



AQUATIC & FISHERY SCIENCES NEWS

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

<http://fish.washington.edu/newsletter>

Message from the Director

In 2011, we continue to be challenged to do “more with less” in these ongoing severe budgetary times for the State. Yet, the School remains vibrant, productive, and renowned. Across the University, academic units are providing performance metrics for program reviews to help determine resource distribution and further budget cuts. In response, data are gathered that will, understandably, portray each unit in the best possible terms. These metrics reflect the elements of successful programs: role in the field, quality, strategic relevance, student demand, and value to the State. You will be glad to know that SAFS excels in all.

Did you know?

SAFS is ranked top in the nation

In exhaustive reviews published by the National Research Council in 2010 and *The Chronicle of Higher Education* previously, the School has ranked #1 nationally among fishery science schools.

Our faculty are among the best in the world

Three are members of the Washington State Academy of Sciences.

Four (20% of our teaching faculty) have been honored as UW Distinguished Teachers.

Our faculty publish, on average, about four peer-reviewed articles annually, of which an increasing number appear in influential journals such as *Science*, *Nature*, and *Proceedings of the National Academy of Science*.

Our students receive the best fishery science education

More than half of SAFS undergraduate majors participate in independent study projects, and 100% of seniors receive in-depth experiential learning through the “Capstone” thesis

project. And some of these undergraduates go on to publish their research findings.

Most of our PhD students publish one or more journal papers before graduating, as do more than 30% of our MS graduates. Collectively, they are authors on almost 50% of the total papers published annually by the School. All attend major conferences and give talks and poster presentations.

More than 80% of SAFS graduate students find careers of first choice, and 15% of our PhD graduates have gone on to faculty positions. Our students are trained for careers in federal, state, and tribal agencies, NGOs, industry, and academia.

Our school is a valuable resource to the State

We provide value through best science, advice, testimony, education, leadership, and outreach about myriad issues that affect the residents and the economy of Washington State.

We engage in debate and help define issues of wide public interest, such as the effects

1 Message from the Director

2 The Curious Case of Ted Pietsch

4 Alumni Updates

6 Alumni News

6 Gifts

8 Life on (and in) the High Seas

9 Awards & Honors

10 Degrees Awarded

11 40th SAFS Celebration

Photos (left to right): Jackie Carter, Jeremy Monroe, Amanda Phillips, Jonathan Moore

AUT 2010 – WIN 2011

—continued on page 6



The curious case of Ted Pietsch...

Robin Layton, *Seattle Post-Intelligence*

MS 1969, University of Southern California (USC)

PhD 1973, USC: The osteology and relationships of ceratioid anglerfishes

of the family Oneirodidae with a review of the genus *Oneirodes* Lütken

<http://fish.washington.edu/pietsch>

Ted Pietsch joined the SAFS faculty in 1978. He conducts research on marine ichthyology, including biosystematics, zoogeography, and behavior of deep-sea fishes. He is also curator of the Fish Collection of the UW Burke Museum of Natural History and Culture (<http://uwfishcollection.org>).

Ted was born in Royal Oak, Michigan, and earned a BS in Zoology at the University of Michigan Ann Arbor. He noted that his entrepreneurial activities as a youth, raising zebrafish and earthworms for local aquariums and bait shops, likely influenced his direction in college. Initially interested in herpetology, Ted found his true calling in graduate school at the University of Southern California, where he discovered anglerfishes. He said, "I took one look and got hooked!"

Ted's career took on an added dimension in the 1980s, when he started to pursue historical studies of aquatic organisms and the people who wrote about them, including Peter Artedi, Georges Cuvier, Carl Linnaeus, Charles Plumier, and Louis Renard. He has published numerous books that demonstrate his interest in the historical. This curiosity is particularly evident when you walk into his office, which is filled with bones, fossils, and artifacts dating back to early human history.

MD: Why are anglerfishes so interesting?

TP: Below 1,000 meters, they are the most species rich group of vertebrates in the deep ocean (11 families and some 160 species), yet they are extremely rare. Even where they are most concentrated, we estimate only one anglerfish every 30 meters.

Anglerfishes include species with males that are a fraction of the size of the females. To reproduce, the male bites onto the female, their tissues fuse, and he becomes a permanent parasite. The male feeds off the nutrients in her blood and she carries him around for life.

Yet, not all deep-sea anglerfishes exhibit this complex adaptation of sexual parasitism. It only occurs in 4 of the 11 families, and we'd always assumed that these 4 all evolved together. But, through phylogenetic analysis, we now know that this parasitism has evolved independently within the group as many as five times. This is really astounding!

No other animals share bodily fluids, a fact that has profound biomedical implications: For example, there is no tissue rejection. The male and female are of totally different parental lineages, yet they fuse tissue and blood... immunologically, this is amazing.

MD: *You spent 10 years studying the biodiversity of the Kuril Islands in the Russian Far East.*

TP: There was no information on plant and animal assemblages on these islands. With National Science Foundation (NSF) funding, we collaborated with Russian and Japanese scientists, conducting 10 annual summer expeditions with a staff of 35 people working from a Russian research vessel. Our work yielded more than 160 publications and an international symposium held in Sapporo, Japan, in 2001.

We discovered 46 species new to science. And we stumbled upon pottery, stone axes, arrowheads, and other relics in the sides of cliffs worn away by the ocean. The remains were attributed to human cultures dating back 50,000 years and more! This discovery launched a major NSF-funded project by the UW Department of Anthropology.

MD: *There's Ted Pietsch, the curator, taxonomist, and systematist. Then there's also Ted Pietsch, the historian.*

TP: I started to pursue historical research in the early 1980s. From deep-sea anglerfishes, I became interested in their relatives, shallow-water frogfishes. I discovered an old drawing of a frogfish (below), which really captivated me.

This led to my doing extensive research on Louis Renard—an 18th century bookdealer, seller of medicinals, and secret agent—and publishing a large volume titled *Fishes, Crayfishes, and Crabs: Louis Renard and His Natural History of the Rarest Curiosities of the Seas of the Indies* in 1995. More recently, I published a book on oceanic anglerfishes, another on fishes of the East Indies, and I'm just now finishing a book, with translation help from staff member, Beatrice Marx, on the history of the natural sciences.

MD: *What motivated you to undertake these projects?*

TP: It's a lot of fun, and aside from the esthetic value, historical studies often contribute in unexpected ways. For example, there's a species called *Histrio histrio*, named by Linnaeus in the first edition of his *Systema Naturae* of 1758. Through careful historical research, we've discovered that he based his description not on a single species but on a complex mix of different things. We were able to sort out all the different species—critical information to issues relating to conservation and management.

MD: *Recently, you added a new dimension to your historical studies with the publication of a "hard fiction" book, *The Curious Death of Peter Artedi: A Mystery in the History of Science*.*

TP: This book is 95% factual—I only added a few small twists and turns to support a history that might have been:

Linnaeus and Artedi met in college in the early 1700s. Given similar interests, they worked together, with Linnaeus studying plants and Artedi pursuing fishes. When Artedi was about to publish his monograph on fishes, he wound up dead in an Amsterdam canal.

Artedi and Linnaeus had promised that if anything happened to one of them, the other would see that his work was published. Linnaeus did publish all of Artedi's manuscripts, but he waited three years to do so! In the interim, he published his own work, using Artedi's approaches and methodology in his books on plants.

Understand, this was an implication, not proof of wrongdoing. Even so, why would Linnaeus wait so long to publish Artedi's works? And why would he allow Artedi to be buried as a pauper, in an unmarked grave? The obvious answer is he wanted to be first to publish the innovative ideas that Artedi had come up with, and to make sure that Artedi was forgotten while his own legacy would be assured for future generations.

So there's good reason to believe that Artedi's death benefited Linnaeus enormously. And this creates a good premise for delving into some fiction. Every ichthyologist hears this story, and no one has ever suggested it was anything but an accident; yet, I really don't think it was an accident. ■



Louis Renard, 1719

Alumni Updates

Stephanie Carlson

PhD 2006: The evolutionary effects of bear predation on salmon life history and morphology

Stephanie Carlson is an assistant professor in the Department of Environmental Science, Policy and Management at the University of California (UC) Berkeley, where she focuses on the evolutionary ecology of freshwater fishes.

Growing up in Sacramento, Stephanie spent a lot of time near the confluence of the American and Sacramento rivers, which she credits as influencing her career path. Biology was her favorite subject in school and, initially, she considered going into medicine. Indeed, as an undergraduate at UC Davis, she was on a pre-medicine track until Professor Peter Moyle lured her into fish ecology: “His enthusiasm was contagious and it is because of his passion that I changed my entire career direction.”

Stephanie’s work with Moyle’s group motivated her to attend graduate school: She said, “With each new experience I realized that I had much left to learn.” For her MS degree, she attended the University of Massachusetts at Amherst, where she met a postdoc fellow—SAFS alumnus Andrew Hendry (UW ’98). Fueled partly by discussions with Hendry, who “raved about his experiences with the SAFS Alaska Salmon Program (ASP),” Stephanie applied to our PhD program. She joined the ASP, with Tom Quinn as her adviser, so she could study salmonids in a relatively pristine environment.

At SAFS, Stephanie examined the evolutionary effects of bears on salmon populations. She spent several seasons in the field in Alaska, tagging and tracking individual fish and quantifying how salmon lifespan and size-selective predation by bears differed among creeks. She also served as the TA (teaching assistant) for the Alaska field ecology course taught by professors Tom Quinn, Ray Hilborn, and Daniel Schindler.

Stephanie elaborated: “The TA work enabled me to get involved in several side projects with students and to serve as an informal mentor to many of them. These interactions were among the highlights of my doctoral training, and helped me realize that I would enjoy a career that involved research and teaching.”

Stephanie gave high marks to her adviser: “Tom is a prolific writer and he involved me in writing projects



Courtesy of Stephanie Carlson

immediately and regularly, which helped me to become comfortable with scientific writing. Moreover, he is an outstanding teacher and mentor, and I learned a lot through direct observation that I am now applying in my own classes and interactions with students at UC Berkeley.”

After graduating from the UW, Stephanie received a National Science Foundation Postdoctoral Fellowship in Biological Informatics to work with Marc Mangel and Thanos Kottas at UC Santa Cruz—she credits Ray Hilborn for opening a door to this position. During the fellowship, she examined size-dependent over-winter mortality in sticklebacks, using long-term data collected by the Alaska Salmon Program.

At UC Berkeley, Stephanie continues to examine the influence of predators on wild populations, but with a focus on human predators as agents of trait change. She and her students are examining juvenile steelhead ecology in an intermittent stream and the influence of land use on the distribution and abundance of fishes in streams flowing into San Francisco Bay.

Stephanie concluded: “I cannot overemphasize the role SAFS has played in advancing my career. SAFS researchers are top-notch, and my interactions with faculty and students stretched my thinking in numerous areas.” She acknowledged the generous financial support that SAFS endowments provided: “I received more than two years of support from the Keeler Fellowship, which provided opportunities to focus on research and writing.” ■

Carmen Wiseman

MS 1996: Seasonal dynamics of cladoceran zooplankton in water bodies of the conterminous United States: Do regional patterns exist?

Carmen teaches grades 3 and 4 in New Westminster, British Columbia (BC). In hindsight, this career choice seemed inevitable and clearly benefited from her SAFS education.

Carmen grew up in Lexington, Kentucky, where her father, a professor of microbiology at the University of Kentucky, encouraged her interests in biology and nature. She noted, “The goldfish pond he built in the backyard sparked my passion for fish. My dad was one of the best teachers I’ve ever known.”

After earning a BA in Spanish and Linguistics at Macalester College in Minnesota, and working for many years as a writer and editor, Carmen reacquainted herself with aquatic science by volunteering at the New England Aquarium (NEA). This led to a job as a research technician on an NIH-funded project, investigating fish hyperostosis. She said, “We were possibly the first group to use fishes as models for human bone diseases.”

Her NEA experience motivated her to take science courses and then look for a graduate program. When asked why she chose SAFS, she explained: “I was interested in aquatic toxicology and fish diseases. SAFS offered diverse academic and research possibilities.” Another attraction was the Salmon in the Classroom (SIC) program, which brought thousands of K–12 students to the SAFS hatchery pond to learn about salmon.

Working with SAFS faculty member Frieda Taub, Carmen studied large-bodied cladoceran zooplankton (daphnids) and fish–zooplankton interactions in US lakes. She also worked as a TA, a tutor, and a volunteer and program coordinator for SIC. She explained: “I did SIC outreach at Seattle elementary schools. I also created a ‘portable stream’ for teaching kids about salmon spawning and a salmon migration board game.” Through these activities, Carmen realized that she loved working with elementary school students.

After SAFS, Carmen worked on various research projects, but eventually went back to school, this time enrolling in the University of BC Teacher Education Program, where she earned a Bachelor’s in Education. (She is currently working on an MS degree in special education.)

As a teacher, Carmen participates in and often coordinates the BC program equivalent of SIC—“Salmonids in the Classroom.” She spoke to the importance of salmon in educating school children:

“Salmon are iconic in BC, so it’s a given that I teach my students about these wonderful fish. When I tell the kids that we’ll be studying salmon, they begin to purr! Through salmon, I teach about BC First Nations art, culture, and respect for the environment; the effect of development on and preservation/restoration of habitat; and the effects of pollution, overfishing, and climate change on development and migration.”

Carmen added, “These kids become personally attached to the salmon they raise in the classroom. This may make them think twice about practices that could harm ‘their’ salmon.” Carmen credits SAFS with giving her the background to teach about salmon, aquatic communities, fish behavior, and more. She said, “I have a stockpile of information most elementary teachers lack. Also, my perspective enhances my students’ understanding of the importance of science, especially biology, in their day-to-day lives.” ■



Courtesy of Carmen Wiseman

—From the Director, continued from page 1

of hatcheries on wild populations, use of marine protected areas for conservation, water regulation and health of salmon, habitat restoration, and the global freshwater crisis.

News media, government panels, citizen oversight committees, and hundreds of individuals ask us for our opinions in formal testimony, keynote addresses, and as expert witnesses on numerous issues that affect the health of aquatic systems and resources, and the people who depend upon them.

Your ongoing support helps us to meet the challenge

We *are* doing more! Perhaps with less support from the State, but nonetheless, we are building for the future with ongoing generous support from you...our alumni and friends. ■

Alumni News

Going Online

Starting this year, our newsletter will be published online twice a year, and only the autumn–winter issue will be printed. The economic climate motivates us to save money where possible, but this change also will help us reduce our carbon footprint. And, it will enable us to be more flexible with our content as well as eventually provide you with a richer, more interactive experience. To ensure that you receive the online newsletter, please send us your name and email address using the Alumni Update webpage listed below.

What's Up?

We would like to hear from you. Please use the webpage listed below to tell us about your activities, recent and past.

<http://depts.washington.edu/safs/alumni/update.html>

Note: All information you provide to the UW is confidential.

For more information on our privacy policy, please see <http://washington.edu/itconnect/policy/privacypolicy.html>

If you have any questions or need more information, please contact:

Marcus Duke
email: mduke@uw.edu
phone: 206-543-4678

Gifts 2009–2010

During 2009–2010, our SAFS alumni, faculty, and friends continued their long-standing, critical role in supporting our programs through their generous financial gifts. We acknowledge and thank our many benefactors for their sustained support.

Up to \$1,000

Mr. and Mrs. Abdul S. Alidina
Dr. and Mrs. Dayton L. Alverson
Mr. Greg Anderson & Ms. Patsy Dickinson
Mr. and Mrs. Robert D. Anderson
Dr. Jill B. and Mr. Murray M. Andrews
Elizabeth A. Babcock, PhD
Mr. Jon D. Baker and Ms. Anne Windsor
William Henry Bayliff, PhD
Mr. and Mrs. Kirk T. Beiningen
Mr. and Mrs. William C. Bemis
Mr. and Mrs. Mark A. Bentler
Ms. Christine C. Betchley
Mr. and Mrs. Jim Bodding
Mr. Richard E. Bohn
Ms. Barbara Brock
Prof. Robert L. Burgner
Dr. David Atherton & Ms. Moira Campbell
Dr. and Mrs. Rick D. Cardwell
Dr. and Mrs. Bobb Carson
Mr. and Mrs. Forrest E. Carvey, Jr.
Mr. and Mrs. Joe Chew
Mr. and Ms. Egon Christensen
Mr. and Mrs. David A. Croonquist
Mr. Creth E. Cupp
Mr. and Mrs. Michael B. Dell
DEZCO International, Inc.
Mr. Dennis H. Di Julio
Ms. N. McHenry Dirks and Mr. G. Dirks
Dr. and Mrs. Frederick H. Dore, Jr.
Mr. Benjamin T. Eastham
Mr. and Mrs. Quentin A. Edson
Dr. Diane and Mr. Richard Elliott
Mr. and Mrs. Gerald M. Erickson
Dr. Timothy Essington
Esterline Technologies Corp
Mr. and Mrs. Earl L. Finn, Jr.
Mr. and Mrs. Edward A. Firsch
Mr. and Mrs. Grant I. Fiscus
Ms. Andrea Fowler
Mr. and Mrs. Kurt L. Fresh
Mr. and Mrs. Avi Friedman
Carolyn S. Friedman, PhD
Ms. Sharon F. Frucci & Mr. Max Auguste
Jeffrey K. Fryer, PhD
Mr. and Mrs. James M. Gearheard
Mr. and Ms. Robert J. Gerke



Photo: Jeremy Monroe

Mr. Larry Kenneth Gifford
Ms. Domoni R. Glass
Mr. and Mrs. Fred A. Goetz
Donald R. Gunderson, PhD
Ms. Mary J. Hamilton
Mr. Ray A. Hanowell
George Y. Harry, Jr., PhD
Mr. and Mrs. Jim Heg
Mr. and Mrs. Thomas L. Herzig
Mr. and Mrs. Richard W. Hicklin
Dr. and Mrs. John W. Hitron
Mr. and Ms. David G. Holcomb
Mr. James Hannah and Ms. Jo Ellen Hose
Mr. and Mrs. Robert Howard
Mr. and Mrs. Robert G. Ingraham
Mr. and Mrs. Daniel H. Ito
Mr. Ronald A. Iverson
Mr. Michael A. Jacobson
Mr. and Mrs. Howard E. Johnson
Ms. Jane W. Jung
William A. Karp, PhD
Mr. and Mrs. Donald Keith, Jr.
Mr. and Mrs. David T. Kuhlman
Ms. Sharon Marie Lind
Mr. and Mrs. John B. Linth
Prof. and Mrs. John Liston
Ms. Mary W. Lo
Jan and Bill Localio
Mr. and Ms. Robert E. Loeffel
Mr. and Mrs. Richard L. Major
Maland-Ilg Charitable Trust
Ms. Rochelle Anik Manwaring
Mr. and Mrs. Curtis L. Marshall
Dr. and Mrs. Douglas J. Martin
Martin Environmental
Mr. and Mrs. Joseph Matsuzaki
Kathleen R. Matthews, PhD
Ms. Sarah G. McCarthy
Dr. and Mrs. John W. Meldrim
Mr. Edward F. Melvin
Microsoft Corporation
Bruce and Aase Marie Miller
Dr. Jessica Miller and Mr. Edward Backus
Modutech Marine, Inc.
Mr. John T. Moseley
Mr. Jamal H. Moss
Mr. and Mrs. Karl Warner Mueller
Dr. Katherine W. and Mr. John A. Myers
National Fish & Wildlife Foundation
Mr. and Ms. Richard J. O'Connor
Janet D. Osborn
Mr. and Mrs. Jeffrey G. Osborn
Mr. Tom Oswald, Jr.
Dr. Dora R. M. Passino-Reader
Mr. and Mrs. Thomas H. Peck
Mr. and Mrs. Mark G. Pedersen

Ms. Evelyn D. Pedersen
Mr. George R. Pess
Prof. G. Pigott and Dr. B. Tucker-Pigott
PNA Master Swimmers
Mr. Kim Heidebrink & Ms. Victoria Poage
Mr. Richard J. Poelker
Ms. Pamela J. Pope
Mr. and Mrs. David A. Power
Ms. Hannah Proctor
Propeller Club of the U.S.
Prof. and Mrs. Andre E. Punt
Robert & Evelyn Pedersen Family Foundation
Dr. and Mrs. Kenneth A. Rose
Dr. and Mrs. Gary T. Sakagawa
David B. Sampson, PhD
Dr. Daniel Schindler & Ms. Laura Payne
Mr. and Ms. Dean M. Schwicherath
Drs. James E. and Lisa W. Seeb
Mr. Christopher J. Sergeant
Mr. Allen M. Shimada
Ms. Phyllis Ann Shoemaker
Dr. and Mrs. Chinhua H. Sigler
Mr. and Mrs. Lyle Simpson
Dr. Denise Skonberg and Mr. John Crocker
Mr. Cory Smith & Ms. Roberta Connelly
Mr. and Mrs. Earl N. Steele
Mr. Jeremy T. Sterling
Mr. Ian J. Stewart
Mr. Dan B. Strombom & Ms. Nona Henderson
Mr. and Mrs. Robert D. Sullivan
Mr. and Mrs. Mervin D. Swanson
Terrapin Environmental
Dr. and Ms. Richard E. Thorne
Ms. Valerie J. Thorson
Mr. Lyman Thorsteinson
Mr. and Mrs. Howard R. Traver
Mr. Richard Harris & Ms. Patricia Tynan
Dr. and Mrs. Carl F. Tyner
Ms. Amy S. Unthank
Mrs. Lois E. Van Hyning
Drs. S. Rao and Usha S. Varanasi
Mr. Christopher J. Volk
Mr. Edward J. Volz
Mr. and Ms. Stephen R. Weeks
Mr. and Mrs. David Weigand
Mr. and Mrs. Michael A. Wert
Mr. and Ms. Donald C. Wheeler
Mr. Mark E. Wilkins
Ms. April M. Wilkinson
Mr. Brian W. Williams
Mr. R. Nelson & N. Mrs. Williams-Nelson
Dr. Roger Wingert & Ms. Janet Ilg-Wingert
Dr. James Winton and Ms. Linda Park
Mr. Hanspeter Witschi
Ms. Yvonne E. Woelke
Mr. and Mrs. Timothy P. Zadina

Dr. Helen R. Zakour
Dr. Richard A. Zakour
Mr. M. Zimmermann & Ms. B. Hacker

Up to \$10,000

James J. Anderson, PhD
Applied Biosystems Group
At-sea Processors Association
Ms. Tanya L. Bevan
Coffee Point Seafoods of WA
Dr. Conquest and Mr. Von Kleinschmidt
Fidelity Investments Char Gift Fund
Fisheries Scholarship Fund
Ms. Yasuko T. Fukano
Prof. Vincent F. and Betty J. Gallucci
Dr. and Ms. Ray Hilborn
Leader Creek Fisheries Inc
Michael A. Liguori, MD
Marine Biological Laboratory
North Pacific Seafoods, Inc.
Mr. T. C. Ohaus & Ms. L. M. Kristofic
Pacific Seafood Process Assn.
Julia K. Parrish, PhD
Snopac Products, Inc.
Prof. Frieda B. and Mr. Jack H. Taub
Wally Pereyra Charitable Fund
Dr. and Mrs. John G. Williams

More than \$10,000

Alaska General Seafoods
American Sportfishing Association
Aquatic Ecosystem Restoration Foundation
Clairmont/Evelyn Egtvedt Charitable Trust
Estate of Evelyn S. Egtvedt
Fluidigm Corporation
Estate of Dorothy T. Gilbert
Gordon and Betty Moore Foundation
Ms. Anne Hill
Mr. Larry D. Hill
Icicle Seafoods, Inc.
Ocean Beauty Seafoods, Inc.
Pacific Shellfish Institute
Quinault Indian Nation
Roche Diagnostics Corporation
Trident Seafoods Corporation
Yardarm Knot, Inc.

Make a gift

<http://fish.washington.edu/fund>

Life on (and in) the High Seas

The High Seas Salmon Program

<http://fish.washington.edu/highseas>

In 1953, College of Fisheries Director W. F. Thompson initiated the School's High Seas Salmon Program to help determine how many Pacific salmon from North America were being "intercepted" by the Japanese high-seas driftnet fishery.

In 1955, the International North Pacific Fisheries Commission (INPFC)—comprising Japan, Canada, and the USA—was formed to determine the oceanic migration patterns of Asian and North American salmon. The School's High Seas staff was contracted to conduct the tagging studies.

In the mid-1960s, the High Seas team focused on the marine life history of major North American salmon stocks. While the foci have changed over time, the goal has always been to improve the management and conservation of Pacific salmon and steelhead.

The Japanese driftnet fishery for salmon and squid was ultimately closed in 1992. This coincided with the expansion of the INPFC to include Russia (and later South Korea), and its name change to the North Pacific Anadromous Fish Commission (NPAFC).

A reduction in historical sources of funding, along with departures of long-term staff—three who have been with the program since the early 1980s—signifies a new phase. Staff members Kate Myers, Trey Walker, Nancy Davis, and Jan Armstrong reflected on the life and times of the program.

MD: After the driftnet fishery closed, what did you study?

KM: The closure of the Japanese driftnet fisheries meant there was no more funding for fisheries research, so the whole program shifted to a more ecological emphasis.

Through the NOAA Fisheries Auke Bay Lab, we became the US high-seas researchers for the NPAFC. When funding was cut in 2005, however, we started doing research outside of the NPAFC, including US GLOBEC research on Prince William Sound pink salmon, Arctic-Yukon-Kuskokwim Sustainable Salmon Initiative research on Chinook salmon in the Bering Sea, and Washington Sea Grant research on steelhead in the North Pacific Ocean.

MD: As a team, you each have your specialty, yet you also share the workload.

KM: The program was always staff-run. We decided the best approach was for everybody to work at all levels, from lab tech to lead investigator. That way, nobody would

be irreplaceable or lack the skills or knowledge to run the program!

MD: Jan, you're the "youngest" member of the team.

JA: I joined in 2000 to work with SAFS faculty Dave Beauchamp and his students on Prince William Sound pink salmon. We investigated sources of pink salmon, including hatchery fish, as well as salmon diet, using bioenergetics modeling and growth studies.

A highlight was our study on larvacians and pteropods in the diets of early outmigrating pinks. This became a very hot topic because of the effects of ocean acidification on pteropods, which are an important food source for young pink salmon—60% of their diet.

MD: Trey, you've been studying salmon vertical distribution using electronic data storage tags.

TW: Since 1998, we have tagged more than 1,000 salmon, recovering about 100 of them. We were surprised to learn about the diurnal patterns of salmon—they are on the surface at night and up and down during the day. We also found that depth distribution varied across species. Recently, I've been working on a North Pacific Research Board project on overwinter survival of Chinook salmon at sea, which runs through June 2012.

MD: Beyond 2012, funding is uncertain, but there are still many unanswered questions.

TW: To really know what's going on in the ocean, you need a committed research effort, and not just for salmon. For example, since the high-seas driftnet fishery ended, flying squid have not been fished in the central North Pacific. That's an enormous resource that's not being tapped. And mesopelagic fish represent another potentially huge resource. We need to know how to fish these resources effectively and sustainably.

MD: Nancy, you're the "queen of the high seas!"

ND: [Laughs] In 1989, I started going on research cruises, racking up more ship time than my three colleagues combined. I originally went as an observer, but Kate encouraged me to do my own research. I didn't want to interfere with other researchers' work, so I found something no one else was doing—salmon diets.

—continued on back page

Awards & Honors

Undergraduates

Audrey Djunaedi was named Udall Scholar for 2010 by the Morris K. and Stewart L. Udall Foundation. The award supports sophomores and juniors who are committed to careers related to the environment, tribal public policy, or Native American health care. Audrey also participated in the SAFS Departmental Honors program, received multiple SAFS scholarships, and was selected as a NOAA Ernest F. Hollings Scholar.

Mary Gates Awards

Sasha Troiano and **Rachel Thompson** were awarded Mary Gates Scholarships, which help fund undergraduate research. Recipients present their research at the UW Undergraduate Symposium. Sasha presented a poster on “Exposure of shiner perch to carbaryl following applications to control burrowing shrimp;” Rachel’s poster was focused on “Ocean acidification and the general stress response of the oyster *Crassostrea gigas*.”

In addition, several SAFS students received Mary Gates awards through their participation in research, apprenticeships, and courses at the Friday Harbor Labs:

AnneMarie (Kaza) Ansley, Jeff Benca, Lauren Colpo, Sean Luis, Katherine Stanton, and Rebecca Stombaugh.

Joel Kramer was granted a Mary Gates Leadership Award, which helps students devote time to developing leadership skills.

Graduate Students

Degree track and faculty advisers in parentheses.

Bethany Craig (MS, Simenstad) was one of three UW students awarded a Dean John A. Knauss Marine Policy Fellowship for 2011. This fellowship enables graduate students to work for one year on the staff of the US Congress or with a federal agency that addresses marine issues.

Matt Smith (MS, L Seeb) netted the Best Student Paper award at the SNP Workshop III sponsored by the American Fisheries Society, Genetics Section. His paper was titled “Multiplex pre-amplification and SNP genotyping of sockeye salmon (*Oncorhynchus nerka*) scales: a forty-five year retrospective of catch compositions in Bristol Bay.”

Eric Larson (PhD, Olden) was awarded the William Trachtenberg Memorial Scholarship, sponsored by the Sustainable Fisheries Foundation and the American Fisheries Society Western Division. The scholarship supports students studying fisheries sustainability.

Steve Barbeaux (PhD, Horne) won Best Oral Presentation–PhD Level at the Alaska Marine Science Symposium, Anchorage, for his talk, “Using cooperative acoustic surveys to manage small-scale fisheries in sensitive habitat: Aleutian Islands cooperative acoustic survey studies.”

Lisa Crosson (MS, Friedman) hooked the Best Student Presentation award at the 64th Annual Shellfish Conference and Tradeshow, sponsored by the National Shellfisheries Association and Pacific Coast Shellfish Growers Association. Her talk was titled “Influence of rickettsial pathogens on endangered black abalone: differential susceptibility and host response.”

Rachel Arnold (PhD, Pietsch) was awarded the Ernst Mayr Travel Grant by the Museum of Comparative Zoology, Harvard University. This award funds travel and expenses for students conducting animal systematics research at museums.

Aaron Galloway (PhD, Duggins/Summers [Friday Harbor Labs]) was awarded the American Academy of Underwater Sciences’ Kathy Johnston Scholarship for PhD students. This award will fund a portion of his doctoral research, which involves algae collection and extraction of fatty acids from algae.

Faculty

Last summer, **Loveday Conquest** became the first recipient of the College of the Environment’s Outstanding Teaching Faculty Award. She was recognized for her devotion to quality training in quantitative science and her efforts and creativity in teaching subjects critical in the training of natural resource professionals and environmental scientists.

Ray Hilborn, Ted Pietsch, and Tom Quinn were elected to the Washington State Academy of Sciences. The Academy provides expert scientific and engineering analysis to inform public policy-making, and works to increase the role and visibility of science in the state of Washington. **Quinn** was also honored by the American Fisheries Society with the Excellence in Fisheries Education Award in recognition of his years of outstanding teaching and advising. ■

Degrees Awarded, Spring–Summer 2010

Our student research encompasses numerous and diverse disciplines, including biology, ecology, disease, toxicology, genetics, statistics, and physiology—as well as interdisciplinary subjects—in pursuit of improving our understanding of the interactions between humans, our environment, and the resources upon which we rely. (Advising professors in parentheses.)

BS Degrees

Christopher R. Biggs
Thaddaeus J. Buser
Andrew Cheung
Benjamin W. Frable, *cum laude*,
double degree Biology
Crystal M. Franco
Molly P. Gorman
Ava M. Heston
Jessica J. Jang
Kaitlyn M. Martel, *double degree Anthropology*
Anna K. Mclasley, *summa cum laude*
Sophie P. Pierszalowski, *cum laude*,
double major Biology
Erika J. Pinney
Sean K. Rohan
Katherine O. Stanton, *double degree Philosophy*
Paul (Frank) F. Stevick, *double degree ESRM*
Rachel L. Thompson, *cum laude, with Distinction*
Steven V. Tobin
Alexandra (Sasha) T. Troiano, *summa cum laude*,
with College Honors, double degree Biology

MS Degrees

Michael Ackerman (L Seeb) Mixed stock and landscape genetics analyses of sockeye salmon in the Copper River, Alaska, using SNPs
Megan Atcheson (Mantua) Interannual variation in steelhead trout (*Oncorhynchus mykiss*) diet, growth and consumption in North Pacific marine ecosystems
Amanda Bruner (Young) Teratogenic and sublethal effects of tributyltin on the threespine stickleback fish, *Gasterosteus aculeatus*

Jackie Carter (Schindler) Responses of zooplankton populations to four decades of climate warming in lakes of southwestern Alaska
Bethany Craig (Simenstad) Life history patterns and ecology of juvenile coho salmon (*Oncorhynchus kisutch*) within a tidal freshwater estuary
Elisabeth Lisa Creelman (Hauser) Genetic structure of sockeye salmon (*Oncorhynchus nerka*) in the Chignik watershed, Alaska: applications to identifying stock-specific juvenile emigration patterns
Chris Eaton (Simenstad) Resource partitioning, habitat connectivity, and resulting foraging variation among salmonids in the estuarine habitat mosaic
John Frew (Grue) Development of a new method for the determination of residues of the neonicotinoid insecticide Imidacloprid in juvenile Chinook using ELISA detection
Maureen Goff (Simenstad) Evaluating habitat enhancements of an urban intertidal seawall: ecological responses and management implications
Sarah Heerhartz (Simenstad) Evaluating the ecological performance of nearshore fish habitat enhancements in an urbanized estuarine bay in Puget Sound, Washington
Laura Johnson (Simenstad) Ecology and natural history of the freshwater tidal forested wetlands of the Columbia River Estuary
Errin Kramer-Wilt (Simenstad) Habitat preferences and interactions with macrobenthos of the non-indigenous Asian clam, *Corbicula fluminea*, in a restoring freshwater tidal marsh, Sacramento River delta

40th SAFS Celebration

Every fall, we acknowledge students who received endowment awards and the donors who made those endowments possible. Thanks to the generosity of our alumni and friends, we can continue to recruit outstanding students and provide financial support for their education and research. The following awards were granted for the 2010–2011 academic year. We also thank our donors whose funds were not used this year.

Molly McGlauffin (J Seeb) Influences of spawning habitat and geography: population structure and juvenile migration timing of sockeye salmon (*Oncorhynchus nerka*) in the Wood River lakes, Alaska

Casey Ruff (Schindler) Implications of habitat heterogeneity for foraging strategies of stream-dwelling fish

Matthew Smith (L Seeb) Genetics provide a forty-five year retrospective of sockeye salmon (*Oncorhynchus nerka*) harvest compositions in Bristol Bay, Alaska

PhD Degrees

Kristy Forsgren (Young) Regulation of development of primary and early secondary ovarian follicles of coho salmon (*Oncorhynchus kisutch*) by sex steroids

Douglas Kinzey (Punt) Multispecies stock assessment with predator–prey interactions

James Murphy (Anderson) Spatial dynamics of the Eastern Bering Sea snow crab

Russell Perry (Skalski) Survival and migration dynamics of juvenile Chinook salmon (*Oncorhynchus tshawytscha*) in the Sacramento–San Joaquin River Delta

Melvin G. Anderson Scholarship in Fisheries

Joseph Bizarro, Rachel Hovel

Donald E. Bevan Endowed Fund in Fisheries

Supports the annual Bevan Series on Sustainable Fisheries

John N. Cobb Scholarship in Fisheries

Erik Schoen

Lauren R. Donaldson Scholarship

Louisa Harding

Claire L. and Evelyn S. Egtvedt Fellowship

Adam Hansen, Susan Johnson

Fisheries Graduate Fund

Adam Hansen

Fisheries Miscellaneous Scholarship

Susan Johnson

Graduate School Top Scholar Award

Rachel Lange

John E. Halver Fellowship

Emma Timmins-Schiffman

Institute for Food Science Technology

Bridget Ferris

Roy Jensen Research Fellowship

Louisa Harding

H. Mason Keeler Endowment for Excellence

Jonny Anderson, Joseph Anderson, Matt Baker, Joseph Bizarro, Rachel Hovel, Iris Kemp, Neala Kendall, Wes Larson, Emily Runnells, Jim Thorson, Daniel Widener

H. Mason Keeler Lake Washington Fund

Joseph Anderson

Vincent Liguori Fellowship

Jonny Armstrong

Shao-Wen Ling Memorial Scholarship

Jim Torson

Victor and Tamara Loosanoff Fellowship

Wyatt Fournier, Mackenzie Gavery, Sam Urmy

Gerald J. Paulik Memorial Fund

Adam Hansen

John G. Peterson Scholarship

Mackenzie Gavery

William H. Pierre, Sr. Fellowship

Pamela Woods

Samuel and Althea Strom Scholarship

Louisa Harding

Richard T. Whiteleather Fisheries Endowed Scholarship

KathiJo Jankowski-Giefer



School of Aquatic & Fishery Sciences
1122 Boat Street NE
Box 355020
University of Washington
Seattle, WA 98195-5020
<http://fish.washington.edu>

Non-profit Org.
U.S. Postage
PAID
Seattle, WA
Permit No. 62

—*Life on (and in) the High Seas, continued from page 8*

MD: But now you're moving on.

ND: I've accepted a position as deputy director for the NPAFC, so I will be working in Vancouver, BC, for the next three years. My major activities will include organizing and producing the Commission's publications, yearly workshops or symposia, and monitoring the progress of research under the new NPAFC 2011–2015 Science Plan.

MD: Kate, how has the program changed since the 1980s?

KM: We started doing more work outside the INPFC program, becoming the go-to people for scale pattern analysis in support of stock identification. For example, recently a Chinook salmon environmental impact statement used our work for developing estimates of salmon bycatch in the Bering Sea pollock fishery.

MD: As project leader, what were your duties? Also, will you remain involved with the program after retiring?

TW: Kate did most of the writing, including all the proposals that kept us going.

KM: Besides that, I do consider myself an expert on ocean distribution and migration patterns of salmon.

After I retire, I will continue to do some work. For example, I'll be writing a chapter on steelhead for a book on salmon ocean life history that the NPAFC will publish.

For more information on the High Seas Salmon Program, please contact Trey Walker, rvwalker@uw.edu, 206-543-7281. ■

AQUATIC & FISHERY SCIENCES NEWS

The *Aquatic & Fishery Sciences Newsletter* provides current information on teaching, research, and service.

Comments are welcome.

Director *David Armstrong*

Associate Director *Julia Parrish*

Writer & Editor *Marcus Duke*

Graphic Designer *Cathy Schwartz*

Please call Marcus Duke at 206-543-4678
or email mduke@u.washington.edu

I wish to discontinue receiving this publication.

My address has changed and I have made corrections to the label. Please mail this to the return address provided above.