies, I made lifelong friends among fishermen and learned the importance of collaborating with industry.

By the time I received my PhD in 1982, I had married Susan Guralnick, and we had our first son, Joshua; my second son, Gabriel, was born in 1986. I am very fortunate to have such a close and loving family who supported me throughout my career.

I started working before completing my PhD dissertation—not recommended!—including a job at BioSonics, Inc., where I became involved with fisheries acoustics. This field became increasingly important in the 1980s, largely because of groundbreaking work at UW, the private sector, and the National Marine Fisheries Service (NMFS) under Jim Traynor and Marty Nelson’s leadership. I joined NMFS in 1986 and stayed with NOAA for 30 years. Marty, and later Jim, led Alaska Fisheries Science Center’s (AFSC) Midwater Assessment Program, which employed advanced hydroacoustic technology to assess pelagic and semi-pelagic fish like walleye pollock and Pacific hake. I went on to lead the AFSC’s acoustic assessment program following Jim Traynor’s untimely death in 1999.

My career has taken many twists and turns since those early days. I led the AFSC’s Observer Program for several years and became Deputy Director at the AFSC. For my last five years at NMFS, I served as Science and Research Director at the Northeast Fisheries Science Center, where we conducted science in support of fisheries management from Cape Hatteras to the Canadian Border.

Back in Seattle after retiring from NMFS, my career has turned full circle. As a SAFS affiliate faculty member, I work with faculty and students on several projects and guest lecture occasionally. And, I continue to serve as a US delegate to ICES (International Council for Exploration of the Sea), currently as President Elect.

My time at SAFS prepared me well for what has been a rich, diverse, and rewarding career. But equally important has been the mentoring, friendship, and guidance I received from people such as fellow SAFS graduates Gary Stauffer, Don Gunderson, Jim Balsiger, Jim Traynor, Russ Nelson, Wally Pereyra, Richard Merrick, and Bill Fox.

The SAFS legacy is rich, and it is exciting to look ahead, to think about challenges facing us, and to be certain that UW SAFS will enjoy a challenging, productive, and influential future.
Craig Kastelle  
BS, 1982; MS, 1991

Chemistry was my first interest in college. But after about two years, I started considering a degree in a different discipline. During a summer job in an Alaskan salmon cannery, I heard about UW Fisheries and soon transferred there.

The program was a perfect fit. For my BS degree, I studied fish culture and aquatic resource management. The coursework and hands-on work were ideal: In the mornings, I may have been guided by Professor Emeritus Lauren “Doc” Donaldson in chasing salmon to spawn them at the salmon return pond. In the afternoon, I might have been carrying a stack of punch cards to the Computer Center, usually just to see how many errors I had made. One of the more unusual classes I took was a population dynamics course taught by Gordie Swartzman; the final exam was a challenging take-home test, but for the in-class final he sang sea shanties.

My career trajectory was set by a class field trip on Puget Sound. We extracted fish otoliths to determine fish age. It was so difficult that I vowed to “never work with otoliths again.” A year later, I got a job reading otoliths at the then Northwest and Alaska Fisheries Science Center. Three decades later, I still work with otoliths but now I use microchemical analyses to assess the age estimate accuracy, make inferences about fish life histories, and estimate ambient water temperatures.

After about two years working with otoliths, I enrolled in UW Fisheries’ MS program while still working at the Alaska Fisheries Science Center (AFSC). At the School's Laboratory of Radiation Ecology—which investigated environmental radioactivity from atomic bomb testing in the South Pacific—I was coached by Ahmad Nevissi in measuring naturally occurring radionuclides in otoliths. My MS was supervised by Don Gunderson (chair), Loveday Conquest, Ahmad Nevissi, and my supervisor at the AFSC, Dan Kimura.

For my thesis, I measured radioactive lead and radium in sablefish otoliths to estimate their longevity. Once when Don was looking at the radio-chemical results, he poked fun at other research, saying “Wow, this is real science!” I took many classes from Loveday, which were challenging. She was tenacious and skilled at finding different ways to explain concepts; the students benefited from that, including me.

I may be atypical because I worked at the AFSC my entire career, but otolith-based research has grown exponentially, and I was lucky to be part of the advances made. At UW Fisheries, the coursework and the teaching of critical thinking was a great experience that prepared me for this line of work. The fun part of all this otolith research is how it circled back to my early interest in chemistry. Little did I know.

This would not have been possible without the teaching, mentoring, and patience of my high school teacher, Steve Ufer, and Don Gunderson, Dan Kimura, and my current supervisor and SAFS affiliate faculty member, Tom Helser.
After graduating from Cornell University in 1999, I spent several years dabbling in numerous unrelated endeavors: technical writing, bird watching, rowing, coaching, fishing, and carpentry. But in 2001, I took a job in the Ichthyology Collection at Harvard’s Museum of Comparative Zoology, where I developed a special interest in fishes. My job included several deep-water collecting cruises off New England, where I saw anglerfishes with parasitically attached males, spookfishes with four eyes, and loosejaw dragonfishes with red-flashing lights. I was hooked on fishes and figured a PhD on these odd creatures would be exciting.

Not many folk work on deep-sea fishes, so potential advisors and universities were scarce. The late Ichthyology Curator at Harvard (and long-time Friday Harbor Labs instructor), Karel Liem, indicated one clear choice: Ted Pietsch. In 2004, I interviewed with Ted and shortly after started as a graduate student in the UW Fish Collection.

Working with Ted was the most fulfilling period of my scientific career. He supported my travel to collections around the world, presentations at international meetings, and fieldwork in the Pacific and Atlantic oceans. Most of all, Ted encouraged me to leverage the diversity of expertise at SAFS so I could take an integrative approach in my study of deep-sea fishes. I pursued projects in taxonomy and systematics, molecular evolution, biomechanics, and ecology. At times, I explored topics so far afield that committee member James Orr remarked that perhaps I should reign in my “intellectual promiscuity”!

Despite SAFS’ focus on quantitative and applied aquatic ecology, it also encouraged work beyond these disciplines. If Ted gave me the encouragement and support, the SAFS community inspired me to pursue my varied interests in fishes. Committee member Lorenz Hauser helped me learn modern genetic techniques so that I could work on the molecular evolution of visual pigments. Faculty outside my committee were equally influential. Daniel Schindler often took time to help me understand the ecological principles behind odd feeding strategies in the deep sea.

The community of SAFS students was just as influential to my success in my career. Eric Ward and Pam Woods introduced me to modeling and quantitative methods, now a cornerstone of my work. Eric helped me construct a biomechanical model of muscle force production and jaw-closing dynamics in fishes. This work led to an NSF Postdoctoral Fellowship that funded a return to Harvard to work on robotic models of fish feeding systems. In 2015, I took a faculty position at Boston College, where I continue my work on fish biomechanics, with a focus on using quantitative and robotic models to explore how fishes feed and swim.

My time at SAFS was the most rewarding and influential of my career. Ted, my committee members, SAFS faculty, and the other students supported my iterations through one project after another. As a professor and mentor to students in my own lab now, I encourage them to take a similarly unconstrained approach and seek the mentorship from folks with different areas of expertise.
Suam Kim
PhD, 1987

Suam Kim received his BSc and MSc in the Department of Oceanography from the Seoul National University (Republic of Korea) and his PhD in Fisheries Oceanography in the School of Fisheries in 1987. His main research interest at UW, conducted in collaboration with scientists at the Alaska Fisheries Science Center, was the recruitment process for walleye pollock in the Gulf of Alaska.

In 1992, Suam became the team leader of the Antarctic King Sejong Station, where he managed research operations and studied Antarctic resources. He served as Director of the Polar Research Center of the Korea Ocean Research and Development Institute and developed an international program with members of the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) on Antarctic Ocean ecosystems, especially Antarctic krill in the 1990s. Suam moved to Pukyong National University (PKNU) in 2000 and focused on environmental/climatic variability leading to fluctuations in fishery catches in North Pacific and Korean waters. He devoted considerable energy to fostering the next generation of marine and fishery scientists. As a member and then Chairman of the Korean Committee of Global Ocean Ecosystem Dynamics (GLOBEC), he convinced an anonymous benefactor to provide funds that would enable young Korean scientists to attend and present their studies in international venues. This support has enabled more than 50 young Korean scientists to share their research results at various venues, including the North Pacific Marine Science Organization (PICES) and GLOBEC.

Suam has represented Korea on committees of several international organizations and scientific programs, including PICES, GLOBEC, CCAMLR, and the North Pacific Anadromous Fish Commission. He has published over 100 peer-reviewed articles on topics related to climate change, trends in fishery resources, ecosystem change, forecasting of fish stocks, and marine policy. He has published six books in Korean, and contributed chapters to 28 books domestically and globally.

In September 2017, Suam received the PICES' Wooster Award, which is given annually to an individual who has made significant scientific contributions to North Pacific marine science. Suam retired from PKNU in February 2018, and is now an Emeritus Professor.

Suam Kim with his students at his retirement party in Japan (March 2018).
I grew up in Poland, far from the ocean. I remember my mom often bringing home pollock fillets for dinner—often, pollock was the only fish we could get in the store. Later, during my biological oceanography studies at the University of Gdansk (UG), I found out that pollock in Polish stores came mostly from the Bering Sea. Back then, I had no idea that I would study pollock in the Bering Sea, work for NOAA, and attend SAFS.

After completing my MS, I worked at the UG Hel Marine Station in Poland, studying Baltic Sea benthic fauna. In 1994, my wife and I decided to immigrate to the US. I initially worked in the Bering Sea groundfish fishery observer program, and then the International Pacific Halibut Commission. In 2001, I joined the Bering Sea bottom trawl survey group in the Groundfish Assessment Program (GAP) at the Alaska Fisheries Science Center (AFSC). I mainly investigated survey catchability and how to improve survey protocols and estimation methods. Most of my work concentrated on pollock from the Bering Sea. Through that research, I realized I needed more training to keep up with new developments in fishery science.

In 2008, I returned to school as a SAFS PhD student. This was one of most exciting periods of my life. The SAFS atmosphere was very stimulating, with professors and students working hard on the most pressing issues of world fisheries at a time of unprecedented development in fishing and monitoring technologies, and environmental change. The classes I took were challenging, but also exciting and stimulating.

Now, I manage GAP activities at the AFSC. Mainly, we conduct bottom-trawl surveys to assess the groundfish and shellfish stocks in Alaskan marine waters. We use the survey results to establish time series of abundance estimates for Alaska groundfish resources in the Gulf of Alaska, Bering Sea Shelf, Bering Sea Slope, and Aleutian Islands. GAP work also involves taking part in the stock assessment process by providing survey-derived population estimates for stock assessment models, collecting data to obtain ecosystem indicators, and performing research relevant to Alaska fisheries.

GAP research focuses on improving methods to estimate the abundance of fish stocks from data collected during bottom-trawl and acoustic surveys. We also investigate estimating survey gear selectivity and catchability, and evaluate the effects of the environment on fish distribution and seasonal migrations. And we perform habitat research to delineate essential fish habitat and the impact of trawling on the sea bottom, and we are improving estimates of abundance of semipelagic species, which involves developing methods for obtaining abundance estimates from combined bottom trawl and acoustic surveys. Many projects conducted within GAP would not be possible without cooperation between AFSC scientists and SAFS professors, post-docs, and students. I am really thankful for this cooperation.
The University of Washington seemed like an odd choice for a kid from Tulsa, Oklahoma. However, after a visit to Seattle and the Pacific Northwest, I knew where I wanted to be. And, even though I was initially not accepted, UW eventually became home for nearly 15 years...and, Seattle has been my home for 25 years.

As a freshman, I signed up for the wildlife science program in the College of Forest Resources. I enjoyed learning about the flora and fauna of Pacific Northwest forests. Amphibian surveys in old growth forests, deploying and listening to some of the early bat sonar detectors, learning about the urban crows of Seattle, and exploring the politics and conservation of the spotted owl were just a few of the experiences. However, it was the marine mammalogy course in SAFS that finally pointed me toward the marine environment.

Growing up in middle America, my only exposure to marine mammals was in zoos and aquaria. While those experiences were valuable and planted a seed of appreciation for these creatures, it wasn't until I took the marine mammalogy course that my scientific curiosity for marine mammals began. The course was taught by Glenn VanBlaricom, and as I approached the end of my undergraduate degree, Glenn provided guidance while I pursued funding opportunities for graduate school. He also connected me with the Washington Cooperative Fish and Wildlife Research Unit, where I participated in various research projects and made lifelong friends.

I was fortunate enough to be given the opportunity to pursue graduate research in collaboration with the Washington Department of Fish & Wildlife, studying the potential impacts of harbor seal predation on salmon runs in Hood Canal. The project was a wonderful exposure to the world of marine mammal research. Extensive hours observing seals (and other wildlife, day and night) from blinds at the mouth of the Dosewallips or Duckabush rivers instilled a love for Hood Canal and the marine environment of Puget Sound. My coursework at SAFS inspired me to embrace the quantitative world. And, I was given the freedom to pursue unplanned paths—such as the two times killer whales decided to spend several weeks feeding on the harbor seals I was studying.

I am now part of an exceptional team of colleagues at NOAA’s Alaska Fisheries Science Center. Our focus is on the ecology and abundance of phocids in Alaska. It is a privilege to find myself working on some of the most important conservation and ecological issues of our time: changing climate and changing oceans. In May 2018, I returned to the marine mammalogy course to give a guest lecture on the use of biologging in marine mammal research. I couldn't help but be thankful for all SAFS and the University of Washington have provided me and for helping guide me to this point in my career.
I started as a freshman at the College of Fisheries in the fall of 1968. I was very fortunate to have been awarded a Malaysian government scholarship to study fisheries in the US. The scholarship was the blessing that molded my life. I knew I had to succeed, so I studied. I fast-tracked myself to earn three degrees at UW and managed to graduate summa cum laude in 1970. There were many mentors at UW to whom I will eternally be indebted—Richard Van Cleve, who accepted me into the College of Fisheries; Ole Mathisen, who took me under his wing for my MS degree on sockeye salmon at Lake Iliamna; Jerry Paulik, Douglas Chapman, and Robert Burgner, and UW Affiliate Professor Dayton Lee Alverson, who all guided my PhD program on groundfish stock assessments of the Bering Sea. UW SAFS is the only program that educated me and shaped my career. Everything I know about fisheries and the oceans started there.

Lee Alverson gave me the next biggest break in my life—a job at the Northwest Fisheries Science Center after my PhD in 1974. That was just before the Fishery Management and Conservation Act was passed (1977). Stock assessments were my main assignments with the US government. My UW education drew me into two main issues—high seas salmon issues of the International North Pacific Fisheries Commission (INPFC) and groundfish stock assessments in the Bering Sea. I had always been a stock analyst and liaison science person for fishery managers, and was a Fishery Management Plan Leader for the North Pacific Fishery Management Council on Bering Sea groundfish for more than 25 years. I am proud to have helped design the 2 million metric ton optimum yield system that has sustained almost 40 years of fishing near that optimum yield for Alaska.

I was fortunate to have been drawn into a broader array of North Pacific fisheries issues. I served as a science representative and advisor at the INPFC and its successor organization, the North Pacific Anadromous Fish Commission (NPAFC); the Convention of Conservation and Management of Pollock Resources in the Central Bering Sea; the International Pacific Commission; the North Pacific Fisheries Commission; the US–Russia Inter-Governmental Consultative Committee; the US–Republic of Korea Memorandum of Agreement on marine science and technology; and numerous United States bilateral discussions with Japan, the Republic of Korea, Vietnam, and China. I was always a support person and prepared the science background reports for the US.

I am so lucky to have served the US Government. I retired in September 2016, and the NPAFC awarded me the NPAFC annual award in 2017. One more thing: I am honored to have been an Affiliate Assistant Professor at the UW. Best wishes for the continued success of the School of Aquatic and Fishery Sciences!
I was an MS student at SAFS from 2003 to 2007 and returned in 2014 for a post-doc, both in Tim Essington's lab. It goes without saying that the training I got from SAFS was of extremely high quality and prepared me for a career at the Northwest Fisheries Science Center (NWFSC), where I am now. But, SAFS gave me three intangible gifts that I wasn't expecting: entry into an elite club of respected fisheries scientists, an incredible set of colleagues, and life-long friendships.

After I finished my MS at SAFS, I went to Colorado State for a PhD in Ecology. When I was interviewing for that position in 2008, I was struck by the immediate level of respect with which I was treated because of my MS degree. No faculty member that I interviewed with questioned my skills or my ability to take on the funded fellowship I was applying for. It was a given that I could do it because I had been through SAFS. I've had similar experiences around the country and the world—a SAFS graduate degree confers status.

I returned to Seattle and to fisheries science after my PhD and have discovered many of my SAFS friends are now colleagues. I remember Tim Essington saying in one lab meeting how fun it was for him to have his grad school buddies as collaborators. At the time, I had a hard time envisioning that would happen, but a decade later I led a National Center for Ecological Analysis and Synthesis working group with three of my Essington labmates (Anne Beaudreau, Mary Hunsicker, and Jordan Watson) and another SAFS graduate colleague (Eric Ward), whom I eventually married. Returning to SAFS as a post-doc, I collaborated with a new generation of sharp and productive Essington lab students. And at the NWFSC, there are more SAFS alumni than I can count, and more than half of the staff in my program are SAFS grads I knew during my MS and post-doc (including Jason Cope, Melissa Haltuch, Ian Taylor, and Chantel Wetzel).

Besides a well-respected degree and a professional network, SAFS gave me an amazing and supportive group of friends. I formed quick and lasting bonds with many SAFS grad students (including my husband). We struggled through homework together, went hiking and skiing together, got jobs near and far, and now are raising families. I'm particularly grateful to my female SAFS friends, who navigated similar transitions from graduate student to post-doc to permanent positions, and could identify with my experiences as a woman in science, balancing work and life and spouses and parents and kids, sometimes all at the same time. These friendships go beyond fisheries, but they began at SAFS.

I am extremely grateful for the tangible and intangible benefits of my time at SAFS. And as the school moves into a second century, I hope I'm able to give back to the current and future generations of the SAFS community even a fraction of what it's given me.
Mark Maunder  
PhD, 1998

My road to becoming a stock assessment scientist comprised a series of fortunate events. I attended the University of Auckland to pursue a BS with a double major in Zoology and Computer Science: while I preferred zoology, computer science was more likely to get me a job.

The first fortunate event was taking an advanced calculus course in my first year, which I quickly dropped and, thereafter, took very few math courses. Despite the importance of math in stock assessment, I suspect my success, based on intuition and creativity, would have been hindered by math courses.

The next fortunate event involved my inability to get the computer science job that I wanted. I didn’t want to be just a computer programmer, so I decided to continue my education and pursue an MS.

Another fortunate event turned my path towards stock assessment when I was deciding how to continue my education. I had recently heard that computers were being used to model fish populations. This sounded cool, so, I talked with a professor at the University of Auckland who did this type of work and ultimately enrolled in the MS program there.

My MS involved conducting a stock assessment of snapper, an important commercial and recreational New Zealand species. While finishing my MS, I started looking for a job and applied for a fisheries management position at the New Zealand Fishing Industry Board (NZFIB). There, I met my future PhD supervisor, Ray Hilborn. I also met André Punt, who has been a mentor throughout my career and still is, as well as other UW post-docs and students.

Career advancement options without a PhD were limited, so I was encouraged to obtain a PhD. With financial support from the NZFIB, and through its connections with UW, I became Ray’s student. At UW, I learned a tremendous amount from the projects I worked on and the people I worked with, including students like Billy Ernst and Murdoch McAlister, and alumni such as Ana Parma and Jim Ianelli.

After my PhD, I took a stock assessment position at the Inter-American Tropical Tuna Commission. I still work there on stock assessments, supervising other UW alumni (Carolina Minte-Vera, Haikun Xu, and Juan Valero) under the direction of alumnus Alexandre Aires-da-Silva. This was another fortunate event given that my wife and I wanted to move where the climate was warmer.

My UW connections remain invaluable. For example, the success of the Center for the Advancement of Population Assessment Methodology (CAPAM) stock assessment methodology workshop series is partly due to the involvement of UW professors, students, and alumni, particularly Brice Semmens (UW Zoology)—a CAPAM cofounder—and André Punt, a keynote speaker, writer, and editor who has encouraged his students to attend and contribute presentations and papers.

The most important thing I can say to current UW students is that working with others is the most effective way to learn. I have been fortunate throughout my education and career to work with truly exceptional people.
Bernie May
MS, 1975

Returning to UW after two years in the army, I completed my BS in the newly created major in Molecular Biology. During my last year, I attended a class in Fish Genetics taught by Bill Hershberger. Fred Allendorf (then an MS student) gave a guest lecture on the use of genetic data from allozyme electrophoresis to address questions in fisheries management. Figuratively “a lightbulb went off in my brain” during that lecture. I knew instantly I wanted to spend the rest of my career doing just that. Fred invited any of us who were interested to meet his mentor Fred Utter across the bridge at the National Marine Fisheries Service (NMFS).

After walking the halls in trepidation at NMFS, I poked my head in to say hello to Allendorf and suddenly this guy burst out from behind a file cabinet, stuck out his hand, and introduced himself as Fred Utter. I joined the two Freds and spent two intense years studying allozyme variation in Pacific salmon. Utter treated all new students as full professionals when they walked in the door. You had his full respect from day 1. I was barely there when he took Allendorf and me on a road trip to California to attend a conference where I met a host of other giants using genetic data derived from allozyme electrophoresis.

Utter and I taught several short courses in allozymes to graduate students from various disciplines during the second year of my MS studies. Some of those students joined Utter (including Jim Seeb and Stew Grant), and others took that knowledge into careers in many other disciplines. Funding for my research came from the Washington Department of Fisheries; partnerships between state and federal management agencies and university geneticists became a pattern. I appealed and was granted permission to have Utter chair my MS committee, with Joe Felsenstein and Bill Hershberger as committee members. Utter had simplified how allozyme electrophoresis could be done. My MS thesis included a manual for his methods, which was copied hundreds of times.

I spent two years as a technician at the University of Maine after which I joined Jim Wright at Penn State for my PhD, completing the circle as Hershberger had done his PhD, and Allendorf had been an undergraduate there. Following a 14-year stint at Cornell running an interdepartmental allozyme laboratory, I spent 20 wonderful years at UC Davis training dozens of graduate students using genetic data to answer many questions posed by state, federal, provincial, and tribal fisheries management agencies, primarily in California. My 40-plus professional years have witnessed genetic data becoming a standard tool in fisheries research and management, following the pioneering work of Fred Madison Utter and the many students he influenced over his career at NMFS and SAFS.
I grew up in southern Germany in a small town. I knew early on that I wanted to be a biologist. After earning my undergraduate degree in Zoology at Eberhardt Karls University, Tuebingen, I was accepted into an exchange program to study at Oregon State University, Corvallis. There I was introduced to marine ecology.

After a year at Corvallis, I became one of the first National Marine Fisheries Service observers on the new American fishing fleet. I really enjoyed my time at sea, working on various vessels and at a fish plant in Dutch Harbor.

I enrolled in the UW Fisheries graduate program while working at the Alaska Fisheries Science Center (AFSC). Don Gunderson was working with the AFSC and had funding for an MS student to study rockfish reproductive biology; the samples I had collected as an observer were part of the study.

The R/V Alaska was docked right outside the old Fisheries Center. Through a research cruise with Don Gunderson, I got to know the Alaska crew. One of my favorite memories is the hours spent visiting the Alaska, sitting on the dock with my malamute dog, drinking “boat coffee” and solving serious world problems with the vessel crew.

I finished my MS and was hired to work at the AFSC in the stock assessment group, mostly on the reproductive biology of rockfish and later Atka mackerel. My involvement with Atka mackerel led to working with AFSC’s Fisheries Interaction Team, which was assessing the impact of fishing on the endangered Steller sea lion’s prey field, including Atka mackerel.

At that time, with continued support from Don Gunderson, I was accepted as a PhD student at UW Fisheries and took on a new Atka mackerel tagging study as my PhD project. My observer experience greatly helped me understand how to conduct a collaborative project with the commercial fishing industry, and the lessons I learned at the School and the assistance from all the colleagues and fellow students helped me put this project together. Little did I know that this project would continue for the following 17 years!

I finished my PhD in 2003 and became a permanent AFSC employee. Our team worked with the commercial fishing industry, the North Pacific Fisheries Foundation, and the F/V Seafisher. We tagged over 100,000 Atka mackerel along the entire Aleutian Chain during more than 15 research cruises. We studied the Aleutian Island ecosystem and the connection between fish and sea lions and the commercial fishery. Our group comprised scientists from many different disciplines, including oceanography, survey techniques, fish ecology, and tagging models. I feel extremely lucky to have had such great colleagues and friends. The connection between SAFS and the AFSC is still going strong and hopefully will continue on for many years.
It all began in Costa Rica, where I did a biology and Spanish study-abroad program as an undergraduate student, traveling to biological field stations around the country, conducting mini-research projects at each one. We had four laptops for 24 students and would sign up for computer shifts, which extended through the night, to analyze and write up our projects on colorful birds, monkeys, tapirs, and leaf-cutter ants. I was a math major and when I returned to the US, I looked for ways to combine the biology that I’d learned in Costa Rica with math modeling.

Shortly after getting my BS, I got a job at the University of Maryland’s Horn Point Laboratory on the rural eastern shore of Chesapeake Bay, working in Mike Roman’s zooplankton ecology lab. There, someone clued me in that fisheries scientists do a lot of “mathy” things. It was Steve Martell (who was an Assistant Professor in Maryland at the time) who told me about SAFS, recommending that I talk with Ray Hilborn. Soon after, I joined Ray’s lab and moved to the West Coast.

At SAFS, I was part of a large, dynamic quantitative fisheries science community. Not only did I learn from folks in the Hilborn, Punt, Essington, Gallucci, and Conquest labs, but also from the many quantitative scientists at the Northwest, Southwest, and Alaska fisheries science centers. I pursued an MS and a PhD studying marine protected areas, which took me to Santa Cruz, where I collaborated with SAFS alumni John Field and Beth Babcock, researching harvest policies for small-scale data-poor fisheries.

My time at SAFS was hard—there was a sign on the Hilborn lab door stating, “If you don’t come to work on Saturday, then don’t bother coming in on Sunday.” I think we all enjoyed the work and managed to have a lot of fun, from fly fishing on the Wood River in Alaska to coming up with whacko research ideas at the big lunch table overlooking the ship canal at SAFS. We thought our friend Mary Hunsicker, who was studying the role of squid in food webs, should do one last stomach content analysis on her defense day and so a giant squid piñata was born…and quickly “analyzed.”

After I graduated from SAFS, I moved to the Alaska Fisheries Science Center, where I work with many fellow UW graduates, including Ingrid Spies, Steve Barbeaux, Martin Dorn, and Cody Szuwalski. Foci within our group have included the effects of climate change on Alaskan fish populations, evaluating harvest strategies for multi-species, multi-sector fisheries, and assessing population trends for marine fish. I am the US Science Advisor to the International Pacific Halibut Commission, which provides plenty of opportunities to collaborate with former Hilborn lab colleagues Ian Stewart and Allan Hicks. Oddly enough, I often find myself in management forums, answering lots of hard questions from one particular Alaska industry scientist, Steve Martell.
As a native of California, I came to SAFS to study aquatic toxicology in 1983. I had completed a BS at Humboldt State and an MS at San Diego State University. Prior to coming to SAFS, I was a marine biologist at the Naval Ocean Systems Center in San Diego and a deep-sea ecologist at the Scripps Institution of Oceanography in La Jolla, where I met my wife, Susan Picquelle, a NOAA statistician who worked at the Southwest Fisheries Science Center and later at the Alaska Fisheries Science Center (AFSC) (now retired).

I was content in San Diego, but Gary Stauffer at the AFSC was persuasive and convinced me to apply to UW. At that time, there was considerable movement of fisheries folks up and down the West Coast, so we had a welcoming circle of friends after arriving. I was fortunate to land in Frieda Taub’s lab and plug into her ongoing work on ecosystems in a jar (Standardized Aquatic Microcosms). This was cutting-edge research—studying ecological processes in perturbed systems under a variety of conditions by evaluating the responses observed for a suite of organisms. Each experiment comprised multiple doses, with replication, generating a massive amount of data. Frieda’s research team consisted of several SAFS faculty members, including Tom Sibley, Loveday Conquest, and Gordie Swartzman, who were also instrumental in my education. My time in Frieda’s lab was a fantastic learning experience, providing infusions of chemistry, statistics, modeling, toxicology, and of course, fisheries science that solidified the foundation for my career.

After graduating, I didn’t stray far from campus (about 400 m as the fish swims). I started working at the Northwest Fisheries Science Center (NWFSC) in 1989 as an NRC post-doc with Usha Varanasi and was offered a full-time position in 1990. Working at the NWFSC has been a blast, most of the time; I am an environmental toxicologist studying a variety of contaminants and their effects on critters ranging from worms to whales. Currently, I am studying the importance of pharmaceuticals on the physiology of juvenile Chinook salmon. Somewhat unexpectedly, this research has attracted the attention of myriad media outlets, including Stephen Colbert (just Google “Sammy the Salmon Colbert”). Needless to say, people get a bit agitated when they hear about fish on drugs. I am also working with colleagues in Tromsø, Norway, studying the effects of oil spills on Arctic fish. When I am not slaving away at the computer or the lab, you can find me on a bicycle, taking pictures of cool fish in the Caribbean, or keeping our garden green.

SAFS provided a variety of skills, knowledge, and connections, allowing me to be successful in my chosen field. After seeing how things are done at a number of universities, I can appreciate the world-class education I received at SAFS. As an Affiliate Professor in the UW Department of Environmental and Occupational Health Sciences (School of Public Health), I am able to give back to the university and hopefully inspire younger minds to tackle the challenging environmental issues we face.
Having a primary interest in fish behavior and ecology, I decided to attend UW Fisheries in fall 1963 after earning a BA in Biology from Occidental College. Initially, my major professor was Alan DeLacy, but in January 1964, I became Don McPhail’s research assistant and his student. Don introduced me to the Olympic mudminnow (*Novumbra hubbsi*), which became the subject of my thesis research. As a graduate student, I joined the American Society of Ichthyologists and Herpetologists (ASIH) and presented several papers on *Novumbra* at their annual national meetings. Additionally, in 1965, I joined the American Fisheries Society (AFS). My presentations at ASIH meetings and my activities in AFS after graduation resulted in network connections that were of great help for my employment and career.

Besides my thesis work, I did independent research on sound production by Pacific Northwest marine fishes. Back then, there was an aquarium in the basement of the old UW Fisheries building, which had a large oval tank in it that held three sablefish. I plunked my hydrophone in that tank and found that sablefish made a very high frequency click. I used Gordon Orians’ sonograph to print the graphics that showed the sound frequencies. The sablefish click frequencies reached 22KHz, the upper limit of my hydrophone! I concluded that sablefish possibly used the clicks for auto-orientation.

My report on this study apparently became known to other fish sound researchers, and I was contacted by a researcher in New York about the sablefish finding. Subsequently, I arranged to have all my fish sound recordings archived at the Cornell University Laboratory of Ornithology.

After completing my PhD in 1968, I worked for Ichthyological Associates, Inc. (IA), in Delaware. There, I studied the responses of mid-Atlantic fishes to temperature and chemical pollutants. Following 15 years with IA, I joined Harza Engineering Co. in Chicago and worked worldwide on water resource development projects. I retired from the corporate world in 2005, but continue to do independent consulting.

Surprisingly, my independent research on sablefish sound production at UW resurfaced in recent years. In December 2018, I was contacted by a researcher at the University of Victoria (British Columbia) who recorded the high frequency clicks made by sablefish in a large outdoor pen. That same month, I spoke about my thesis research at the *Novumbra* Symposium held at Evergreen State in Olympia. The symposium (the second such symposium to be held) was sponsored by UW (Julian Olden and Lauren Kuehne at SAFS) and the US Fish and Wildlife Service. I was also the lead speaker at the first *Novumbra* symposium in Lacey, Washington (2012), and was invited to give a summary of that presentation.

I still stay in touch by email with several former UW grad student colleagues: Larry Gilbertson, Dave Greenfield, Boyd Kynard, Dick Lichtenheld, Bruce Miller, and Don Weitkamp and also with Jerry Stober, who, when at FRI, used my IA design for an apparatus to determine temperature preferences of fish.
As an impressionable high school sophomore in Massachusetts, I visited the Massachusetts state lobster hatchery and caught the aquaculture bug. Two years later, I enrolled in UW Fisheries.

I am not a mathematician or a statistician or an ecologist or an oceanographer or a computer programmer, but have dabbled in all enough to connect the dots and write Stock Synthesis (SS—the world’s most commonly used stock assessment method). Doug Chapman and Allyn Seymour facilitated my eclectic tendency and I flew the nest to Scripps Institution of Oceanography (SIO) to work with Allyn’s colleague, oceanographer and engineer John Isaacs.

At SIO, I joined Reuben Lasker’s lab in the Southwest Fisheries Science Center (SWFSC). It was the right place at the right time, and I conducted the first field applications of daily growth increments in larval fish otoliths for my PhD. At the time, UW’s quantitative fishery science diaspora was well represented in La Jolla. I fell in with that crowd, particularly Bob Francis, and I saw my future in stock assessment.

In December 1981, my long tenure with the National Marine Fisheries Service (NMFS) began. I started with anchovy assessments at the SWFSC and, in 1983, the germ of SS was fertilized.

I returned to Seattle in 1988 to work at the Alaska Fisheries Science Center and then the Northwest Fisheries Science Center in 1995. UW connections with both labs were active and productive. I began working on the national Stock Assessment Improvement Plan (SAIP) with Pamela Mace. This put me again in the right place at the right time. In 2002, a new NMFS national position enabled me to stay close to fishery science in Seattle, maintain my UW affiliate faculty position, and inherit leadership of the SAIP.

As National Stock Assessment Coordinator, I successfully communicated stock assessment budget needs in response to the 1996 reauthorization of the Magnuson–Stevens Act. Meanwhile, my science project was converting SS to AD Model Builder and taking its outreach nationally and globally, for which I earned a Department of Commerce Gold Medal in 2008.

The NMFS–academic connection yielded a program to develop a pipeline of qualified fishery science candidates for NMFS positions. This included support for academic positions. Where better to do that than in Seattle with its critical mass of UW, NMFS, and the International Pacific Halibut Commission?

I served on the UW search committee with Ray Hilborn, interviewing André Punt. The UW quantitative fishery science program has been a tremendous boon for NMFS, with numerous graduates having worked for NMFS as stock assessment scientists. We now even have NMFS staff leading a SAFS graduate class on stock assessment. A greater success I cannot imagine.

SAFS seminar series continue to catalyze the innovations occurring here. Following one amazingly insightful ThinkTank discussion, Arni Magnusson remarked that only at UW could such a discussion have occurred.
Jessica A. Miller
MS, 1993

After completing a Zoology BS at the University of Montana and working in Florida's mangroves, I was drawn to UW Fisheries by its strengths in sound science and effective application and, in 1990, I enrolled as an MS student. During a visit the year before, I was lucky enough to connect with Charles “Si” Simenstad and learn about his estuarine research and potential research opportunities. I worked with him, Bob Wissmar, and a team including Jeff Cordell, Greg Hood, Cheryl Morgan, and Laurie Weitkamp. At that time, Si was in the process of creating the Wetland Ecosystem Team. It was a busy, challenging, and rewarding time for me, made possible through Si's unceasing efforts to increase understanding and management of estuarine systems and through his academic, financial, and moral support.

My thesis focused on assessing the ecological function of created wetlands. After my MS, I worked at the Tillamook Bay National Estuary Partnership in Oregon and then at the Willapa Alliance in southwestern Washington. I am absolutely certain that these positions were available to me because of my SAFS degree and the high esteem people held for Si.

However, several years of working at the interface of science and management were enough to propel me into a PhD program at University of Oregon's (UO) Institute of Marine Biology (OIMB). Once again, I was fortunate to have a supportive, engaging, and creative mentor, Alan Shanks. After working with Pacific salmon in coastal systems, I wanted to examine the movements and transport mechanisms for non-salmonid fishes and invertebrates and understand how they influenced population connectivity.

OIMB is a wonderful marine laboratory and, for anyone interested in marine biology, living and working at a marine lab is an experience not to be missed. During my post-doc at UO, I was offered a tenure-track faculty position at Oregon State University. The position is within the Coastal Oregon Marine Experiment Station and based at the Hatfield Marine Science Center in Newport, Oregon, so I am lucky enough to continue to live and work on the ocean.

My research focuses on understanding mechanisms and patterns of dispersal, movement, and mixing in marine organisms, and quantifying aspects of life history variation in marine and anadromous fishes that are relevant to conservation and management. I use biogeochemical markers to address basic questions in ecology that also provide information critical for management and conservation efforts.

My position is exciting and rewarding because it combines my interest and training in fisheries science and marine biology in an applied research environment that involves effective collaboration with state, federal, and industry partners. I now mentor graduate students and also teach a course on the early life history of fishes. Throughout my professional career, I have often marveled at the size and the reach of the SAFS network. In my current position, I am fortunate to regularly interact with so many successful SAFS alumni. Congratulations on 100 years of education, research, outreach, and training!
My career in fisheries started after finishing my degree in ecology in Brazil. I had focused on myrmecology, but realizing that very few people eat ants, I changed to fisheries. I obtained an MS at the State University of Campinas, under fishery scientist Miguel Petrere’s supervision. I was fascinated with using math and statistics to study one of the last hunter–gatherer activities performed by modern humans: fisheries.

By the end of my MS, Miguel suggested I do a PhD either with Ray Hilborn or Carl Walters. I was uncertain about this—I’d have to improve my English—but Miguel gave me courage. Sometimes it takes a little push for a shy, inexperienced student to take the next step.

When I met Ray, I knew SAFS was the right place for me. He was so welcoming that I completely disregarded the miserable Seattle weather. I merged into the festival of nationalities of the SAFS student body. I made wonderful friends who enriched my time at SAFS enormously and became my colleagues (three of them were witnesses at my wedding).

SAFS provided countless opportunities to learn, including through collaborations with the Alaska Fisheries Science Center and the Northwest Fisheries Science Center. In 2002, Jim Ianelli, one of my committee members, came to the Hilborn lab and announced, “Who wants to work for me during the summer?” I quickly said, “me!” and gained my first experience working in real stock assessment research.

Next year, Jason Cope and André Punt proposed another summer job, this time working on cabezon assessment. I happily took that opportunity and programmed the model André and Jason developed in AD Model Builder. We “raced” our model against a model done using Stock Synthesis, and we “won”: 19 seconds versus 2 minutes.

I came to SAFS with four years of funding from the Brazilian government and a leave of absence from the University of Maringa faculty. That put me on a tight schedule to finish my PhD and return to Brazil. When I ran out of funding before finishing my PhD, I was honored to be awarded the first Marsha Landolt and Robert Busch Endowed Fund in Aquatic and Fishery Sciences. This endowment was established after the tragic passing of the couple in an avalanche. Marsha, a SAFS faculty member and past Director, and Dean of the Graduate School, was brilliant, fearless and strong: she left us too soon.

When I was ready to return to Brazil, I told André that I feared I would drop out of the “stock assessment loop.” He reassured me that, being a SAFS graduate, I would never leave that loop. And now I work at the Inter-American Tropical Tuna Commission on the Stock Assessment Program under Mark Maunder and Alex Aires-da-Silva and with colleagues William Bayliff, Martin Hall, Rick Deriso, Michael Hinton, and Haikun Xu. I am so grateful for the wonderful school that prepared me so well. Happy 100th anniversary and many more to come!
A 1976 UW Fisheries graduate, Kate Myers worked for the Fisheries Research Institute’s (FRI) High Seas Salmon program (“Program”). Initiated in 1955, it was one of the longest-running programs at UW Fisheries.

Starting as a research aide in 1980, Kate was soon promoted to fisheries biologist and became Project Leader in 1987. She focused on stock identification to determine if the Japanese were catching North American salmon on the high seas.

Eventually, the Program adopted an international cooperative approach—involving Russia, Japan, and Canada—partly to share the high research costs, but also because salmon stocks intermingled in international waters. This approach led to new monitoring programs and a unified database on all major Pacific Rim stocks, including population structure and sources of mortality, abundance, and distribution.

Kate described the Program’s evolution: “Stock ID research still continued but became more generalized, based on genetic markers, scale patterns, parasites, etc., to examine questions concerning how intermingling of stocks affects individual stocks and the ocean’s carrying capacity.” The Program gradually diversified, adding studies on ocean food habits, feeding behavior, bioenergetics, and migratory behavior of salmon and steelhead, as well as using historical scale databases to examine salmon growth trends in different ocean regimes.

The Program employed undergraduates, who collected and analyzed data, and graduate students, who focused on aspects of stock identification or impacts of ocean fisheries on salmon. Kate also noted, “School Director Don Bevan, and FRI Directors Robert Burgner, Bob Francis, and Ellen Pikitch helped us obtain funding and recruit graduate students.” Kate and staff worked closely with the Alaska Fisheries Science Center, Auke Bay Laboratory: “Our high-seas ‘guru’ at NMFS was Michael Dahlberg, a 1968 graduate of UW Fisheries.”

With encouragement from Japanese colleagues, Kate obtained her PhD from Hokkaido University (Hakodate, Japan) in 1998.

The Program changed dramatically in 2005, when NMFS funding ended. Kate, staff, students, and faculty (Dave Beauchamp, Nate Mantua) then investigated climate, ocean, and fishery effects on growth and survival of salmon and steelhead. Kate retired in 2010, after 30 years at UW. Led by long-time staff member Robert “Trey” Walker, the Program continued until he retired in 2012.

What led Kate to UW Fisheries? She noted, “It was serendipity! I was finishing my MS at Oregon State University and was looking for a fishery biologist job, and my husband—already working at UW—saw an ad for an FRI job that was right up my alley.” Why did she stay with UW Fisheries for so long? Kate answered, “My job was challenging; I liked the people, and new things were always happening. We were almost like a family—many of us grew old together!”

After retirement, Kate has continued working as a scientific and technical advisor to international salmon treaty and regional salmon conservation organizations. Reflecting on her undergraduate days at UW Fisheries, she said, “One of my most valued memories is the advice and encouragement I got from my faculty advisor, Marsha Landolt, to pursue an advanced degree in fishery sciences.”
Dick Myhre
BS, 1950; MS, 1960

Shortly after I graduated from high school in 1939, I enlisted in the Washington National Guard. I received my Honorable Discharge in October 1945 and attended the UW on the GI Bill. I think there were about 50 students who selected a career in fisheries and enrolled at UW Fisheries.

My first contact with the School of Fisheries was in early 1946 when I registered for classes. The School was located in four wooden buildings constructed on lower campus as hospital wards during WWI. Most of my classes in my first two years were on upper campus, but the School had two survey classes taught by Harry Dunlop and Heward Bell, who were the Director and Assistant Director, respectively, of the International Fisheries Commission (renamed the International Pacific Halibut Commission [IPHC]). At the time, the School Director, William F. Thompson, registered me for the two survey classes in my freshman year.

Thompson was selected as the Director of Investigations at the International Fisheries Commission around 1925 after receiving his PhD from Stanford. Some years later, he became the Director of the newly formed International Salmon Commission, which was created to restore the Fraser River salmon fishery. Subsequently, he was made Director of the Fishery Research Institute, created at the behest of the Alaska salmon industry.

In my junior year, I happily started taking fisheries classes. Lauren “Doc” Donaldson created a salmon and trout hatchery, and we students did hands-on work. Prior to my year in his class, Donaldson had conducted selective breeding of rainbow trout and developed a race of fast-growing trout that he planted in Green Lake in Seattle to the delight of many trout fishermen. Donaldson took our class to the fish hatchery in Auburn where we mixed eggs and sperm from mature king salmon, placed them in troughs in the lab with running water to hatch, and fed them until they were ready to migrate to sea. They were released at the UW, and Donaldson started a UW salmon run.

I also took classes from Alan Delacy, Arthur Welander, and James Lynch, who respectively taught fish life history, fish classification, and life history and classification of mollusks.

Because WWII diverted many potential students for military service, fishery agencies struggled to fulfill their duties during and right after the war. They needed fishery biologists most of all, and I was hired by the IPHC before I completed my BS. Things I learned in the service gave me a strong desire to get a BS, and they led me to a very rewarding career. I retired as the Assistant Director of IPHC after 36 years of employment as a fishery research biologist.
I received a BS degree from the College of Fisheries in 1981. After that, I wanted to experience hands-on fish biology, so I spent a couple years doing seasonal field work from Washington State to Alaska. It was great! I got to work for fish biologists in field camps, sample and count juvenile and adult salmon, survey fishermen, and do remote egg takes. I eventually landed a permanent job as a fish culturist with the Prince William Sound Aquaculture Corporation (PWSAC), where I spent 12 years.

The Prince William Sound work showed me the importance of applied science in fishery management. Some of the most influential individuals in my early career included UW alumni Brian Allele, Ted Cooney, and Jim Seeb. Brian was Executive Director of PWSAC, Ted was an oceanographer at the University of Alaska, Fairbanks, and Jim was the lead geneticist with the Alaska Department of Fish and Game (ADF&G). I started thinking about graduate school after conversations with Brian and Ted. However, talking with Jim about population genetics and hatchery and wild salmon interactions piqued my interest.

I started graduate school at UW Fisheries in 1994. I was very fortunate that Paul Bentzen agreed to be my advisor. Paul had recently joined the School and was building a molecular genetics lab with Ginger Armbrust from UW Oceanography. It was an exciting time, using state-of-the-art technology and molecular genetic methods to address conservation and management questions. I shared the bench with outstanding grad students who have since had impressive careers.

I was privileged to have Fred Utter on my graduate committee. I benefited, as many have, from his insights and knowledge of fisheries genetics. However, it was Fred’s passion for research and positive attitude that gave me the proper perspective I needed in grad school. He also gave me very practical advice—publish as much of my dissertation as possible before graduating. Later, Fred shared a personal mandate that I also try to adhere to: “All research projects must end with publication in an appropriate peer-reviewed outlet.” This is particularly relevant for agency scientists where the emphasis is not always on publishing, but unpublished work may ultimately be repeated at great cost to the public.

I moved back to Alaska after receiving my PhD in 1999. I wanted to work at an agency so I could be close to conservation implementation and management. I joined Jim and Lisa Seeb (now SAFS Professors) at ADF&G in Anchorage. They had created a lab that, in my opinion, remains the model for fisheries genetics labs. Today, I work for the US Fish and Wildlife Service, also in Anchorage, with fellow SAFS grad John Wenburg. I stay in touch with SAFS mainly through Jim and Lisa, Lorenz Hauser, and their impressive students.
José M. “Lobo” Orensanz
PhD, 1989

Lobo was born in Mar del Plata, Argentina. In 1977, he moved to Ensenada, Mexico, during the days of his country’s last military dictatorship. Originally trained as a zoologist at the National University of La Plata, Argentina, Lobo said, “I was motivated to pursue a degree in Fisheries because of my involvement with research and management of shellfisheries in Patagonia.”

In 1979, Lobo moved to Seattle to pursue a graduate degree at SAFS, with Vince Gallucci as his advising professor. At SAFS, Lobo’s PhD research was focused on the biology and management of shellfish resources. This entailed a lot of time in the San Juan Islands: field work at Garrison Bay and lab work at the Friday Harbor Laboratories. He also served as a teaching assistant for undergraduate courses on population dynamics and collaborated with David Armstrong on projects dealing with Dungeness crab ecology and population dynamics.

While working towards his SAFS degree, Lobo also pursued graduate studies in zoology at the University of La Plata. With funding from the National Science Foundation, he investigated polychaete worms in the Antarctic and Subantarctic seas, and he earned his first PhD in 1987.

Lobo returned to Argentina in 1989, but because of economic troubles there, he returned to SAFS, where he held research associate and professional staff positions. He worked with David Armstrong, co-teaching the invertebrate fisheries course and collaborating on research, including the impact of the Exxon Valdez oil spill in Prince William Sound, snow crab in the eastern Bering Sea, and other crab-related projects. He then returned again to Argentina, where he and his wife, Ana Parma, worked at the Centro Nacional Patagónico (CENPAT).

His CENPAT work notwithstanding, Lobo continued to maintain close ties with SAFS: “I worked with David on studies of snow crab from the eastern Bering Sea, and co-authored several papers with Ray Hilborn that focused on fisheries management. I also served on graduate student committees.”

When asked about the value of his time at SAFS, Lobo said, “Beyond the obvious—academics and training—SAFS and UW in general provided an ambit where I was able to enjoy the best things in life, and a place to recover, affectively and intellectually, from the inevitable wounds left by life in the Argentina of the 1970s.” Lobo benefitted from financial support during his PhD studies at SAFS, including the Faculty Merit Award.

Lobo had a deep interest in the natural history of southern South America that went beyond the strictly academic. He said, “My interactions with artisanal fishers has been a major source of social and epicurean motivation.”

Former SAFS Director David Armstrong summed up Lobo’s impact at the School: “Lobo became the conduit by which many immensely dedicated and passionate students from South America came to our degree programs and then took their skills home to impressive careers.”

Lobo Orensanz passed away unexpectedly in 2015. In his honor, SAFS established the Lobo Orensanz Endowed Fund for Student Support. He is survived by his wife, Ana, and their daughter, Mora.
My 20-year relationship with SAFS (then School of Fisheries) started in Mexico when my boss at the time—SAFS PhD graduate Pablo Arenas—was organizing a workshop by Carl Walters and Ray Hilborn. Serendipity made me the translator of choice, and I ended up mingling with Carl and Ray. Advised by Ray, encouraged by Pablo, rejected by QERM, and funded by the Mexican government, I arrived to Seattle and SAIFS without checking the weather.

The School was and still is a place of opportunities: guiding salmon tours for kids, organizing seminars, and alternating visits with Carl’s lab at UBC. SAIFS was a welcoming community with international students; you could recognize someone from Latin America upon seeing them (or they saw you) crash against the glass door of the old Fisheries Center’s back entrance (pull instead of push!). The sole kitchen and coffee pot were like a waterhole.

During my MS work, I got a graduate certificate on environmental management and applied for a job to study ecosystem dynamics in the Aleutian Islands. Only it wasn’t a job, it was a PhD offered by Kerim Aydin and co-advised with Bob Francis. Once I started my PhD, I regularly went to the Alaska Fisheries Science Center, where I returned to collaborate with Kerim after graduating and a year at the Northwest Fisheries Science Center. This time though, I was part of André Punt’s lab. Eventually, I became a SAFS Research Scientist and ultimately moved to JISAO, where I still work on ecosystems, still with many of my SAFS peers, and an ever-growing number of colleagues from diverse disciplines.

So what was it like to work with Ray, Bob, and André? From Ray, I learned to have fun with whatever I was studying. From Bob, I learned to rejoice in my work, to work collaboratively and incorporate multiple perspectives from theatre to scientific papers, visual arts, novels, or music. From André, I learned to respect and value efficient administrative work. But enough nostalgia. Ray, Bob, and André provide explicit, masterly worded, straightforward feedback, devoid of sugar coating, but also of malice. They all are a little irreverent, not only when it comes to science but to defending their students or the quality of academic endeavors, too. Like when Ray, upon learning room 203 was off-limits for seminars, barged downstairs to the administrator’s office...or when Bob wrote to the UW’s Athletic Department that under no circumstances was their “one million dollar wonder boy” (Neuheisel, first UW football coach to hit a one million dollar salary) to grant a week off his class without his prior approval. And then André, refreshingly candid about his professional and personal experiences.

All three are incredibly good sports about students’ irreverence, be it doctored images, hula-hooping, or a dunking booth. This channeled irreverence helps fuel innovation and builds confidence. So for all that, SAFS, here’s to a hundred more years of irreverence.
Tom Oswald Jr.
Staff 1948–1993

Tom joined the school as a transfer student in 1948 and stayed on as a staff member until 1993, when he retired. He was born and raised near Bellingham. His father worked summers for the Bristol Bay canneries. Tom began working in Alaska at age 14 and was skippering a fishing boat before he finished high school. That experience peaked his interest and led him to join UW Fisheries.

Because of the skills he had acquired in Alaska, shortly after he came to the School, he began skippering the R/V Onchoryncus, a 50-foot surplus Naval personnel carrier converted into a stern trawler. But this vessel was limited to short runs in local waters, and marine research and class operations needed a vessel with greater capabilities. In 1950, the School acquired the R/V Commando, a 67-foot halibut boat capable of extended runs in the open ocean. Running the Commando meant Tom had to hire an engineer, take on charter work for other research organizations, and finally give up finishing his degree.

For the next thirty years, Tom took fisheries students and scientists out on Lake Washington, Puget Sound, and the Pacific Coast from Monterey, California, to the Aleutians to catch, count, and tag or dissect fish of multiple species. He provided a research platform for hundreds of studies and projects undertaken not only by the UW, but also by the Alaska, Oregon, and federal fish and game departments. Many of these projects succeeded because of Tom’s ability to find and catch the target species or thoroughly sample the targeted area to obtain an accurate survey.

Tom took leave in 1962 to join the United Nations World Health Organization’s Food and Agriculture Department. His project entailed bringing more modern fishing technology to the local fishery off St. Kitts in the Leeward Islands of the West Indies. At the time, this fishery used hand lines from small sailing skiffs to catch grouper and other fishes for personal consumption and local sale. Tom spent the year designing and refitting a small motor boat to use trawl and trolling gear and, most important, giving a local fishery the potential to greatly increase its yield and efficiency.

In 1980, the School retired the Commando when it acquired the R/V Alaska. Tom skippered the Alaska until retiring in 1993. For almost his entire tenure, Tom was joined by Olaf Rockness (1918–2005), his engineer and deckhand. The two served the School for almost their entire professional careers and witnessed how UW Fisheries evolved from its days of supporting the fishing industry to its concentration on environmental and sustainability issues.

Tom passed away on April 18, 2018. His ashes were scattered off the Oceanography dock where he spent so much of his life.
Ana Parma
PhD, 1989

Ana was born and raised in La Plata, Argentina. She attended the University of La Plata in Buenos Aires, where she earned a biology degree in 1977, during a “very difficult period in Argentina, when political persecutions under the military dictatorship took a heavy toll on academic institutions.”

In 1979, Ana participated in an international marine training program held at the Duke University Marine Lab, which included a trip to other US marine research centers. As part of this program, she visited UW Fisheries and decided she wanted to return as a graduate student some day. For the next few years, Ana worked as a marine fisheries biologist in a small coastal lab in Patagonia. In 1983, she was awarded a scholarship from the Organization of the American States to pursue graduate studies at UW.

At UW Fisheries, Ana sought to study population modeling and management strategy evaluation, but her quantitative background was “close to nonexistent” when she arrived. Fortunately, the Fisheries program was very flexible and allowed Ana to tailor her studies to her needs and interests. This included having Rick Deriso—affiliate faculty and stock assessment scientist with the International Pacific Halibut Commission (IPHC)—as her effective thesis supervisor.

Ana’s PhD research was focused on optimal harvesting in the face of uncertainty, motivated by classical debates about factors driving productivity trends in Pacific halibut. She noted that, while her project was all “desk work,” she participated in field research at IPHC. Ana also served as a teaching assistant.

After earning her PhD at Fisheries, Ana continued her work with the IPHC, first as a post-doc and then as a researcher in charge of the harvest policy evaluation. She participated in UW activities during her 10 years at the IPHC.

When Ana returned to Argentina, she took a job with the Centro Nacional Patagónico (CENPAT) in Puerto Madryn. While this organization is not an academic institution, its staff works with university students, both on CENPAT projects and on student research at other institutions. Ana has worked with students to investigate aspects of population dynamics of scallops, mussels, and clams; monitor reef fish populations and recreational fisheries; and analyze fleet behavior in shellfish fisheries.

Like her late husband, Lobo Orensanz, Ana has maintained close contact with SAFS over the years: “I’ve participated in research projects led by SAFS faculty and have interacted with faculty and post-doctoral students in projects conducted in other centers such as the National Center for Ecological Analysis and Synthesis in California. Also, I have served on PhD committees for several SAFS students.”

She reflected on her time at UW Fisheries: “It was one of the most fulfilling times in my life: years of learning and discovery, of growing personally and academically. My entire career was shaped through my interactions within the School and I still have intact the same sense of belonging I had when I was a student there.”
I never thought I would be a student at the age of 39, but there I was in Tom Quinn's office discussing what classes to take for fall 2004 at SAFS. After meeting several of my cohorts, I quickly realized I was by far one of, if not the, oldest students—possibly about 10 to 15 years older. I thought to myself, “Is this what I should be doing?” I already had a full-time job at NOAA's Northwest Fisheries Science Center, and a family with two kids (at the time, ages 5 and 2). I was definitely slightly overwhelmed at the time.

My entire professional career, up to this point, pointed me towards SAFS. Growing up on the shores of Long Island Sound solidified my love and passion for all things aquatic and fish. Whether it was surf casting for bluefish and striped bass or learning how to flyfish for salmon and steelhead, once I moved to the Pacific Northwest back in the early 1990s, I could not satiate my desire to understand freshwater and marine ecosystems. My work is very much fish habitat oriented, but I was and still am in awe of the salmon life cycle and how these animals sustain across the Pacific Rim. How salmon colonized new habitats seemed to me the most important question I could pursue, and Tom was willing to work with me on this pursuit.

After starting the program at SAFS, I quickly realized that—while the program was known for their excellent professors who helped me throughout this journey, including Tom Quinn, Daniel Schindler, Ray Hilborn, and Loveday Conquest—it was the students that truly make SAFS a special place. The individuals I met at the time—Jon Moore, Peter Westley, Donna Hauser, Neala Kendall, Todd Seamons, Thomas Buehrens, Joe Anderson, Keith Denton, Sue Johnson, Lauren Rogers, Stephanie Carlson, Harry Rich, Chris Boatright, Jackie Carter, Jonny Armstrong, Gordon Holtgrieve, Matt Baker, and Tessa Francis—are all incredible people, and I was fortunate to know and work with them. My daughters, Samantha and Olivia, grew up with these people; some even babysat our girls. Many of these former students and faculty are still part of my life as friends and peers. Now I can tell stories in which my daughters babysat their children. And recently, my oldest, Samantha, was able to experience the wonders of Alaska as part of the Alaska Salmon Program, thanks to Daniel Schindler.

I am part of SAFS as an Affiliate Assistant Professor, and I really cannot think of a better way to continue my connection. I am grateful for what I learned while a student at SAFS because I continue to apply it to my work on the Elwha dam removal. Thank you SAFS, and I hope to contribute a small portion of what I have gained over the last 14 years.
Edward Allen Power was born on September 7, 1905, on Whidbey Island. His family’s close association with the marine environment stimulated his interest in fisheries, and prompted him to enter UW in fall 1924. After graduating with a BS in Fisheries, he spent nearly 40 years working with the federal Bureau of Fisheries, for which he served primarily as Chief of the Statistical Section. In addition to authoring numerous fishery statistical reports, Ed contributed to the *Encyclopedia Britannica* and *Collier’s Encyclopedia* and their yearbooks. Following his retirement in January 1968, he returned to the West Coast and renewed an active interest in UW Fisheries and support of the University. Sadly, Ed was killed in an auto accident in May 1992.

Ed’s son, David, sent a copy of his father’s autobiography, from which we learned that Ed had quite the sense of humor: On contemplating his inability in his youth to outwit his father in an obligatory castor oil treatment, he realized that “if this episode was any indication of my mental ability to solve problems, life was likely to be difficult. I probably would not be too well fed, too well clothed, and too well housed. So, just as soon as possible, I obtained a job with the government!” Despite his misgivings, Ed excelled in his profession and received the Department of the Interior’s Distinguished Service Award.

In his autobiography, Ed related a story involving his efforts to convince the UW Fisheries Dean, John Cobb, to approve a course substitution in embryology. Unfortunately, he timed his request on a day the dean was “cross as a bear with a sore paw.” Apparently Cobb concluded that Ed was yet another “goof-off” student attempting to put something over on him, and he wouldn’t stand for it. However, despite a severe grilling, Ed had his story down pat, documentation and all, and to his surprise, Cobb approved the request on the spot.

As Ed left the office, he heard Cobb’s secretary, who was convulsed with laughter, say “I never saw anyone handle the ‘old man’ the way you did.” Apparently, he had made a very favorable impression on Cobb, who regarded Ed’s opinions thereafter as “gospel truth” even when at variance with Cobb’s own thoughts.

In addition to his whimsical sense of humor, Ed was a man of diverse interests. An avid spelunker, he led over 1,000 people on expeditions into caves in West Virginia in the ‘50s and ‘60s, and he traveled extensively. Ed’s enthusiasm was infectious, so much so that his young grandson, upon being asked what he wanted to be when he grew up, announced, “Retired, like grandpa!”

Photo credit: US Department of the Interior
In 1975, I was completing my MS at the University of Hawaii, studying the life history of a butterflyfish. At the time, I was fully submerged in reef fish ecology and thought Peter Sale’s lottery hypothesis was “the thing.” I was hoping to pursue a PhD, perhaps at Scripps or UC Santa Barbara, but was encouraged to apply to UW and consider a career with the National Marine Fisheries Service (NMFS). So I went to Seattle in 1976, intending to study Hawaiian reef fish recruitment using SCUBA and artificial reefs—an unsurprisingly difficult plan to sell. I was the tropical outlier that few members of the faculty were willing to entertain. Would I consider Alaska and/or perhaps salmon?

As I was pondering the problem, my teaching assistantship funding ran out in spring 1977 and I couldn’t afford out-of-state tuition. However, because the Magnuson–Stevens Act had just been passed, observers were needed to quantify bycatch in the Japanese fishery for walleye pollock in the Bering Sea. I signed up with NMFS and spent 74 continuous days at sea on the very large fishing vessel, the *Nissan Maru No. 2*. What an epiphany this was for me. I became very appreciative of the large scale of fisheries impacts and the need for management.

I returned to my studies at UW Fisheries in fall 1977 and, once again, the timing was perfect. A large-scale marine and terrestrial research program was developing in the Northwestern Hawaiian Islands. Several agencies were involved, including NMFS, the US Fish and Wildlife Service, the Hawaii Division of Aquatic Resources, and Hawaii Sea Grant. I submitted a proposal to Sea Grant to study the Hawaiian deep-sea handline fishery for bottomfish, including especially the deepwater snapper *opakapaka*.

Fortunately, my PhD committee chair, Bud Burgner, supported my desire to return to Hawaii to pursue my research. The grant was funded, and the Fisheries Research Institute hired me for three years to do the work, and I returned to Honolulu in spring 1978. In 1981, I returned to Seattle, defended my PhD, and was hired by NMFS Honolulu shortly after. I continued work in the Northwestern Hawaiian Islands, pursued resource assessment of the Mariana Archipelago, and studied deepwater caridean shrimp.

Having started a family and wanting to return to the mainland, I transferred to the NMFS Tiburon Laboratory on San Francisco Bay in 1988, where Bill Lenarz gave me responsibility for running a mid-water trawl survey for pelagic juvenile rockfish.

When Bill retired in 1996, I started working with the Pacific Fishery Management Council (Groundfish Management Team and Scientific and Statistical Committee) and completing groundfish stock assessments. Working with the Council to incorporate our best available science in the management of West Coast fisheries was very gratifying and rewarding. Now retired, I’m enjoying travel, volunteering, cooking, music, family, and friends.
I've never been a fish lover. But I thought the field of fisheries would let me apply my oceanography and ecology interests to problems that matter directly for humans. Indeed, this has motivated me throughout my career.

I grew up in Seattle and found my way into oceanography as an undergraduate at Stanford, where several experiences set me on my path. First was the freshman seminar on El Niño. A class project led me to contact Bob Francis, who had just published an article with Nate Mantua on salmon and the Pacific Decadal Oscillation. Six years later, Bob became my co-advisor at SAFS and Nate agreed to serve on my committee.

Second, I became involved in fieldwork in Antarctica, studying nearshore oceanography. It was an excellent adventure, and solidified my desire to become a scientist. But I wasn't enthusiastic about studying plankton—they were too small and, I thought, too removed from the environmental challenges of the day.

And so I landed at SAFS, determined to study salmon and climate, and found great support in Bob Francis' lab and then Daniel Schindler's lab (when Bob retired). I spent part of my summers working at an Alaska Salmon Program field camp, where I loved being surrounded by so much wild, complicated nature! Also, I enjoyed the quantitative aspects of fisheries. I worked with some amazing datasets, and the SAFS quantitative courses I took enabled me to tackle interesting problems. And, I made great friends, many of whom are now colleagues.

During graduate school, I went to Norway under a joint NSF/Research Council of Norway program. I spent six months at the University of Oslo, studying the dynamics of Atlantic cod. After finishing my PhD in Seattle, I returned to Norway for a fellowship, which turned into a three-year post-doc position.

I returned to Seattle with a growing family and joined the Natural Capital Project. It was exciting work—developing tools and models to help inform big decisions, engaging with stakeholders, working in interdisciplinary teams. However, when a job opened up at the Alaska Fisheries Science Center (AFSC) for a quantitative ecologist to work on recruitment processes and fish early life stages, I knew it would be an excellent fit.

I'm now a fisheries biologist at the AFSC, where I study...plankton! But they're ichthyoplankton, which I prefer to think of as baby fish. I work on scientific problems that interest me and that matter for our ability to sustainably manage fisheries under climate change. And, I still engage professionally with my SAFS colleagues and friends regularly.

The mentorship I received from SAFS faculty, especially Daniel, shaped my approach to science. The quantitative training I received at SAFS has helped me at every stage of my career. And I'm forever grateful for my SAFS friends as we continue to navigate our careers, start families, take on new responsibilities, and figure out how to make the most of it all.
and was very pleased with it. Throwing caution to the wind, John asked to show Thompson his proposed field program for the coming year, but he hadn't finished his field report for the preceding year. Thompson said, “Young man, don't submit a new field season proposal to me ever again until you have finished last year’s write-up on your field work.” John never forgot that simple yet sound advice and used it throughout his career in dealing with others. He credited the school with providing him a good, sound background for stepping into very difficult positions.

John said he hoped that the fisheries training program would continue to provide opportunities for people like him, with just a BS degree, to accomplish what he did. He said, “We need people who have good practical backgrounds and who can step into administrative positions with a good chance of success in managing resources.”

Photo Credit: Lasting Impressions

John Roos
BS, 1955

As a youth, John Roos got into sports fishing. This motivated him to pursue a BS at the College of Fisheries, which he completed in 1955. After serving in the army, he returned to the Fisheries Research Institute (FRI) to work on the Chignik Lakes project, where he and Fred Thorsteinson conducted smolt and predator studies, and investigated the timing of early vs. late runs.

Then, in 1960, John began a 26-year stint with the International Pacific Salmon Fisheries Commission in British Columbia. Starting as a biologist, he worked his way up the ranks and, in 1982, was appointed Director of Investigations, which entailed planning and implementing research programs to protect, preserve, and extend the sockeye and pink salmon fisheries of the Fraser River system.

John said that working with the Commission was very rewarding. “It was pretty much out of the political scene. We had a simple mandate: increase the stocks, manage the fisheries, and divide the catch equally between the fishermen of Canada and the US.”

In 1988, John came full circle to serve as Vice President for the Pacific Seafood Processors Association (PSPA), the same organization that funded his research at FRI in the 1950s. While at PSPA, John became involved with a project that resulted in the formation of the North Pacific Universities Marine Mammal Research Consortium. This group worked with fishing industry representatives to address the decline in Steller sea lion abundance in the Gulf of Alaska and the Bering Sea.

John credited UW Fisheries for giving him the basic understanding that prepared him for his career. One specific event stood out for him: In 1957, he developed a method for predicting the Chignik sockeye returns on the basis of age classes in the current year relative to the next year. School Director William F. Thompson reviewed his forecast and was very pleased with it. Throwing caution to the wind, John asked to show Thompson his proposed field program for the coming year, but he hadn't finished his field report for the preceding year. Thompson said, “Young man, don't submit a new field season proposal to me ever again until you have finished last year’s write-up on your field work.” John never forgot that simple yet sound advice and used it throughout his career in dealing with others. He credited the school with providing him a good, sound background for stepping into very difficult positions.

John said he hoped that the fisheries training program would continue to provide opportunities for people like him, with just a BS degree, to accomplish what he did. He said, “We need people who have good practical backgrounds and who can step into administrative positions with a good chance of success in managing resources.”
In 1982, I applied for the position of Administrative Assistant to the Director of UW Fisheries. I was interviewed by the Administrator, Gary Farris, and Don Bevan, the Director. I remember on my tour of the School (then located along Montlake Cut) that the guide apologized for the rat that scurried in front of us in the basement (the School's hatchery was a draw for rodents). My interview with Bevan was very brief, and I told a friend afterwards that I wasn’t sure the interview had gone really well. As it happened, I was their top candidate and was offered the job, and after speaking with Gary, I accepted. It was the best decision I ever made.

I worked with three directors: Don Bevan, Robert Stickney, and Marsha Landolt—all very different personalities but all shared a commitment to the School, hard work, and dealing with the politics that came with the position. As their assistant, I was fortunate to get a bird’s eye view of schemes, dreams, and the plans that came to fruition, including new buildings like the one the School is now housed in, establishment of the Western Regional Aquaculture Center, the H. Mason Keeler Endowed Professorship in Sports Fisheries Management and the H. Mason Keeler Endowment for Excellence, and the appointment of numerous outstanding faculty.

My job put me in contact with faculty, affiliate faculty, graduate students, and visitors. I must have written minutes equal in volume to “War and Peace” from school faculty meetings and retreats. I also worked with search committees and did the paperwork for faculty appointments and promotions. In fact, I remember working with André Punt on visa paperwork when he arrived as a research associate in 1992. I enjoyed my interactions with so many of the faculty, some of whom were real characters.

Getting to know the graduate students was an added benefit, and many of them are still friends today. And last, but not least, I had the pleasure of working with some wonderful, dedicated staff who helped make the School hum: we worked hard, but we had a lot of fun too! I loved that job more than any other.

In 1996, Marsha Landolt took me with her to the Graduate School when she was appointed Dean and Vice Provost. I worked with her until 2004, when she and her husband, Bob Busch, were tragically killed by an avalanche. I worked for three directors and, unfortunately, planned UW memorial services for two of them.

In 2006, I remarried, and we relocated to 50 acres on a mountain about 10 miles from Moscow, Idaho. Since then, I have taken up artwork again (I was an art major in college). It’s been gratifying, and I’ve had some success with sales, acceptance into competitive shows, and even had a painting published on the cover of a national/international magazine.

I wish everyone at SAFS all the best as they celebrate its 100th anniversary!
Jennifer and Mark came to SAFS by different routes.

Jennifer was born and raised in Bremerton, Washington. She was fortunate to spend a lot of time sailing and SCUBA diving with her family and friends in Puget Sound. Much to her parents’ consternation, however, Jennifer spent her first year of college in Kenya, and traveled around much of eastern and southern Africa. Back home, she enrolled at UW, completing a BS in Forestry. Jennifer then worked as a dive master in Hawaii and then Honduras.

Mark was raised along the shores of the Mississippi River, central Minnesota, and spent a lot of time in the water during the summer and on the ice during the winter. His family spent a lot of time outdoors exploring the western Great Lakes region. Mark obtained a BS in Zoology from the other UW (in Madison, Wisconsin); during his time there he met his future PhD advisor and current SAFS faculty member, Daniel Schindler. In the interim, Mark earned an MS in Fishery and Aquatic Science from Cornell and worked as a wildlife biologist in central Florida.

Jennifer and Mark’s paths to SAFS began in the late 1990s in what was then the UW Department of Zoology. Jennifer was a technician in Tommy Edmondson’s lab, conducting limnological research on Lake Washington, and Mark was a PhD student there. After a year or so of mixing socially with a group of academic friends, Jennifer captured Mark’s romantic interest at a cocktail party when she procured the world’s worst martini. Indeed, it got much better from there.

Four years later, they were happily married, and a bit more than a year after that, Jennifer was defending her MS thesis at SAFS while five months pregnant with their first child. Her research focused on the foraging behavior of juvenile sockeye salmon and the key role that *Daphnia* play in their diet choices. After graduating, Jennifer transitioned from the Lake Washington project into a position with —continued on page 90
the Alaska Salmon Program, where she developed a comprehensive database for the historical data.

In 2007, Jennifer left SAFS to run her own consulting company, Sound Data Management, based in Seattle. For the past decade her team has been contracted by the California Public Utilities Commission to design and maintain large data systems.

In 2002, Mark finished his PhD, which was based largely on research in southwest Alaska, where he studied sockeye salmon and the stream and lake ecosystems where they spawn and rear. He then took a post-doc position with Ray Hilborn, where he developed life-cycle models for at-risk populations of Chinook salmon in Puget Sound, work that continues today.

In 2003, Mark began a full-time position at NOAA’s Northwest Fisheries Science Center, where he works as a quantitative ecologist. Since 2007, he has also been a SAFS affiliate faculty member. Mark enjoys co-teaching a graduate course at SAFS on time-series analysis, wherein he gets to witness firsthand the amazing students and the interesting projects that they undertake.

Jennifer and Mark consider themselves extremely fortunate to have been welcomed so warmly into the SAFS community. The faculty, staff, and students have all been wonderful friends, colleagues, and invaluable sources of information. As they raise their children and enjoy spending time with their extended family in the beautiful Pacific Northwest, the rich experiences they’ve had through SAFS will always stay with them.
During my childhood, I had many opportunities to develop my love of fish and marine mammals. My father coordinated the marine mammal stranding network for the National Marine Fisheries Service’s Northwest Regional Office. I accompanied him to strandings on the Washington coast. Also, I often fished with my brothers and maintained aquaria, breeding cichlids and observing their behaviors.

Given these opportunities, it is no surprise that I applied to UW SAFS. My favorite SAFS experience was a six-week immersion course focusing on several large lakes in southwest Alaska with SAFS faculty Daniel Schindler, Thomas Quinn, and Ray Hilborn. As a senior, I added a second degree in Wildlife Science and graduated in 2002 with BS degrees from SAFS and the College of Forest Resources.

In college, I also pursued work and volunteer opportunities that helped shape my career. In 1999, I observed a Makah Tribe whale hunt and helped perform a necropsy on the whale they harvested. It was eye-opening to see how important traditional activities can be for indigenous people. I also worked for the Oregon Department of Fish and Wildlife’s Marine Mammal Program—my first job working in marine mammal science. Despite mostly cleaning fish bones in seal scats, I enjoyed the job and it cemented my desire to work on marine mammals.

After college, I held jobs that expanded my world views as a biologist. First, I worked as an observer in the West Coast Groundfish Observer Program, where I saw how fisheries work, how markets affect catch and discards, and how fisheries management decisions directly affect fishermen and their families. Next, I worked for NOAA’s National Marine Mammal Laboratory, which exposed me to various marine mammal studies and methodologies.

Since 2007, I have been the marine mammal biologist for the Makah Tribe. I help the Tribe protect their treaty rights by improving understanding of marine mammals to allow sustainable management. I am helping address a social injustice issue as well as contributing to research and management. I study many topics: mainly gray whales and Steller sea lions, but also other marine mammals, including California sea lions and killer whales, and non-marine mammals such as river otters and Pacific halibut. And, I have traveled internationally, working with the Scientific Committee of the International Whaling Commission. Finally, I have great relationships with co-workers, collaborating scientists, and the Makah community.

The foundation of knowledge I gained at UW has helped me throughout my career. In my professional life, I have worked with UW professors and collaborated with former classmates. I hope that SAFS will continue its role of shaping the careers of fisheries scientists and managers for another 100 years.
In the spring of 1942, Bell Shimada, a senior in the College of Fisheries, was incarcerated at the US Government Internment Camp in Minidoka, Idaho. There, he volunteered for basic training with the 442nd Regimental Combat Team at Camp Shelby in Mississippi, and thereafter, received Japanese language and intelligence training at Camp Savage in Minnesota. Bell ultimately served in General MacArthur’s headquarters in Tokyo. After leaving the service, Bell returned to UW Fisheries and completed his BS and MS degrees and, eight years later, a PhD.

In 1949, Bell took a fishery biologist job with the Pacific Ocean Fishery Investigations (POFI) at the University of Hawaii Manoa, working alongside Milner “Benny” Schaefer, Frederick “Fred” Cleaver, Townsend “Towny” Cromwell, and Elton’s secretary, Rae Shimojima, who would become Bell’s wife.

In February 1952, Bell and Rae followed Schaefer to the Inter-American Tropical Tuna Commission (IATTC) in La Jolla. This was during the post-war expansion of Pacific tuna fisheries. Close friendships with colleagues included several from UW Fisheries: Wilbert “Wib” Chapman, Richard Van Cleve, Paul Olsen, Frank Lowman, Allyn Seymour, and Lauren “Doc” Donaldson.

Shimada and Cromwell, who had also joined IATTC, continued their work following fisheries oceanography principles that Elton Sette had pioneered at POFI. In 1957, they conducted a research cruise off Mexico as part of an IATTC/Scripps/US Fish and Wildlife Bureau of Commercial Fisheries (BCF) project. Subsequent plans called for both men to do one more survey of Clarion Island in early June 1958, shortly before Shimada was to become the first Director of BCF’s new Eastern Pacific Tuna Investigations in July.

Concurrent to their outbound departure from San Diego’s Lindbergh Field, a hastily organized
symposium on the “Changing Pacific Ocean in 1957 and 1958” was held in Rancho Santa Fe, California. The proceedings published in 1961 included the following dedication.

“This Symposium is dedicated to Townsend Cromwell and Bell M. Shimada, associates in research of many of the participants in this Symposium, who lost their lives, June 2, 1958, in an airplane crash near Guadalajara, Mexico, while en route to join the research vessel Horizon to make further observations on the changing conditions in 1958.”

That fall of 1958, while Rae was preparing to leave La Jolla to be with her family in Chicago, Warren Wooster, then at Scripps, undertook a modest collection of contributions from colleagues and friends for an education fund benefiting their young children, Allen and Julie.

The Long Journey Home...
Perhaps the most cherished recognition conferred on Bell Shimada from his alma mater came on May 18, 2008. On that day, 440 Japanese American students from the UW undergraduate classes of 1941–1942 (both living and surviving family of the deceased) assembled in Kane Hall for a long-delayed commencement ceremony to receive their Bachelor of Arts degrees.

The University Regents citation reads in part: “We come together this day to honor you and to confer upon you what rightly should have been yours decades ago. We come together to restore. We acknowledge the injustice of the past, and we walk with you now into the future. For your courage, your grace, your magnanimity, for your remarkable achievements in the aftermath of what you endured, for your allegiance to your principles and your country, the University of Washington is proud to confer upon you the degree of Bachelor of Arts, *honoris causa, nunc pro tunc*.”

With heartfelt appreciation for the UW’s enduring “Spirit of Inclusion,” and every good wish for what is yet to come, the family of Bell and Rae celebrates SAFS’ 100th anniversary and new beginnings with the Rae S. and Bell M. Shimada Endowed Faculty Fellowship in Memory of Warren S. Wooster.
In college, I went to the Shoals Marine Laboratory, which changed my life. I loved the power of the ocean and was curious about the interrelationships of the animals and plants. “Shoals” led me to decide to become a marine scientist.

I grew up in upstate New York and earned my BS and MS at nearby Cornell. Before finishing my MS, I decided to go to a far away, wild place—Alaska. I went there in 1982 for a job in Sitka and haven’t looked back...well, once to go to UW to earn my PhD.

My biology education at Cornell served me well. But after five years at the NOAA Auke Bay Lab in Juneau, I needed more quantitative training to expand the types of problems that I could tackle. Two mentors at the Auke Bay Lab, Jeff Fujioka and Jerry Pella, and a Professor at the University of Alaska, Terry Quinn, steered me to UW. UW’s broad course offerings in probability, statistics, and fisheries stock assessment gave me the quantitative training I sought.

I regularly went to sea until 2005, enjoying the fieldwork and spending over 800 days there. My favorite study was on Steller sea lions in southeast Alaska. The year-round fieldwork showed me how much herring changed seasonally: they concentrate during winter, spread out to spawn during spring, and then scatter to feed during summer. Sea lions shift among seasonal concentrations of herring, eulachon, and salmon.

In 2017, I retired as the Habitat and Ecological Process Research Program Leader with the NOAA Alaska Fisheries Science Center in Juneau. Now I want to give something back. I continue as an Affiliate Professor at the University of Alaska, serving on graduate committees and analyzing oceanography data from the Chukchi Sea with Phyllis Stabeno. And, I plan to teach a course on integrated ecosystem research and management at the Shoals Marine Lab in 2019.

In my career, I’m most proud of three projects: the sablefish longline survey, now 32 years old and still going, with Harold “Skip” Zenger and Captain Jerry Kennedy; the Southeast Alaska Steller sea lion project; and the once-in-a-lifetime Bering Sea Project, which provided substantial understanding of the effects of sea ice loss on plankton, fisheries, seabirds, and marine mammals in the eastern Bering Sea and won a Department of Commerce Gold Award. I enjoyed a career that spanned fisheries stock assessment and marine ecology, and carried me around Alaska and the lower 48—as well as to the Azores, Norway, and New Zealand—to provide scientific reviews and advice. For the last 20 years, the best part of my job was working with scientists from other marine science disciplines.

The UW gave me the quantitative skills needed to have a successful career. These skills, combined with my previous biological training, helped propel me through a varied and interesting career.
In 1980, I became the second woman to earn a PhD at UW Fisheries. I focused on water pollution ecology, emphasizing impacts of toxic chemicals on aquatic biota. I thank my PhD committee, especially my chairperson, the late George Brown Jr., and Frieda Taub—both wonderful mentors. Frieda was an inspirational role model. I continue to keep in touch with her.

Although I had a supportive committee and congenial colleagues, I felt isolated as a woman at UW Fisheries. The atmosphere for women was unwelcoming. I felt pressured to continually prove myself and always be “perfect” so that doors would not close for future women students. Mentors, friends, the Association for Women in Science, and my determination kept me going. I am happy that gender is now well-balanced among SAFS graduate students and the number of female faculty is higher than in the 1970s: I hope that number continues to rise.

After my PhD, I embarked on a satisfying 25-year environmental agency career. As a fish biologist for the then-Washington Department of Fisheries, I helped prevent the Northern Tier Pipeline Company from constructing an oil pipeline that would have crossed every major salmon-bearing river and stream in Washington state. Other rewarding projects entailed leading an interagency team to develop and implement an action plan to control pollution sources and clean up contaminated sites in Sinclair and Dyes inlets for the Washington Department of Ecology, and managing salmon habitat restoration and improvement projects for King County.

In 2004, my career and life took an unexpected turn when my husband and I went to Xi’an, China, to teach at Northwest University. I created a course about the impacts of urban environmental pollution. Besides having a fabulous cultural experience, I discovered that I love teaching.

After returning to Seattle, I sought regional teaching opportunities. In 2007, I resigned from my agency job to teach. The results have been positive and exciting! I am having a wonderful time bringing my work experience and knowledge to the classroom, educating current and future environmental scientists and environmentally aware global citizens. My academic homes are Western Washington University on the Peninsulas and The Evergreen State College Tacoma campus. I also teach courses and give lectures for environmental professionals and the general public about water quality and the impacts of toxic chemicals, especially metals and endocrine disruptor chemicals, on aquatic biota and human health.

Although based in Washington state, my teaching assignments have also taken me to California, Alaska, Canada, and Japan. My current work is the culmination of my previous work and life experiences, and is the most fulfilling stage of my professional life. My graduate education at SAFS prepared me well for my environmental agency and teaching careers.
Craig Staude
BS, 1971; MS, 1979; PhD, 1986

While still an undergraduate at UW in the late 1960s, I was a lab helper in the College of Fisheries Laboratory of Radiation Ecology. This was followed by an eye-opening summer project at Petersburg, Alaska, that included fieldwork, lab analysis, and eventually my first co-authored publication.

After a stint in the Navy and some fieldwork for a California kelp habitat project, I returned to UW Fisheries for graduate studies. I had hoped to study shrimp aquaculture under Ken Chew. But at that time, Ken needed students for studies relating to the impact of sewage on the marine environment. John Armstrong, Ron Thom, and I conducted intertidal surveys of Seattle beaches. My MS thesis compared the macrofauna near the West Point Treatment Plant over a five-year period, and I eventually focused on my new-found love: amphipods.

With my thesis not yet completed, I travelled to Friday Harbor Labs (FHL) to examine an amphipod collection in Carl Nyblade's lab. He needed an amphipod specialist for his San Juan Islands and Strait of Juan de Fuca surveys, and hired me and my wife Krispi on the spot. This experience greatly broadened my grasp of local amphipods, and I was honored when Eugene Kozloff invited me to write an amphipod key for his *Marine Invertebrates of the Pacific Northwest*. I was able to identify a suitable project for a PhD dissertation from what I learned at FHL. Thus began my research to clarify the taxonomy of the amphipod genus *Paramoera*, and to study the natural history of locally abundant species, which are at times significant in the diet of fishes.

When a marine technologist position opened at FHL, I applied and was hired. This helped me finish my PhD and build our home on San Juan Island. I served as a dive buddy, boat operator, specimen collector, tour guide, aquarist, and whatever else needed to be done, including organizing the open house and putting bandaids in the first aid kits. I became skilled in using specialized microscopes and desktop computers, and provided IT support for the FHL campus.

With David Duggins, the other marine tech at FHL, I captained the *R/V Nugget* for about 25 years, taking students on field trips and collecting research specimens. The Labs eventually purchased a larger Alaskan seiner, and I became one of the four captains of the *R/V Centennial*.

It has been a pleasure to assist so many students and scientists at FHL for over three decades, including many folks from SAFS, such as Charles “Si” Simenstad, Bruce Miller, Vince Gallucci, Don Gunderson, Ray and Marta Buckley, and Jeff Cordell. Although retired now, I still help out at FHL and advise students on amphipod identification.

Krispi and I now spend a few months each year in Costa Rica, where our daughter Sarah Joy, her husband, and our two grandkids live. My interest in amphipods now includes tropical species, and I occasionally volunteer at the Crustacean Lab at the University of Costa Rica.
Gary Stauffer
BS, 1966; MS, 1969; PhD, 1973

I first visited the College of Fisheries in July 1962. After reading the College’s catalog, I decided to pursue fishery biology.

During my junior year, Doug Chapman introduced me to quantitative analysis in his applied statistics classes. For spring break 1964, I assisted Bob Ting with his Puget Sound benthic fauna study. When we returned to Fisheries on March 27, I learned about the great Alaskan earthquake!

I spent the summers of 1964 and 1965 flying and driving to almost all the major Alaskan sockeye rivers, including the Copper River in Prince William Sound and the Wood River system in Bristol Bay. I have many lasting memories, including witnessing the destruction of Alaskan cities and ports by the earthquake and resulting tidal waves.

After finishing my BS in 1966, I was offered a research assistantship with the Fisheries Research Institute (FRI) and enrolled in the School’s MS program, with Gerry Paulik as my major professor. I finished my MS in 1969. Doug and Gerry offered me a Ford Foundation Scholarship with the newly established Center for Quantitative Science to pursue a PhD: I focused on a model for predicting weekly growth rates of salmon reared in hatcheries. In 1972, Gerry, an inspiration and mentor to all of us, passed away suddenly—a great shock to everyone in the College. Fortunately, Doug took over as major professor for Gerry’s students.

On completing my PhD in March 1973, I took a job with the National Marine Fisheries Service (NMFS) at the Southwest Fisheries Science Center and moved my family to La Jolla, California. I was hired by Brian Rothschild and Bill Fox to work in the new tuna/porpoise program.

While in La Jolla, I kept in touch with my UW Fisheries friends and frequently recommended the College to students interested in pursuing fisheries degrees. In 1982, I returned to Seattle to work at the Northwest and Alaska Fisheries Science Center. I was appointed to the School’s affiliate faculty, lectured for Don Gunderson’s class on research survey methods, and led some classes for the graduate seminar series. I served on graduate student committees while I was Resource Assessment and Conservation Engineering (RACE) Director. I also helped fund graduate tuition for NMFS/RACE biologists interested in advancing their quantitative skills at UW Fisheries.

Also, RACE funded university projects in support of graduate students on topics of interest to NMFS and particularly in support of the Fish Collection. I am proud of the fishery graduate students we hired—in particular, two ichthyologists trained by Ted Pietsch (Jay Orr and Duane Stevenson). I was also instrumental in recruiting and funding John Horne to the School’s faculty to re-establish the fishery acoustics curriculum.

My association with SAFS and its predecessors has been 56 years in the making and has been at the center of just about every one of my major life-making decisions; I will be forever indebted to SAFS and its faculty, past and present.
At the age of five, I was bitten with marine biology when a crab pinched my toe. Ever since, I have sought justice by eating as many crabs as possible.

Fascinated by Jacques Cousteau, I became a SCUBA diver at 13, solidifying my desire to become a marine biologist. After earning my BS in Biology at the University of Cincinnati, I spent a year as a full-time rock-and-roll drummer before deciding it was time to go to grad school. At the College of Charleston, I studied reproductive physiology of the knobbed whelk, *Busycon carica*, and learned that I did not like being cooped up in a chemistry lab: I preferred spending time outdoors searching for whelks, observing their natural environment, and learning about the ecosystem in which they lived.

Upon receiving my MS in 1976, I began looking for my dream job, SCUBA diving on coral reefs, but discovered that, following creation of the 200-mile extended economic zone, the federal government was hiring fishery biologists by the dozens. Seeing the writing on the wall, I applied and was accepted into the PhD program at UW Fisheries. My first advisor was Ken Chew, who had 30 grad students, literally everyone who wasn’t studying salmon. A summer job as a NMFS observer was my first professional job, where I learned to key out rockfish (all those spines!).

After taking classes for two years, I still had no research funding, so I took a job with the Washington Department of Fisheries. That led me to Grays Harbor, Washington, where I began studying the impact of dredging on Dungeness crab. In my spare time, I began writing grant proposals and eventually garnered a contract with the US Army Corps of Engineers for the amazing sum of $70,000 to support my PhD research. With grant in hand, I went back to the UW, enlisted David Armstrong as my new advisor, and began my work, finally receiving my PhD in June 1982.

After graduation, I landed a permanent job with NMFS in Kodiak Alaska, where I stayed for 22 years. During that time, I studied reproductive biology of snow, Tanner, and king crabs; spent a year in Japan learning aquaculture; and started a king crab aquaculture project. I also made over 60 dives in submersibles (including the *Alvin*) to study deep-sea crabs and discovered the 1860 wreck of the Russian 3-masted ship, “*Kadyak,*” which is the subject of a book that I recently published.

Needing a change, I left NOAA in 2006 for academia, eventually coming to the University of Maryland Eastern Shore, where I am now a tenured full professor of Marine Science. My students and I still study reproductive biology of crabs, and I eat them at every opportunity.
I'm from a small island off the Maine coast and always knew I would eventually work in fisheries. My path to UW began by following my wife to Washington state after we graduated from Dartmouth. I spent several years working various "odd jobs," from trapping flying squirrels to electro-fishing the small streams of the Olympic Peninsula, before realizing I needed to pursue graduate school.

My first attempt at joining UW Fisheries did not pan out, but evening math classes and regular attendance at the weekly departmental seminars helped me sharpen my focus and led to connections in the School. When Ray Hilborn and Tom Quinn invited me to join the Alaska Salmon Program in 1999, I immediately signed up to go north for the summer...before I officially started my MS!

I have been lucky to have been surrounded by exceptional scientists, learning from and emulating them, and this period was no exception. I spent several summers working in Alaska with a great group of students, staff, and faculty, many of whom I still see regularly. Just before earning my MS in 2001, Ray encouraged me to apply for the relatively new National Marine Fisheries Service/National Sea Grant Population Dynamics Fellowship. My peers in the fellowship included individuals now working as stock assessment scientists for at least three NMFS science centers, as well as UW graduates Alan Haynie, Melissa Haltuch, and Eric Ward.

A couple of years before earning my PhD, I took a full-time job as a stock assessment scientist for the NMFS Northwest Fisheries Science Center, contributing to many assessments and rebuilding plans for West Coast groundfish species. I greatly enjoyed working with a large group of UW graduates. Many times, it felt like we had just moved the SAFS graduate student offices across the Montlake cut. I finished my degree in 2006, benefiting greatly from the support of my colleagues at NMFS.

I am currently a quantitative scientist for the International Pacific Halibut Commission (IPHC), where I have led the annual stock assessment since 2012. My recent research has focused on improving stock assessment methods, characterizing uncertainty, and developing modeling and presentation approaches to support multi-model-based risk assessment. I work closely with Allan Hicks, as well as Lauri Sadorus and Josep Planas, with an occasional piece of advice from the retired Bill Clark. The history of the IPHC includes too many SAFS graduates to name—my position alone has been held by at least five UW graduates; I often feel like I have stepped into some very large shoes.

I have been honored to serve as an affiliate faculty member at SAFS since 2012, and my work with SAFS graduate and undergraduate students is one of the most rewarding aspects of my career. I am constantly amazed at how the skills and diversity of SAFS students continue to exceed previous students, and I look forward to many more years of collaboration.
Robert R. Stickney  

I have many treasured memories from my over 10 years at the UW Fisheries:

• Completing a history of the Fisheries program at the UW that began with the wife of former Dean of the College of Fisheries Richard Van Cleve sharing a draft history that I used as the inspiration for the book *Flagship*. Proceeds from the book were used to support programs in the School.
• Befriending Lauren “Doc” Donaldson, one of my heroes.
• Playing tennis with Bill Royce, Bud Burgner, and other retirees, all of whom were many years older than me, but wore me out with their cagey play.
• Working with a highly talented faculty and staff.
• Participating in the writing of the undergraduate fisheries textbook used in the introductory course attended by hundreds of students each year.
• Visiting the Fisheries Research Institute field stations in Alaska.
• Participating in a dive on the *Pisces IV*, a Canadian Department of Fisheries and Oceans submarine involved in a survey of Puget Sound off Everett.
• Developing a halibut research program in collaboration with the US Fish and Wildlife Service field laboratory.
• A trip I took to British Columbia fishing with H. Mason Keeler, who gave Ernie Brannon $50,000 for fisheries research in Lake Washington, which turned into a million dollar School endowment. He and I had a photography contest and I got the best photo (of an eagle) and also caught the largest fish. Mason still increased his donation to the School, mind you!
• Conducting trout and salmon research, often in collaboration with Ron Hardy, who was at the time employed at the Montlake National Marine Fisheries Service Laboratory.

In 1995, Texas A&M University was seeking a director for their Sea Grant College Program. I had worked closely with Washington Sea Grant at UW and spent nine years on the faculty at Texas A&M, so I applied and got the job. My wife Carolan and I moved back to Texas and I started working at Sea Grant on January 1, 1996. We purchased slightly less than 69 acres of land 30 miles outside of College Station and built our dream home.

I retired at the age of 70 and was honored to became an Emeritus Professor in the Department of Oceanography at Texas A&M in 2011. In 2014, we decided to sell the “ranch” and move to College Station.
Station, where we have lived ever since. Our daughter and her family are located in Kirkland, and our son and his family live in Keller, Texas. We have four grandchildren, one in Kirkland and three in Keller.

We try to get to Seattle at least once a year and usually spend a couple of weeks. We always drive and make a few stops on the way to see friends and former colleagues.

We also travelled extensively throughout the rest of the US and last year took our first cruise (from Seattle to Alaska). We took a trip to London in late August–early September in 2018, and are planning to tackle the Panama Canal next.
When I think of SAFS, friendship, resilience, and collaboration are what first come to mind—I was very lucky to experience these as a SAFS graduate student. My love for aquatic systems, invertebrates, plants, and the outdoors in general began with family outings to lakes outside Bogotá. This continued as an adult in Florida, where I learned about estuaries, hung out at the beach, and met a Viking from Iceland. After several visits to the Aleutian Islands for environmental education and to conduct wildlife surveys—and checking out Iceland (similar to the Aleutians)—I wound up in Seattle, wanting to go to graduate school.

I was very interested in applied research in aquatic systems, which involved fieldwork and stakeholder collaboration. After checking out several graduate programs and taking some SAFS courses, it was clear that SAFS was the place to be. The comradery in SAFS is like no other, always fostering creativity and collaboration. I was very fortunate to work with several research groups in SAFS, including the Wetland Ecosystem Team (with copepod guru Jeff Cordell) and the Washington Cooperative Fish and Wildlife Research Unit (with wildlife toxicology extraordinaire Chris Grue and his lab). Ultimately, I joined Chris’ lab and began my lifelong career studying native insects and invasive plants.

My graduate research examined the herbivory of a native aquatic insect, the milfoil weevil, on the invasive plant Eurasian milfoil. This was a wonderful project! I spent the summers snorkeling in lakes around Washington; interacting with other students, resource managers, and local anglers; and building up resilience. Some highlights related to resilience include saying out loud, “What a perfect day of fieldwork, not a single problem” and then realizing I just locked myself out of the truck (keys sitting nicely on the driver’s seat), while standing in a bikini and a towel in the middle of the Potholes Reservoir area. Similarly, a weevil rearing experiment involved growing Eurasian milfoil in the lab, but while I thought I was a good gardener, apparently I cannot grow invasive plants.

In the end, it all worked out, and these lessons in resilience still come in handy today. Just last summer, after having a challenging day in the field in southern Iceland yet managing to collect some promising data and savoring the accomplishment for 30 seconds, a gust of Arctic wind took hold of my data sheets and made them disappear to who knows where. After a moment of panic and swearing, followed by calmness, thinking “It’s not the end of the world” and then, taking a short walk downwind, I found my data sheets wrapped around a wire fence. So thank you SAFS for helping me build up my resilience!

Now, I am with the Environment and Natural Resources Program at the University of Iceland and try to encourage friendship, resilience, and collaboration in my students, as SAFS did with me. Together we look at invasive species, plant–insect interactions, and biodiversity, and overall enjoy what we do.
At age four, I was introduced to science through the Newark Museum in New Jersey; by age seven, I knew I wanted to be a scientist. In high school, I won the Bausch and Lomb Science Award, although I found some other subjects difficult. I majored in biology and chemistry at Newark College of Arts and Sciences (a commuter branch campus of Rutgers University), graduating in 1955. I did my graduate work at Rutgers University New Brunswick campus (for undergraduates, the “Men’s Campus”), earning an MS in 1957 and a PhD in 1959 from the Zoology Department.

In autumn 1959, I interviewed for a job with College of Fisheries Dean, Richard Van Cleve. Learning of my work on tilapia, he suggested that I interview with Professors Al Sparks and John Liston, who had a Boeing-funded project to grow tilapia on human fecal material for feeding astronauts using algae and Daphnia as intermediate steps. I was very interested in closed ecological systems because my graduate research on salamanders in the forest had been so “open” and frustrating, and the “ecosystem” concept was new and exciting.

I started as a part-time fisheries biologist. Despite the low pay, I was pleased to work for the UW—most professional organizations at that time only hired women to be secretaries, laboratory technicians, or possibly, librarians. Women with advanced degrees were viewed with suspicion! I worked my way up the faculty ladder, becoming a Research Assistant Professor in 1962, Research Associate Professor in 1966, and full Professor on the teaching faculty in 1971.

My research grew to developing model ecosystems: open to the atmosphere, but with all organisms known (“gnotobiotic ecosystems”), including bacteria. In 1976, I was asked to develop replicable synthetic communities of organisms to display the effects of test chemicals. This led to the “Standardized Aquatic Microcosm,” now an American Society for Testing Materials protocol (E1366).

Subsequent research included developing fish habitats for space research for NASA.

I taught various courses at UW: initially in 1961, a Zoology physiology course and, later, “Space Biology: Sealed Life Support Systems.” Later, I taught about water pollution and aquatic food chains as well as courses in Aquatic Food Chain Ecology, Community Responses to Toxic Chemicals, and Biological Problems of Water Pollution.

During 1971–1973, I chaired the College of Fisheries Affirmative Action Committee. I conducted an Affirmative Action Report in 1973: All 23 fisheries biologists were men; of the other non-academic staff, 50% of the 39 females earned less than or equal to the lowest paid of the 19 males even though their qualifications and responsibilities were greater. Of the graduate students, there were 66 males, 50% of whom were supported and 14 females, 14% of whom were supported. At the time, the report caused quite a stir because it was the first time most staff saw their salaries within the context of the whole organization. Also, there was no denying that women were underpaid as compared to men.

—continued on page 104
Since I “theoretically retired” in 2000, I have focused on my closed ecological systems research, developing the methods that allow algae, grazers, and associated undefined microorganisms to maintain active populations for weeks or months.

Community metabolism (diurnal O₂ and CO₂ changes) particularly interested me, and my data have suggested hypotheses that I hope to test on archived lake data. Also, these small Closed Ecological Systems have been used by numerous students for their own research projects.

I married Jack H. Taub during spring break in 1954—the junior year of my undergraduate studies. After finishing my PhD in 1959, we headed for Seattle, where Jack worked as a systems analyst at Boeing and then for the US Navy. Our children, Beth 1965, Alex 1968, and Gordon 1971, completed our family. Unfortunately, Jack died in 2016; we had been married 62 years. Currently, I am fortunate to have our 3 children and 3 grandchildren living in Washington State.
Having recently moved, Nathan and Erin sometimes find themselves asking, “How did we end up living in Madrid?” The answer lies in part in their professional and personal experiences gained at SAFS.

While at SAFS, Erin studied salmon hatchery/wild interactions and growth through the lens of quantitative genetics with Kerry Naish. She also was a teaching assistant for the Conservation Genetics class for several years, which had a considerable impact on her continued interest in science education.

Nathan was at SAFS as a post-doc from 2006 to 2008. He came from Vancouver, Canada, where he had studied growth and survival responses to a series of experimental fishing trials in remote British Columbia lakes. “At SAFS, I modeled growth and survival response in Pacific salmon populations with Ray Hilborn and Nate Mantua, using multi-area, multi-stock salmon models,” he said.

Erin and Nathan met in the rich social and intellectual environment at SAFS and stayed together even as they moved to different jobs in different cities. For Erin, this included teaching biology, chemistry, and environmental science at Lakeside School in Seattle. For Nathan, it meant another post-doc, working on Atlantic bluefin tuna at the University of British Columbia in 2008. In 2010, they decided it was time to live in the same city and accepted jobs working for Fisheries and Oceans Canada at the Pacific Biological Station (PBS) in Nanaimo, BC.

“As a visiting fellow at PBS, I studied evolution in the sockeye major histocompatibility complex and worked on a project examining the effects of ocean acidification on shellfish using genomics,” said Erin. Following her post-doc, she directed a small, non-profit in Nanaimo focused on offering hands-on science activities for kids aged 3–12. In his initial position at PBS, Nathan applied some of the fish stock assessment skills honed at SAFS to Pacific herring and Pacific hake; for both fisheries he continued to collaborate with SAFS colleagues.

Erin and Nathan's daughter was born in 2013 and was soon indoctrinated into the joys of fisheries science! The day she came home (at age 4) to tell Nathan and Erin about the spawning habits of plainfin midshipmen—which she had learned from a group doing a beach survey while out with her grandmother—is one of their favorite stories.

“The allure of working on tuna stock assessment was too much for me to resist,” according to Nathan, and in the summer of 2018 he accepted a job at the International Commission for the Conservation of Atlantic Tunas, in Madrid. “While far away from

—continued on page 106
our home base, we continue to cultivate our Pacific Northwest connections even as we find our footing in this new space,” he added.

Nathan and Erin noted that SAFS was where they learned their scientific disciplines, and it was also where they established professional and personal relationships. They concluded, “Even though Madrid is far away in space and time from SAFS, both the knowledge and the relationships we cultivated there endure.”

SAFS alumni at Nathan & Erin’s wedding.
In 1974, I joined UW Fisheries as a fisheries biologist after completing my MA at California State University, Long Beach. In 1976, I enrolled in SAFS’ PhD program, under Ken Chew. Ken had a project investigating the effects of the five sewage discharges on the shallow water biota in central Puget Sound, and he needed someone to work on the seaweeds. My MA had focused on long-term changes in the seaweed flora at 72 historical collection sites from Point Conception to the Mexican border. Also, during 1971–1974, I was a marine biologist for Los Angeles county, monitoring the effects of the largest West Coast outfall on the coastal ocean ecosystem. Hence, I was already well “immersed” in sewage, so to speak.

Despite having many grad students, Ken helped me set a direction, pass all the hoops, and receive my PhD in 1978. Further, he provided me a welcome home to accomplish my goals and to initiate my career. His shellfish and other fisheries courses expanded my knowledge base and was critical to my career. My committee members, Roy Nakatani and Bruce Miller, were also great sources of support and advice. Fellow grad students John Armstrong and Craig Staude taught me the value of developing trusted collaborators.

After graduating, I spent nine years (with a two-year hiatus working for the Corps of Engineers during 1980–1982), conducting research at the Fisheries Research Institute, working with colleagues including Charles “Si” Simenstad and Jeff Cordell; these collaborations continue today. Si and I taught the first wetland ecology and restoration class, and we initiated the Wetland Ecosystem Team. During this period, my focus changed from evaluating the effects of disturbances on nearshore systems to understanding how to restore estuarine and coastal ecosystems.

In August 1990, I was hired by the Pacific Northwest National Laboratory (PNNL) Marine Sciences Laboratory in Sequim to develop a wetland research program, and I managed that program until retiring in 2013. During my tenure, I always looked to SAFS for new hires because I knew that SAFS grads had a solid training in the sciences and in practical issues facing natural resources.

I have worked on all US coasts, in several major rivers, and in China and Korea...places I never thought I would get to in my career. I have been lucky to serve on regional and national committees and chair several conferences. I now serve as an emeritus staff member at PNNL and remain active as the Senior Science Advisor to the Puget Sound Partnership and as a member of a panel that scores restoration projects on the lower Columbia River and estuary. I also am involved in volunteer service as a Governor’s appointee to the Northwest Straits Commission and as President of the Washington State Academy of Sciences.

Bottom line, my experience as a graduate student and fisheries biologist at SAFS prepared me very well in many unexpected ways for a long and enjoyable career in the field that I love.
“Um, Bob, so...have you ever wanted to be a minister?” So went the request one sunny afternoon at the Volunteer Park wading pool, where Jodie and Jason were sitting with Bob Francis as he watched his grandson. A few months later, Bob officiated their wedding, sprinkling the ceremony and their path forward with his salt-of-the-earth gruff charm.

To say SAFS students ask a lot from their major professors was probably an understatement at that point. To say that SAFS is a core part of the arc of the Toft’s personal and professional stories is not.

Sure, students and faculty land at SAFS because of the world-class science, but the SAFS community provides so much more. In the early-to-mid 2000s, Jodie, Jason, and crew would unwind by playing “pickup” soccer back behind the Intermural Activities Building. SAFSers have always been quick to balance the brain spinning they do indoors with stretching of legs outdoors. In the Toft’s case, while they worked down the hall from each other, their research didn’t bring them together—Jodie was modeling large-scale fisheries, and Jason was immersed in small-scale juvenile salmon restoration. But, once on the soccer field, their shared love of questionably good humor and a lackluster approach to competitive sports drew team Toft together.

Fast forward over a decade. Now their kids are the ones playing soccer as they coach from the sidelines. The Toft’s observed, “As is common for SAFS offspring, we, too, seem to be raising saltwater aficionados—from bivalve and crab harvesting to boating and beach exploring, the Pacific Northwest makes it easy.”

Workwise, after a wonderful chunk of time at The Natural Capital Project, Jodie is now Deputy Director of the Puget Sound Restoration Fund, where she applies her SAFS training to conservation. Continuing as a Senior Research Scientist at SAFS, Jason investigates the effects of urbanization and restoration opportunities along estuarine shorelines. Their work worlds collide a bit more now, which leads to good, meaty discussions about oceans, coasts, conservation, and hopes for the future: “We wouldn’t have it any other way.”

For Jodie and Jason, SAFS was and is a special place for learning—about science, fish, the natural world, quantitative techniques—the list goes on. And for them and so many others, that learning and the people with whom they shared their SAFS experiences serve as a cornerstone in life. Simply put, start at SAFS for the science, but stay for the scientists: “You never know what may turn out!”
Bob Trumble
MS, 1973; PhD, 1979

Growing up in the eastern Washington desert, I became fascinated with water. Maybe it traces back to grade school in Annapolis, where I spent a lot of time along Chesapeake Bay. In 1961, I went to UW, majoring in Oceanography. After graduating, I worked as a civilian oceanographer for the US Navy. I spent more time at sea than most of the sailors on board, but they couldn't grow a beard, have long hair, or wear love beads!

I was accepted to UW Fisheries graduate school in 1971. My professors and fellow grad students helped me focus my widely distributed attention. First, Hiroshi Kasahara mentored me through my MS. Then Ole Mathisen and Dick Thorne had me work on a hydroacoustic study of neckton in the east Africa upwelling system for my PhD.

Part way to completion, Gene DiDonato hired me to work at the Washington Department of Fisheries’ (WDF) Marine Fish Program. He graciously gave me time to work on my PhD. I graduated in 1979, and that felt good! Eventually, I took a job in Olympia as coordinator of Puget Sound Watershed Planning (read salmon), working with farmers, ranchers, loggers, Treaty Tribes, and the department to build a watershed management plan.

After about 10 years at WDF, Don McCaughran offered me a job at the International Pacific Halibut Commission (IPHC), and I jumped at the chance.

From our campus office, I worked with many UW grads on the staff, including Steve Hoag, Bill Clark, Morris Wade, Ana Parma, Terry Quinn, and Rick Deriso, and I reactivated my ties with UW Fisheries. Among other things, I hired Sara Adlerstein and Steve Hare at the end of their PhD programs.

After 14 years at IPHC, my wife and I wanted a change, including warmer weather and, in 1999, we moved to St. Petersburg, Florida. There, I worked for MRAG Americas, a fishery consulting company, where I conducted research on improving management of aquatic ecosystems and the resources and fisheries they support. I traveled a lot, which was fun, exhilarating, and exhausting. We subcontracted with numerous UW Fisheries folks, including André Punt.

When people asked me when I would retire, I’d say when it wasn’t fun anymore. The fun started to wane in early 2017 and I retired at the end of that year; I still do some independent consulting.

The most important thing I learned over 50+ years of fisheries science and management was to get a good base. Ole encouraged me to become a good scientist before I wandered off into policy and management activities. The rigorous curriculum and stimulating discussions provided by school faculty and students were critical to my success. Some of my younger colleagues told me that I mentored them. Successful fisheries practitioners need to pass on the experience gained throughout a career to those who follow them, and I am very glad to have done so. And finally, having fun is important. I couldn’t have worked so hard for so long if I had not.

left to right: Geoff Tingley, David Agnew, Bob, Jonathan Jacobson, and George Clement, attending a Marine Stewardship Council workshop.
Shortly after obtaining a BS in Biology from Florida International University in 1979, I started thinking about graduate school. UW came to my attention because of its excellent aquaculture program—I considered aquaculture the “way of the future.” So I packed my belongings, including my pet parrot, into my Jeep and drove from Miami to Seattle.

It took about eight days: five actually driving and three repairing mechanical failures. It took another three days to find a job. As I had little money, my meals were basically bread and Coca Cola.

When I arrived, I was told the College of Fisheries was not accepting more students. My only option was to enroll as a fifth-year student, which I did. I then looked up Ken Chew, who was so impressed by my naiveté in driving across the US without a promise of being accepted that he helped me get accepted into the graduate program.

Soon after, I met John Halver, the “father of fish nutrition.” I thought nutrition must be the key to efficient aquaculture, so I started visiting him in his office and asking questions about fish nutrition. This eventually led to my doing my MS with him. I owe much to John; he accepted me, taught me to think critically and always ask “Why?” He opened many doors for me throughout my career. George Pigott and George Brown Jr. rounded out my MS committee.

I met many incredible people while at UW, including Ron Hardy (now at Hagerman Idaho’s Fish Laboratory). Barbee Tucker, Nancy Heck, and Dick Stockard all studied under George Pigott, and we collaborated on developing predigested protein flake diets for marine fish larvae. Susan Eakin, another student, was a sparring partner for me when I was writing my thesis.

After graduating, I became a shrimp farmer. After a couple of years working in St. Croix, Virgin Islands, I went to Guayaquil, Ecuador, where I remained for 12 years, managing a large shrimp farm. I wrote a shrimp farming manual in 1991 that remains in use today.

I spent 12 years in Mexico working for various shrimp farming operations. But Mexico became too violent for my family, so I took a job with the World Wildlife Fund (WWF) in Washington, DC, to lead its global aquaculture program. I managed WWF’s global multi-stakeholder initiative, creating environmental and social standards for aquaculture species, including farmed salmon, shrimp, and tilapia.

I then co-founded the Aquaculture Stewardship Council (ASC) with partners in The Netherlands. Today, ASC is the most credible and robust environmental aquaculture standard in the world. Establishing it was probably the most rewarding professional experience and accomplishment in my career.

Currently, I am the corporate sustainability director for Nutreco, a global animal nutrition company. My take-away? Get on the train, doesn’t matter if in the first car or last, but get on the train and work hard to stay onboard. Look for the relevancy in your career.
I almost didn’t make it as a biology major. During my junior year in Ecology and Evolutionary Biology at UC San Diego, I realized I wasn’t very good at field work when a couple of graduate students I was volunteering for fired me...twice! Fortunately I was saved by some ecological modeling classes: I loved the problem-solving aspects and complexity of the computer models we built and realized this could be a great career path. I continued to pursue mathematical ecology with an MSc with Dan Goodman at Montana State University, where I was exposed to a lot of statistics, including Bayesian methods and state space models.

I came to SAFS in fall 2003 and received a NMFS Population Dynamics Fellowship to work with Ray Hilborn. As a new PhD student, I benefited from having a great cohort of incoming SAFS students and several more senior graduate students in the Hilborn lab (Trevor Branch, Ian Stewart, Carolina Minte-Vera). Sharing an office with Peter Westley and Arni Magnusson also exposed me to the culinary diversity among SAFS students (Arni had an occasional sheepshead for lunch, and in summer field camps, Peter had an affinity for Spam). A highlight while in the Hilborn lab entailed going to New Zealand with Ray in 2004 to learn more about stock assessments. Besides Ray, Tim Essington and André Punt were on my PhD committee and were a huge help to my maturation as a scientist. I’d also be remiss in not giving SAFS credit for radically changing my personal life, because I met my wife Kristin Marshall during CPR training in 2003.

I did a post-doc at the Northwest Fisheries Science Center (NWFSC) during 2007–2008. Part of the productive post-doc experience was having other post-docs around to collaborate with, and I was fortunate to overlap with some other recent UW graduates, including Jon Moore and Brice Semmens. In 2008, as the US economy was imploding, I was lucky to be hired as a statistician at the NWFSC. My job is split between multiple programs in the Conservation Biology Division and allows me to work on many collaborative projects across divisions, particularly in tool development. I’ve worked on many types of datasets and species, ranging from plankton to top predators. I also have several projects with external collaborators, including several SAFS faculty and students.

For most of my time at the NWFSC, I’ve been fortunate to be affiliate faculty at SAFS. I’ve taught a class on time series with Eli Holmes and Mark Scheuerell (also both affiliate faculty), and I serve on student committees. These interactions are extremely rewarding because they let me keep up with all the exciting research SAFS students are doing. Since I graduated in 2006, SAFS has changed a lot, with many new faces and ideas. I have no doubt the School will continue to have the best quantitative fisheries program in the world, and I’m excited to watch the evolution of the SAFS community into the future.
During my undergraduate years as a zoology student at Washington State University (WSU), I was, at best, a mediocre student. I left school after the fall semester of my senior year to earn some money and contemplate my educational future. The following spring, I consulted a wise adviser, who suggested I consider UW Fisheries in light of my interest in the aquatic world. I applied to the UW, but was denied admission. The following summer, I visited the College of Fisheries to find out why I was denied admission. I was directed to Al Sparks who reviewed my records and came to the conclusion that I was eligible. UW Admissions had made a substantial mathematical error in calculating my grade point average!

During my year as a UW undergraduate, I took several of Al's courses as well as other fisheries courses, which I found extremely interesting, resulting in much better grades than I had at WSU. In the spring, Al offered me a research assistant position if I acquired my BS from WSU by transferring my UW credits back to WSU.

After I graduated from WSU and enrolled at UW, my first task as a graduate student was to assist Ken Chew in setting up several oyster and mussel field stations to investigate shellfish diseases. I did find getting paid to conduct research while taking numerous interesting classes really stimulated my interest in graduate school. Ken introduced me to the questionable pleasure of consuming Olympic oysters fresh in the field. Although I love most shellfish, I never developed a fondness for raw oysters, although they are not too bad when consumed with a good Scotch.

The research funds disappeared during my last year working on my MS. However, I was fortunate to support my graduate studies through several opportunities as a teaching assistant under Ken Chew and several consulting projects for private industry.

During the first year I was working on my PhD, there was a major oil spill at a refinery near Anacortes. Max Katz was hired as a consultant to investigate the effects on intertidal organisms. Max hired me to design and conduct field investigations of the spill impacts on intertidal invertebrates. He routinely provided field sustenance in the form of cheese, sausage, and six-packs of Miller beer. Fortunately, most of the reported dead snails were simply narcotized and recovered, and we did limit our consumption of beer.

These initial consulting experiences led me into a professional life of consulting long before I understood the role of a consultant. This field has provided me with a wide variety of experience and travel to many areas of our country as well as to other countries, together with the opportunity to meet numerous interesting colleagues. I am now mostly retired from a 45-year career in consulting.
I enrolled in the College of Fisheries undergraduate program in fall 1965. The freshman class had over 100 students, and it included SAFS’ own Charles “Si” Simenstad and, possibly, two women.

When I was a freshman, my lack of good study habits quickly rose up. My advisor Al Sparks sat me down and said, “If you don’t buckle down and get better grades, you will have to drop the fisheries science curriculum and go into fisheries management!”

In my senior year, Ken Chew introduced me to field research with Terry Nosho for a project on Manila clams at Big Beef Creek. In 1969 with my BS in Fisheries, Ken then arranged a summer job for me at the WDF Brinnon Shellfish Lab.

I spent the next 3.5 years as an active duty U.S. Coast Guard Officer, which taught me life lessons on the importance of conducting tasks that I wouldn’t choose to do on my own accord, doing them well, and completing them within set time limits.

I returned to UW Fisheries in fall 1973, mainly focusing on invertebrate zoology and ecology coursework—with a few Center for Quantitative Sciences classes and a fisheries course on disease taught by Marsha Landolt. Gil Pauley, who had just joined the Washington Cooperative Fishery Research Unit, was my thesis advisor, with Ken Chew as a committee member. I graduated with an MS in mid-1975.

In fall 1975, I started a PhD to study natural settlement of Manila clam larvae and subsequent growth, with Ken Chew as my advisor. I had the best office location of my adult life during 1976–1978—the space now occupied by Aqua Verde!!

I submitted my PhD in spring 1978. As I was leaving the UW, David Armstrong asked to use the lab manual I had written. Sure! He subsequently collected a few dollars from each student and gave me $50 with the admonition, “Buy, wine!” To this day, I have religiously followed his advice.

To stay in the Pacific Northwest, I secured a temporary job in 1980 at the Northwest and Alaska Fisheries Science Center (NWFSC), studying salmon passage at Columbia River dams. I then worked for the US Army Corps of Engineers but returned to NWFSC in 1987, where I continued research on Columbia River salmon issues until my retirement in December 2010.

I owe success in my career in part to the formal coursework in fisheries and statistics I took at UW, but also to the interactions with other fisheries students while in graduate school. Most were studying and researching areas quite different from mine and our interactions and discussions about research provided me a broad-based knowledge of fisheries research and science.

In 1989, I began collaborating with Jim Anderson, and concurrently became a SAFS Affiliate Assistant Professor. I provided funding for graduate students for the next 20 years, served on several graduate student committees, provided informal mentoring to other graduate students in SAFS, and was promoted to full Affiliate Professor in 2010. Much of the mentoring I have provided to students has been based on mentoring I received while in graduate school, reinforced by experience guiding a large NOAA Fisheries research team.
When I was 10, I discovered a beached dolphin that had drowned in a gillnet. At that time, I decided I wanted to help conserve marine life. Little did I know that my choice would lead to my becoming part of the SAFS family!

After my MS, I sought a PhD program in quantitative applied research. I needed to develop analytical expertise to best inform management and conservation. A close friend and co-worker was visiting NOAA’s Alaska Fisheries Science Center in Seattle; he connected me with Doug DeMaster, then-leader of the Cetacean Ecology and Assessment Program at NOAA’s Marine Mammal Laboratory (MML). Despite similar research interests, Doug could not be my PhD advisor. But he pointed me to Glenn VanBlaricom, who encouraged me to apply to the School’s graduate program. That was hard work, but the effort paid off! In early 1999, I was accepted into SAFS’ PhD program with a scholarship from the Brazilian government.

It was challenging at first—a new country, new culture, new language—but SAFS, with its very international community, was very welcoming. The faculty and staff foster an all-inclusive sense of community for its students. Also, colleagues in the VanBlaricom Lab and the Washington Cooperative Fish and Wildlife Research Unit were amazingly supportive and made me feel at home.

At SAFS, I learned the true meaning of quantitative research and was exposed to new (to me) computer programming languages. I very much enjoyed the statistics and stock assessment classes. My research focused on population assessment methods for cetaceans, with emphasis on abundance estimation.

Besides the exceptional academic environment, SAFS provides students an avenue to “real world” science through the many faculty that work with regional to international organizations responsible for conserving and managing aquatic resources. At SAFS, I became involved with the Scientific Committee of the International Whaling Commission (IWC). I thank SAFS for this and still work with the IWC today.

I currently work as a research scientist at MML and with two non-profit organizations in Washington. I focus on cetacean population biology and conservation. I feel fortunate to interact with many outstanding people in these organizations, including some SAFS alumni. I also serve on advisory committees for the International Union for Conservation of Nature’s Cetacean Specialist Group and the World Wildlife Fund’s Advisory Group on River Dolphins. My contributions to these committees were greatly enhanced by the strong scientific background I received at SAFS.

The SAFS research and academic program is unparalleled. I feel privileged to have spent some of my best years at UW and for the many friends I made there. Congratulations to the School for celebrating its centennial and for the outstanding SAFS community that’s making it happen.
Chang-Ik Zhang
PhD, 1987

Chang-Ik Zhang started at UW Fisheries in 1981, studying with Don Gunderson. During his UW graduate studies, he received the Ellis Memorial Scholarship and the Anderson Memorial Scholarship. He was on the Dean’s List for 1985–1986 due to his academic achievements. While a graduate student, he worked with classmates, Patrick Sullivan, now a Professor at Cornell University, and Anne Hollowed, now at NOAA Fisheries, writing scientific papers for publication and discussing scientific issues.

Chang-Ik has been a Professor at Pukyong National University (PKNU) since 1995 and has been Director of the Institute of Fisheries Science at PKNU. He has served the Korean government as a member of The Presidential Commission on Agriculture, Fishery and Rural Policy and also as a member of The Presidential Commission on Policy Planning.

Since 2005, Chang-Ik has served as a member of the Marine Stewardship Council’s Technical Advisory Board. He was elected as Fellow of the Korea Academy of Science and Technology in 2005 and has been Chair of Fisheries Science Section since 2012. He served as Chairman of the Commission for the Conservation of Southern Bluefin Tuna during 2008 and 2009.

Chang-Ik’s fields of interest are fisheries ecology, population and ecosystem dynamics, and fishery assessment and management. He is the author of nine books on fisheries ecology and management, including a recent book, Marine Fisheries Resource Ecology. He has published more than 160 scientific papers and given numerous presentations at scientific conferences, many of them keynote addresses. He has served on the editorial boards of international journals, including Fisheries Oceanography. He has been Editor-in-Chief of the Journal of the Korean Society of Fisheries Resources.

In 1991, Chang-IK won the Most Significant Paper Award from the American Fisheries Society. In 1993 and 1994, he won the Best Paper Award from the Korean Cooperation of Science and Technology and the Korean Fisheries Society, respectively. He has received the Service Merit Medal of Honor (2010) of the Republic of Korea. He has also received the Marine Science and Technology Award (2010) from the Korean Corporation of Marine Industry Development.

Chang-Ik has been deeply involved in the work of the North Pacific Marine Science Organization; since 1996, he has chaired the Fishery Science Committee. He has also served as a member of the Executive Committee of the Climate Change and Carrying Capacity Program Implementation Panel; the Scientific Committee on Oceanic Research Working Group 105 on The Impact of World Fisheries Harvests on the Stability and Diversity of Marine Ecosystems; the Living Marine Resources Panel of Global Ocean Observing System of the Intergovernmental Oceanographic Commission (IOC) of UNESCO; and the Joint Commission for Agricultural Meteorology—Commission for Oceanography and Marine Meteorology Task Team on Weather, Climate and Fisheries of the World Meteorological Organization and IOC.

Chang-Ik retired from PKNU in 2018 and is pursuing his “second life,” sometimes visiting his daughter, who is in the PhD program at UW Pharmacy.
Endowments

1966
Donaldson Fund
In honor of Lauren R. Donaldson, a member of the faculty of the School of Fisheries from 1941 until his retirement in 1973, when he became a Professor Emeritus.

1971
Wilbert McLeod Chapman Memorial Fund
In memory of Wilbert McLeod Chapman, Director of School of Fisheries from 1949 to 1952.

James and Joy Ellis Endowed Scholarship in Fisheries
In memory of Floyd Ellis, UW alumnus and former President of Associated Students of UW.

1978
Fisheries Memorial Endowment
Miscellaneous unrestricted donations in memory of individual friends, faculty, students, and staff of the School.

Gerald J. Paulik Memorial
In memory of Gerald J. Paulik, a faculty member of the School from 1961 until his death in 1972.

1981
John N. Cobb Scholarship for the College of Fisheries
In memory of John Cobb, Director of the College of Fisheries from 1919 to 1926.

Melvin Anderson Endowed Scholarship in Fisheries
In honor of Melvin Anderson, founder and, until his retirement in 1981, President of the Seattle Marine and Fishing Supply Company.

Geil Memorial Endowment
In memory of Jack Geil, a former fisheries student, by his parents Mr. & Mrs. John R. Geil and other contributors.

1983
Samuel and Althea Stroum Scholarship Fund
In honor of Samuel & Althea Stroum in appreciation for help donated to the Million Dollar Fish Derby of 1982.

Walter Yonker Memorial Fund
Donations from colleagues, family, and friends of Walt Yonker, BS Fisheries 1941.

1985
H. M. Keeler Lake Washington Fund in Fisheries
Established by H. Mason Keeler, friend of Fisheries and retired President of Overall Laundry Services.

H. Mason Keeler Endowed Professorship in Sports Fisheries Management
Established by H. Mason Keeler, friend of Fisheries and retired President of Overall Laundry Services.

H. Mason Keeler Endowment for Excellence
Established by H. Mason Keeler, friend of Fisheries and retired President of Overall Laundry Services.

1986
Richard Van Cleve Memorial Scholarship Fund
In memory of Richard Van Cleve, former Dean of the College of Fisheries, 1958–1971.

1987
Dewitt Gilbert Fisheries–Journalism Scholarship Fund
In memory of Dewitt Gilbert by his wife Olive and sons William and John.

left to right: Lauren “Doc” Donaldson, Wilbert “Wib” MacLeod Chapman, James Ellis, John Cobb, Richard Van Cleve
1991
Shao-Wen Ling Memorial Endowed Scholarship Fund
In memory of Shao-Wen Ling, from collections of friends and colleagues. Regarded by his colleagues as the father of freshwater prawn farming and a world authority on the culture of warm-water fish.

1992
Puget Power Hatchery Interpretation Fund in the School of Fisheries
To enhance the understanding and experiences of visitors to the University’s fish hatchery.

William H. Pierre Sr. Endowed Fellowship Fund
In honor of William Henry Pierre Sr. who opened the Bill Pierre Ford dealership in 1947 in Lake City.

John E. Halver Endowed Fellowship in Aquatic Animal Nutrition
A gift of property from Dr. Halver, who served as faculty in the School from 1960 until 1992 when he retired.

Edward Allen Power Scholarship in Fisheries
In honor of Edward Power by his sons, David and Donald Power, as a memorial to their father’s outstanding career in the field of development and administration of commercial fishery statistical activities and his support for the School.

1994
Robert E. Resoff Endowed Scholarship
In honor of Robert E. Resoff, who was born in a tiny coastal village on the Alaska Peninsula and went on to become one of the most successful entrepreneurs in his field. Established from the Northwest Salmon Canners Fund and donations from Mr. Resoff and his friends.

Herbert T. Domenici Endowed Scholarship
To provide scholarship support for students in the School of Fisheries.

Institute for Food Science & Technology Endowment
Support for food industry programs within the School of Fisheries.

John Quistorff Endowed Fund in Fisheries
Established by John Quistorff in honor of Elmer Quistorff, BS Fisheries ’34.

1996
Victor and Tamara Loosanoff Endowed Fellowship Charitable remainder trust. Victor Loosanoff is regarded as the father of shellfish hatcheries in the US.

Galen and Helen Maxfield Endowed Fisheries Scholarship
In honor of Galen Maxfield, a renowned fisheries research biologist for what eventually became the National Marine Fisheries Service.

Theodor Jacobsen Jr. and Sr. Endowed Fisheries Scholarship
In memory of Theodor Jacobsen Jr. and Sr.

1997
Richard C. and Lois M. Worthington Endowed Professorship in Fisheries Management Charitable remainder trust.

H. Mason Keeler Endowed Scholarship in Fisheries
In memory of H. Mason Keeler, friend of Fisheries.

1998
John G. Peterson Endowed Scholarship
In memory of John Peterson, a 1940 graduate of the School of Fisheries.

—continued on page 118
1998
Donald E. Bevan Endowed Fund in Fisheries
Established by the family of Don Bevan, School of Fisheries Director from 1981 to 1985.

Dorothy T. Gilbert Endowed Ichthyology Research Fund
In memory of Charles Henry Gilbert (1859–1928), a pioneer ichthyologist.

2000
Oscar Skau Student Research Endowment
To support research in the School of Fisheries. It is the donors’ intent that income from the endowment be used to support student research.

2001
Kenneth K. Chew Endowed Professorship in Aquaculture
Established by friends and colleagues in honor of Emeritus Professor of Fisheries, Ken Chew.

2003
Richard T. Whiteleather, Fisheries BS, 1935 Endowed Scholarship
In memory of Richard T. Whiteleather, Fisheries BS 1935.

The Lowell A. Wakefield Endowed Professorship in Ocean and Fishery Sciences
The Lowell A. Wakefield Endowed Professorship in Ocean and Fishery Sciences.

2004
Roy Jensen Endowed Fellowship
Funded by Mrs. Ingeborg J. Short in memory of her father Roy Jensen, who was the founder of the Washington Fish and Oyster Company, subsequently known as Ocean Beauty.

Marsha Landolt and Robert Busch Endowed Fund in Aquatic and Fishery Sciences
In honor of Marsha Landolt, Director of the School of Fisheries, 1991–1997.

2005
Vincent Liguori Endowed Graduate Student Support Fund
In memory of Vincent Liguori, former student of the School of Fisheries.

2008
W. F. Thompson Scholarship Fund
In memory of William F. Thompson, Director of the School of Fisheries from 1934 to 1947.

Gilbert B. Pauley Endowed Student Support Fund
Established by Gilbert Pauley BS, MS Fisheries ’62, ’65 and Patricia Pauley DDS ’79.

Kiyoshi G. Fukano Memorial Endowment
In memory of Kiyoshi Fukano, who graduated from the College of Fisheries in 1939.

School of Aquatic and Fishery Sciences (SAFS) Students First Endowed Scholarship
Established by alumni of the School to support students.
2009
SAFS Faculty Endowment for Student Support
To provide financial assistance to graduate and undergraduate students at the School of Aquatic and Fishery Sciences.

2010
Janet and David Armstrong SAFS Faculty Endowment for Student Support
Established by David and Janet Armstrong.

Dr. and Mrs. Hiroshi Kasahara Endowment for Students
Established in memory of former School of Fisheries Professor Hiroshi Kasahara.

Vince Gallucci International Fellowship Endowment
Established by Vince Gallucci, Emeritus Professor of Aquatic and Fishery Sciences.

Ray Hilborn SAFS Faculty Endowment for Student Support
To provide financial assistance to graduate or undergraduate students at the School of Aquatic and Fishery Sciences.

Usha and S. Rao Varanasi SAFS Faculty Endowment for Student Support
Established by Usha, PhD Chemistry ’68 and affiliate faculty member of SAFS, and Rao Varanasi, PhD Engineering ’68, in support of fisheries and math students.

Nancy and Kinder Essington SAFS Faculty Endowment for Student Support
To provide financial assistance to graduate or undergraduate students at the School of Aquatic and Fishery Sciences.

Carolyn S. Friedman SAFS Faculty Endowment for Student Support
To provide financial assistance to graduate and undergraduate students at the School of Aquatic and Fishery Sciences.

2012
Harold A. Brindle, Class of 1956 Endowment for Fisheries
In memory of Harold Brindle, a pioneer in the Alaskan seafood industry and former leader of Wards Cove Packing Company.

2013
Michelle and André Punt Endowed Student Support Fund
Established by Michelle and André Punt, SAFS Director 2012–present.

Dayton “Lee” Alverson Endowed Fellowship
Established by family, friends, and fishing industry partners in memory of Lee Alverson’s (BS, PhD Fisheries ’50, ’67) many contributions to the science and management of fisheries in the North Pacific.

—continued on page 120

left to right: Jan and David Armstrong, Rao and Usha Varanasi, Carolyn Friedman,
2014
Usha and S. Rao Varanasi Endowed Fellowship in Environmental and Marine Stewardship
Established by Usha, PhD Chemistry ’68 and affiliate faculty member of SAFS, and Rao Varanasi, PhD Engineering ’68. To students pursuing a multi-disciplinary approach on coastal, fisheries, and ecosystem management.

2015
Lobo Orensanz Endowed Fund for Student Support
Established by friends and colleagues in memory of Lobo Orensanz, PhD Fisheries ’89.

Swasand Family Fellowship
Established by Aleutian Spray Fisheries in honor of the Swasand family.

2016
H. Mason Keeler Endowed Graduate Fellowships
Established by Mrs. H. Mason Keeler, in memory of H. Mason Keeler, friend of Fisheries.

2017
Alaska Salmon Program Endowed Fund
Established by friends of the Alaska Salmon Program.

O’Neill Quinn Aquatic and Fishery Sciences Endowed Immersive Learning Fund
Established by Professor Tom Quinn and Sandy O’Neill to support immersive learning opportunities for undergraduate students.

2018
SAFS Centennial Boots in the Mud Endowed Fund for Students
To commemorate our 100th Year, alumni and friends, with matching funds from the School, established a new endowment to support immersive learning experiences for students.

Patrick Tomlinson Endowed Student Support Fund
In memory of Patrick Tomlinson, population dynamics scientist.

Rae S. and Bell M. Shimada Endowed Faculty Fellowship in Memory of Warren S. Wooster
In honor of Rae S. and Bell M. Shimada (BS, MS, PhD Fisheries ’47, ’48, ’56; BA, 2008 Honoris causa) and Warren S. Wooster, Professor of Marine Studies and fisheries at the School of Marine Affairs, 1976–1991.