

AQUATIC & FISHERY SCIENCES

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

<http://fish.washington.edu>

Students First Campaign

NEARING SUCCESS...WITH YOUR HELP

In our fall newsletter, an article about the SAFS Students First Campaign ran on page 8. Now, it's Front Page news as we report huge success in efforts over the last several months to reach our goal of \$100,000 in pledges. I have been amazed by the giving of so many people who have voiced such strong support for the School in general and this endowment campaign in particular. Clearly, the focus on undergraduate and graduate students with financial need resonates with the many people who have pledged contributions at whatever level they feel able to provide.

Many comments have come directly in meetings with individuals at lunch, over coffee, and by email. One alum captured the spirit of looking back later in life to reflect on the education and opportunity provided by SAFS when he wrote:

Certainly, as an alum, I feel the draw to help support the institution which shaped my future and provided educational and professional opportunities to me. Much of what I have today and where I am going

is in part a result of the School of Aquatic and Fishery Sciences. I would be pleased to support your campaign...it is the least I can do to honor the institution and support the future of sustainable fisheries.

—Dr. Wally Pereyra, UW '61, '67

Many of the alumni and friends who attended the Washington Weekend SAFS Alumni Brunch on Saturday, April 26, voiced similar recollections and reflections. They represented every decade from the 1940s (Henry Simonson, BS 1940, "College of Fisheries" in his time) to the present.

A fascinating and enjoyable part of my job as Director is the opportunity to meet with alumni and hear them praise the experiences and education they received from SAFS and convey their willingness to help ensure the ongoing health and success of the program.

Campaign Co-Chair John Williams (UW '69, '75, '78) and I are very pleased to tell you that more than \$80,000 has been pledged to date. This campaign ends June 30, 2008. Will

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Students First Campaign

you please help us reach our \$100,000 goal? Some important Campaign features to consider:

- We have established a “consortium” endowment, meaning that any number of people and organizations can contribute.
- If we reach or exceed our \$100,000 pledge goal before June 30th, 2008, the University will *match* that amount by \$50,000 or more.
- An endowment of that scale provides significant annual revenues to be used by our Admissions Committee as awards to help students in need.
- Once a pledge is made, contributors have five years to provide the funds—at any rate, in any amounts.

SAFS is committed to providing broad participation as a way of enhancing diversity among those who seek an education in our program. The Students First Campaign fosters this spirit of inclusion.

We are close to our goal, but we do need your help. Please contact Cara Mathison at 206-685-1456 or caram@u.washington.edu for more information about the program and process of pledging. And, of course, please contact me as well if I can help answer questions.

—David Armstrong

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

From the Editor

Where in the world are our students and what are they doing? They are gaining valuable educational experiences through activities that range from the classrooms and labs of the UW to field sites that span the Northeast Pacific—from Washington to Alaska, Hawai'i, and the Russian Far East...and beyond.

In previous issues, we have written about the opportunities our students have in pursuit of their education at SAFS. This time, we sought a different viewpoint—the students' perspective—and asked them to tell us about their experiences first-hand.

On the following pages, our students describe aspects of their education that stand out. All relate stories that reflect the value they have derived from their education at SAFS—whether in classrooms, conducting research, or communicating with stakeholders about their work.

Most of the articles are framed in the context of a single day—a “day in the life” snapshot. One undergraduate chose a broader perspective, describing why he pursued a particular topic that ultimately became the focus of his senior research project.

As our students note, their experiences often are made possible thanks to financial support provided by you, our alumni and friends. Your continuing generosity enables them to engage in activities that will enhance their careers and their lives. ■

Matt Smith

Faculty Mentor: Kerry Naish

I first became interested in fish as a youth spending my summers fishing and camping with my grandfather in northern Wisconsin. I had an insatiable curiosity regarding the fish in the lakes we fished and my grandfather's answers only sparked more questions. Since then, I have spent countless hours on rivers and lakes in Wisconsin and Washington, fishing and paying close attention to why I value nature. These experiences, along with my curiosity, inspired me to help conserve and protect these amazing resources, ultimately leading me to SAFS.

At the School, I've become interested in the role that genetics plays in determining conservation strategies. Two courses I took were particularly inspiring: Lorenz Hauser's *Genetics and Molecular Ecology* and Kerry Naish's *Conservation Genetics*. Lorenz and Kerry's courses and support have helped develop my interest in the genetic basis and theory behind conserving biological diversity, critical for the long-term survival of fish populations. By investigating methods to improve our ability to monitor and maintain a population's biodiversity, I hope to help fishery managers make better decisions regarding how to best achieve sustainable harvests.

I have been working as a lab and field technician with Erin Lowery, a graduate student working with Professor Dave Beauchamp, examining the ecological and trophic interactions of bull trout on the Skagit River. This inspired my interest in the genetic population structure of this fish population. With Kerry's help, and funding from SAFS, I have developed my Capstone Project to establish a genetic baseline and examine gene flow in the adult bull trout population within the study reach. Hopefully, this information will help us better understand how bull trout use habitat within this reach.

A typical day pursuing my project entails sampling bull trout on the Skagit River with hook and line angling: no easy task, but it sure is fun. Most days in the field are spent collecting samples, fishing from a drift-boat, wondering how to convince everyone that this is work! After collecting the samples,



processing them involves recording their length and weight and obtaining their diets, scale samples, and a fin clip used for stable isotope and genetic analysis.

My experience gained as a technician on this project has been immense. In the field, I have learned several methods of data collection including angling, electro-fishing, trapping, and snorkel surveys. In the lab, I have been exposed to methods used to tease apart the ecological and trophic interactions of a species through the analysis of growth and diet data.

Working closely with a graduate student and developing a Capstone Project based on my fieldwork has been extremely rewarding. The encouragement and support I have received from the people at SAFS have exceeded my expectations. Being able to choose from among various excellent research opportunities and to develop one's own project are crucial components that enable undergraduates to explore and refine their interests. I feel that SAFS consistently provides this essential framework to its undergrad students. ■



Photos: Erin Lowery

UNDERGRADUATES

Zachary Baldwin

Faculty Mentor: Ted Pietsch

I made the long-distance move to Seattle from my home—Plymouth, New Hampshire—with the express purpose of pursuing a major in Aquatic and Fishery Sciences. After my junior year in high school, I took a marine biology course. This, combined with a childhood of trips to the ocean with a father who was enthusiastic about marine life, led me to pursue the marine sciences. In my search for colleges, the School of Aquatic and Fishery Sciences stood out head and shoulders above the rest; thus, the decision to attend the program was an easy one. I have not been disappointed.

At SAFS, I decided to focus on fish systematics and biodiversity, and have been working in the UW Fish Collection under the direction of Ted Pietsch. A typical day combines working in the Collection; carrying out my teaching assistant duties for Ted's course, Biology of Fishes (Fish 311); and taking classes.

Most mornings, I come into the Fish Collection at 8:30 AM. The quiet of the early morning is appealing to me for getting work done. This morning, I work on a seemingly never-ending project, a taxonomic revision of the deep-sea fish genus *Trigonolampa*. The genus belongs to a diverse, yet poorly known group of fishes that comprise an extremely large biomass in the world's oceans. Assessing the basic diversity and natural history is the critical first step to understanding the importance of this group to oceanic ecosystems.

Thanks to a combination of a National Science Foundation Research Experience for Undergraduates grant and funding from private donors, I've been able to conduct research full time for the last three years. This has been crucial for my evolution as a student

Katherine Maslenikov: Trigonolampa: Zachary Baldwin

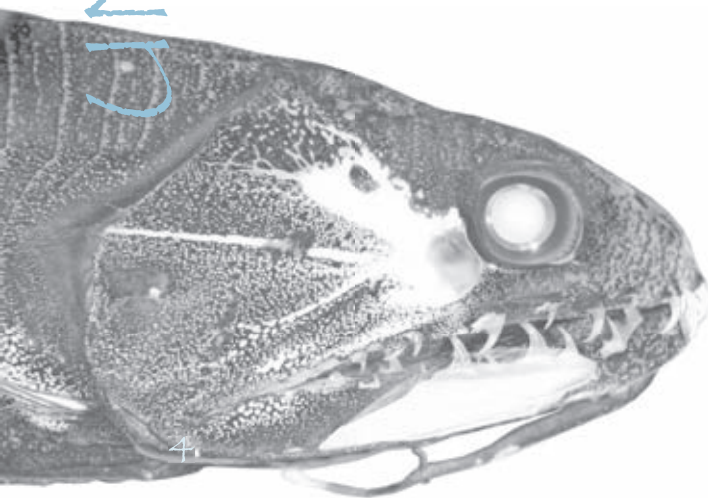


and as a future scientist. Conducting independent research has allowed me to develop my scientific writing skills, learn the publication process, further hone time-management skills, and think independently—all skills essential for a career in science.

Around 11:30 AM, it's time to head over to the Biology of Fishes lecture. This is the second year I've been a teaching assistant for this course—an invaluable experience to say the least. After the lecture, I have an hour to eat lunch and prepare for the course lab at half-past one. Today, we cover yet more fish biodiversity. The students gripe about all the names, but it is good for them. It is good for me as well: teaching a subject really reinforces it, and I usually learn a new thing or two myself.

After my last student leaves, I clean up the laboratory and head back to the Collection for another hour or two of work. Lately, I have made particular haste in finishing a few of my projects (that time-management skill again). I am moving to New York City this summer to start a PhD fellowship in comparative biology at the American Museum of Natural History. Hence, it would be nice to start anew without bringing *all* of my projects with me.

Assuming my work goes well over the next few months, I hope to finish at least three or four manuscripts before I graduate. "High time!" as some of my co-authors might say. It has been a challenge learning to balance a full-time course load with research. But at the end of the day, I am thinking that I have pretty well mastered it by now, and I head home to unwind for the evening. ■



Erik Schoen—Bringing Food Web Research to Managers and Anglers

PhD student, Faculty Advisor: Dave Beauchamp

As an undergraduate, I studied terrestrial ecology and was attracted to SAFS because of the big conservation implications of aquatic ecology, the strength of its quantitative curriculum, and the opportunity to spend time out in boats.

On a spring day last year towards the end of my MS work, I found myself driving to eastern Washington to present my research on aquatic food web interactions in Lake Chelan to local fishery managers and anglers:

I start out at 6:00 AM, grabbing a big cup of coffee and driving east over the Cascades to Wenatchee. By mid-morning, I'm talking with the Lake Chelan Fishery Forum: representatives of local, state, and federal agencies that jointly manage the fisheries resources of the lake. While SAFS endowments fund my tuition, these agencies provide the research budget for my MS work, and I'm here to present my findings and propose a second stage of research. The managers are interested in whether their conservation, stocking, and harvest policies make sense, given what we have learned about predator-prey relationships in the lake. My thesis advisor, Dave Beauchamp, joins the group via conference call.

My presentation is well received. It's gratifying to hear the fisheries manager from the Washington Department of Fish and Wildlife say that we are answering questions that they've been asking for 20 years. We finish the meeting with a verbal agreement for additional funding and input on research priorities for the next stage.

By late morning, I'm chatting with a veteran biologist for the Chelan Public Utilities District about *Mysis* shrimp and chinook salmon introductions into Lake Chelan in the '60s and '70s. Biologists have argued for years which species caused the lake's popular kokanee fishery to collapse. I'm studying the effects of these and other introductions on the lake food web.

At lunch, a Washington Department of Ecology biologist and I discuss the recent finding that Lake Chelan lake trout contain high concentrations of DDT, and the implications for the lake trout trophy fishery.

The first part of my day involved talking with the



Courtesy of Erik Schoen

people who manage the fisheries of Lake Chelan. Now it's time to talk with those who catch those fish. After lunch, I head up to Chelan along the Columbia River.

By late afternoon, I'm having dinner with Frank and Patricia Clark: Frank is president of the Lake Chelan Sportsman's Association, which has supported me considerably during my project. He fills me in on the stream restoration project he's been working on.

After dinner, I talk to the Lake Chelan Sportsmen's Association about my research. I've found great value in exchanging ideas with these anglers, and as usual, they are full of questions and opinions. When I started my research, they provided essential local knowledge and help with sampling and logistics. Now, it's good to share information with them on important species that they don't target, like *Mysis* shrimp and northern pike-minnow, and to quantify interactions they've observed anecdotally, like lake trout predation on kokanee.

At 9:30 that night, I head back to Seattle to catch a friend's MS defense the next morning.

Doing graduate research on a local resource management issue can be challenging, especially in developing research questions that are compelling both to agency managers and to a broader academic audience. Days like this make it all worthwhile, seeing that SAFS research has an engaged audience of resource managers and anglers ready to translate our science into policy. ■

Jonny Armstrong—A Field Day in Alaska

MS student, Faculty Advisor: Tom Quinn

As part of my research program in SAFS' Alaska Salmon Program (ASP), I spend every single day on the water studying fish all summer long. Despite consistent daily sampling protocols, I constantly find new challenges and discoveries in the field. While each day may be typical, it is also exciting:

I wake up in the Weatherport, a half tent-half house that exemplifies the hybrid accommodations at the Lake Aleknagik field camp. We spend our days in remote wilderness and live in rustic housing, yet we enjoy the luxuries of hot water, wireless internet, and a professional cook.

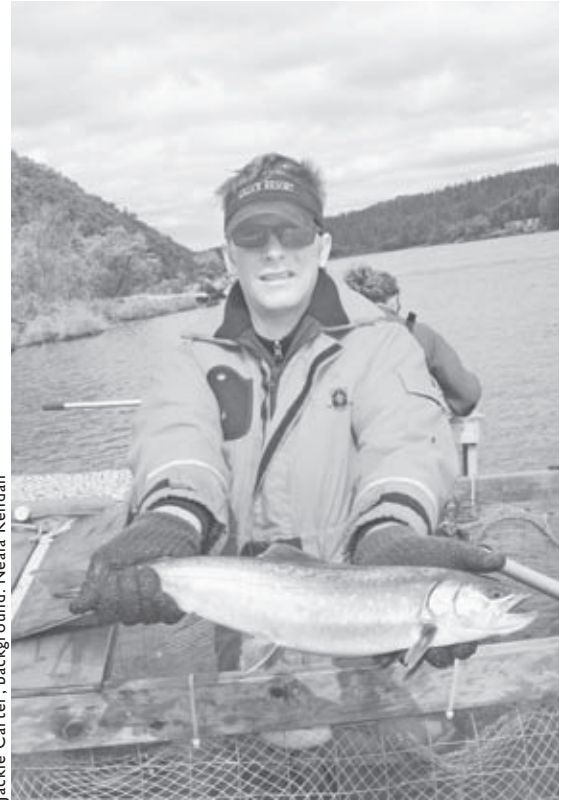
My day starts by waking up my roommates and dragging them to the "Big House" for breakfast with the rest of camp. After a few cups of coffee and some French toast I assemble a field crew of two fellow graduate students and an undergraduate intern from the Bristol Bay Native Association. We gather our field gear and take a scenic boat ride across the lake to Yako Creek, one of my study sites. During the boat ride, the intern, Pam, shares her knowledge of the area, yielding observations from temporal and spatial scales beyond the scope of our program.

We are all excited because this is the first day that spawning sockeye salmon have entered the creek. Nearly a month ago, the sockeye entered the lake, bright silver and streamlined in shape. Now the fish are a brilliant red, and males display prominent humps along their backs.

Thanks to funding from the H. Mason Keeler Endowment for Excellence, I have been able to study how these sockeye affect the sportfish species that live in streams where they spawn. Today, I'm interested in whether juvenile coho salmon are increasing their growth by eating sockeye eggs, a very rich food source.

My crew and I net fish throughout the three-kilometer stream, recording the size of each fish and pumping its stomach to record diet information. Throughout the day, we see bald eagles, moose and, from a safe distance, a brown bear.

The day is full of discovery. In the lower reaches of the stream, we find lots of spawning sockeye but very



Jackie Carter; background: Neala Kendall

few juvenile coho. As we proceed upstream, the spawning sockeye disappear and we see steadily increasing densities of coho. To our surprise, we discover sockeye eggs in the diets of coho up to a kilometer upstream of the nearest sockeye. It appears the fish are making daily forays to the downstream reaches of the stream, filling up on sockeye eggs, and then returning upstream.

We finish sampling at 6:00 PM and discuss possible hypotheses for our observations as we walk downstream to the boat. I think the fish are moving upstream to speed up digestion in the warm water, but my colleagues think they're moving to avoid the dense aggregations of spawning sockeye. As we reach the boat, our conversation shifts towards our plans for recreational sampling, and we decide to sneak in some trout fishing before we return to camp for a late dinner. ■

Amanda L. Bradford—Through the Fog: Endangered Whales of the Russian Far East

PhD student, Faculty Advisor: Glenn VanBlaricom

I awake with a start on my wooden bunk to the low light, chilled air, and alarm ring that indicate 5:30 AM on Sakhalin Island, Russia. I grab a pair of binoculars, tiptoe through our sleeping cabin, and step outside to check the weather and sea conditions.

I immediately retrace my steps, as the world outside is obscured by a thick blanket of fog. To bemoan the endless siege of fog that infiltrates our summer study site would be futile. I return to sleep, but not for long. At 6:00 AM, the low-lying sandy tundra is visible behind our cabin and the lapping waters of Piltun Lagoon can be seen in front. However, viewing our ultimate destination, the frigid waters of the Okhotsk Sea, requires altitude.

Binoculars in hand, I head for a steel, Soviet-era lighthouse towering 35 meters over this remote northeastern corner of Sakhalin. The otherworldliness of this building, combined with my groggy state, lend a dream-like quality to my 166-step climb. At the top, I point my binoculars offshore, only to find that the retreated fog is still clinging for dear life over the sea. To put our inflatable in the water now would be pointless and unsafe. On my walk back home, I stop and pet the lighthouse keeper's dog, the only other being yet awake in camp. Silence does have a sound, I notice.

Another short nap, another long climb, and the skies are clear. If we go now, while the tide is still high, we will have more water and less surf in the lagoon channel, making our trip seaward much easier. Plus, we want to maximize our time at sea before yet another southeaster begins to blow.

I excitedly wake up the others, six students and researchers from Russia, America, and South Korea. Coffee, tea, and bread are hastily consumed. Then begins that orderly chaos known by all field biologists who have learned to turn an enormous production into a daily routine. Clothing layers are added, gear is transported to the shore, Mustang suits are donned, and the Zodiac is launched.

Our boat crew comprises four people; those remaining will make observations from the lighthouse. We motor our way through the lagoon, out the channel, and into the sea. We have barely begun our nearshore survey transect when someone behinds me yells, "Blow!" In response, we turn our heads and can see the blow (or breath) and then the back of the animal that draws us to this island year after year—10 in my own case.

Our boat is now moving toward one of approximately 120 critically endangered western gray whales who migrate to the northeastern coasts of Sakhalin Island every summer to feed. We're there to monitor individuals—using both photo-identification and genetic techniques—in order to assess the status of the population over time. Our survey today may last three hours, or it may last 13, but given the few chances provided by the weather and the enormity of our task, we stay out as long as possible.

While 9–10 months of my year are spent in close association with my computer and our data as a graduate student at SAFS, it is this handful of 20–30 days each summer spent at sea studying whales that epitomize my calling. Only aboard our small vessel have I most intensely experienced Mihaly Csikszentmihalyi's *Flow*, have I been truly humbled by nature. Today is a great day. ■



D. Ivanov; background: D. Weller

Bridget Ferris—Surfin' the Tuna Auctions: A Sampling to Solve the Mercury Mystery

PhD student, Faculty Advisor: Dave Beauchamp

My day starts around 4:30 AM, when the geckos have stopped chattering and the birds are still sleeping. I call the United Fishing Agency (the Honolulu fish auction) hotline to see if any of my longliners are unloading this morning. If so, I am on my way within 15 minutes—donning my “fish clothes,” grabbing my bucket full of supplies, and loading a cooler into the car.

This is the beginning of a typical day conducting my field work in Hawai'i, sampling yellowfin and bigeye tuna to determine the processes that control the levels of mercury in these fish and their food webs. This day is not one I would have imagined growing up in Toronto, Canada. The great lakes offer a very different fishing scene from the one found in the central Pacific. Yet with the strength of the SAFS community, academic training, and funding opportunities (the Institute for Food Science and Research Fund Grant) behind me, I feel confident in tackling this project.

I drive through the dark streets of Honolulu, down to the docks where the 29-year-old fish auction is already whirling with activity. Tuna, swordfish, marlin, opah, and mahi mahi are being transferred from vessel holds into carts, weighed, tagged, and sorted on pallets. Buyers representing restaurants, fish markets, and sometimes themselves are wandering around summing up the day's potential. I walk along the pallets, placing a yellow tag with a number on yellowfin and bigeye tuna in certain weight categories, and record their weight and number in my notebook. Then I wait for the auction to proceed. After each fish is sold, I obtain the piece of tissue that has been cut from the fish so the buyers can see the meat quality. This is now my sample.

After a couple of hours of sample collection, I find out where these fish were caught by talking with the captains of the fishing vessels. These conversations are often the most educational, as they tend to drift into discussions on catch, regulations, and other fishing related topics. The captains I work with are very supportive of my research and generous with their fishing information. Some even save me the stomachs from their catch (they gut their fish at sea) so I can obtain diet information.

Although it is only 9:00 AM when I leave the auction, the hardest part of the day is over once I have deposited my samples into temporary storage at the NOAA Pacific Islands Fisheries Science Center. After that, the pace slows down and the day is filled with a mixture of dissecting tuna stomachs and identifying their prey, entering data into spreadsheets, and returning to the docks to talk more with the auction staff and captains. If the day goes well, there is time to go surfing around sunset. ■



Marcus Duke: background; Bridget Ferris

Jessica Miller

MS 1993, UW; PhD, 2004, University of Oregon

*Juvenile chinook (*Oncorhynchus tshawytscha*) and coho (*O. kisutch*) salmon in natural and created estuarine habitats: Foraging and daily growth*

Jessica is a SAFS graduate (then the School of Fisheries) who worked with the Wetland Ecosystem Team (WET), led by Charles “Si” Simenstad. In 2006, she became an assistant professor at Oregon State University (OSU).

Courtesy of Jessica Miller



Jessica Miller

MD: *What attracted you to fisheries research and the UW?*

JM: Trips to the New England Aquarium and Martha’s Vineyard as a little kid really got me going. Later on, I was motivated by an undergraduate summer course in limnology at the University of Montana’s Biological Station at Flathead Lake. As I was interested in zoology, aquatic sciences, and ecological restoration, the WET program seemed ideal. Compared with other programs, WET gave me more freedom to explore different directions. The diverse offerings at UW (such as the Center for Streamside Studies and Center for Quantitative Science) and the interesting suite of topics made the School of Fisheries stand out for me.

MD: *Describe your time at Fisheries.*

JM: My MS research was part of a broader effort to assess the efficacy of estuarine mitigation efforts. Specifically, my research focused on juvenile chinook and coho residence, growth, and foraging in an artificially created and a natural (reference) estuarine slough in the Chehalis River estuary.

MD: *Where did you go after you graduated from Fisheries?*

JM: I worked at the Tillamook Bay National Estuary Project and then spent almost two years at the Willapa Alliance, working on a stream restoration project on the Bear River in southern Willapa Bay.

MD: *Tell us about your University of Oregon (UO) PhD research.*

JM: During my MS work, I became interested in the non-salmonid fishes in our coastal ocean and estuaries—I wanted to learn more about how they use the near-shore. This motivated me to pursue a PhD to examine the alongshore and cross-shelf transport and dispersal of coastal fishes. I also gained valuable teaching experience at UO’s Oregon Institute of Marine Biology, where classes are eight hours a day with a

mix of lab, field, and lecture in the traditional style of a marine laboratory.

MD: *What’s life like as a “new” faculty member?*

JM: In 2006, I began my position at OSU’s Coastal Oregon Marine Experiment Station (OMES) based at the Hatfield Marine Science Center, where I am also a member of the Department of Fisheries and Wildlife. I have drawn on my past research and professional experiences to build the OMES program. It’s exciting to address questions about the life history of Pacific salmon—such as how juvenile migratory history relates to early ocean survival—using tools like otolith chemistry that were not readily accessible 20 years ago.

I am working on Columbia River and Central Valley chinook populations to link aspects of freshwater and early ocean residence—using otolith chemistry—to better understand how freshwater and ocean conditions interact and affect the early ocean survival of juvenile chinook.

I currently supervise three grad students and am enjoying the challenges of being a mentor while pushing forward with my own research.

MD: *How has your UW education contributed to your career?*

JM: The faculty are excellent and I obviously gained much from their knowledge and experience, but my cohort—the students with whom I worked, lived, studied, researched, and recreated—had a big influence on me. Fisheries attracted a great group of students and I continue to run into SAFS grads in state, federal, and academic positions. ■

Robert C. Wissmar

MS, 1968, & PhD, 1972, Zoology, University of Idaho

Some effects of mine drainage on primary production in Coeur d'Alene River and Lake, Idaho

ADVENTURES OF A SCIENTIFIC VOYEUR

Bob Wissmar, known as “Wiz” to his friends and associates, has always approached work and play with equal fervor. A love of back-country skiing and fly fishing complements his research interests, all finding common ground in remote, and often beautiful, environs.

Wiz is originally from Salt Lake City. His parents were firm believers in the importance of college, both of them having attended college during the Depression. He observed, “There was no question that I was going to college.”

While in college, Wiz guided river rafting tours, through which he met several graduate students who studied limnology. He said, “Every night we talked about aquatic ecology and aquatic chemistry. I had my own tutors on the river.”

His appreciation of the outdoors led him to a Master’s program (Zoology) at the University of Idaho, partly, he said, because “I could study high mountain lakes and get in some good fishing.” During this time, he became keenly interested in aquatic ecology and chemistry, and after graduating, he obtained a grant to study the effects of heavy metal pollution on plankton and primary production in Coeur d’Alene Lake. This became the focus of his PhD program.

After earning his PhD, Wiz visited Seattle. Renowned UW Zoology Professor Tommy Edmondson suggested he talk with Doug Chapman and Robert “Bud” Burgner at UW Fisheries about an open faculty position in aquatic ecosystem research. “They wound up hiring me as a post-doc in 1972 and I’ve been here ever since!”

His research interests have led him near and far: from aquatic ecosystem recovery after the Mount St. Helens eruption to more recent river restoration research in the Cedar River, to trophic ecology studies in the Amazon River, to

landscape analysis of watershed influences on fish and habitat distributions in Alaska. More recently, he has been studying fish communities in the arid landscapes of New Mexico and Mexico and in streams and rivers of the Colombian Amazon.

MD: Last summer, you retired...but not quite!

RW: I’m semi-retired but I’m working and playing twice as hard. By staying engaged, I won’t fall into the trap of getting bored.

This is one reason why I chose my profession: I knew I’d have to stay intellectually active. My students and peers have kept me stimulated. If you look at all the things I’ve studied, you can see I’m a “scientific voyeur.” As a scientific voyeur, if you’re lucky, you’re always getting into new “fairy tales.” I mean that, philosophically, nothing’s absolute. So, new directions, new hypotheses are artifacts of your imagination, your data, and questionable statistics.

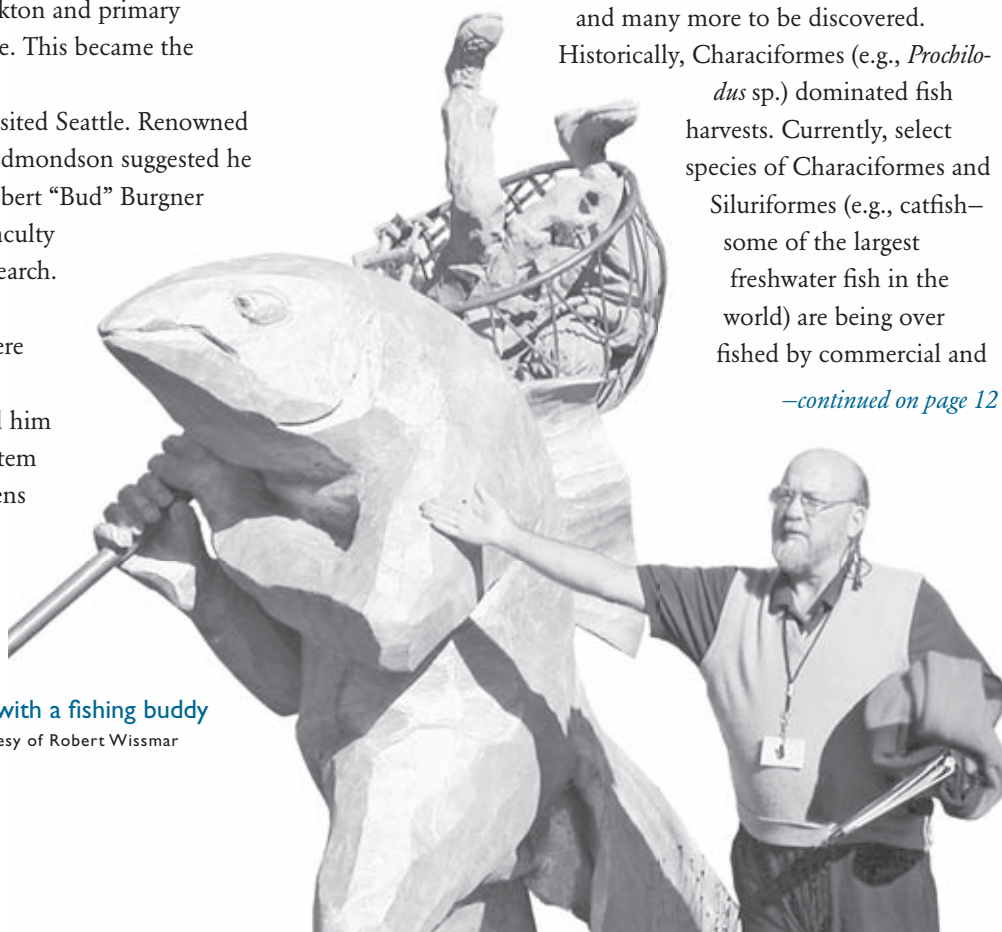
MD: Your newest fairy tale has taken you back to the Amazon.

RW: The Amazon basin is interesting because there are approximately 2,500 known freshwater fish species and many more to be discovered.

Historically, Characiformes (e.g., *Prochilodus* sp.) dominated fish harvests. Currently, select species of Characiformes and Siluriformes (e.g., catfish—some of the largest freshwater fish in the world) are being overfished by commercial and

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Wiz with a fishing buddy
Courtesy of Robert Wissmar



Awards & Honors

Our faculty and students receive numerous awards and honors throughout the year in recognition of their accomplishments in teaching, research, and service.

We acknowledge a select few who have earned kudos for 2008.

Undergrads

Zach Baldwin (Ted Pietsch, mentor) is one of 12 students nationwide to be accepted to the Gilder Graduate School, an all new program in comparative biology at the American Museum of Natural History—the first non-university PhD granting program in the world.

Ben Frable (Ted Pietsch, mentor) was awarded a Mary Gates Research scholarship, which he will use to continue work on the phylogenetic analysis of lateral line nerve characters in the basal stomiiform (lightfishes) fishes. Ben also received a NOAA Hollings Scholarship for 2008.

Graduate Students

Eric Larson (Julian Olden, advisor) earned an East Asia and Pacific Summer Institutes Fellowship, which will cover travel and lodging to conduct invasive species research in Japan this summer.

Jessica Silver (Claire Horner-Devine, advisor) was awarded a three-year fellowship by the National Estuarine Research Reserve to conduct microbial research in Padilla Bay, Washington.

Jenifer McIntyre (Dave Beauchamp, advisor) won the Best PhD Talk award at the annual meeting of the Society for Environmental Toxicology and Chemistry, Pacific Northwest Chapter.

Kerensa King (Chris Grue, advisor) also was honored by the Society for Environmental Toxicology and Chemistry, Pacific Northwest Chapter, walking away with the Best PhD Poster award.

Katy Doctor (Tom Quinn, advisor) has received a Fulbright fellowship to study fisheries in Chile. She will work with SAFS alumna Miriam Fernandez on the efficacy and success of a novel form of artisanal fisheries management.

Michael Schrimpf (Julia Parrish, advisor) picked up the Best Student Poster Award at the 35th Annual Pacific Seabird Group Meeting.

Faculty

Dave Beauchamp received a Fulbright Scholar grant to go to Argentina in 2009 to study food web models in Patagonian lakes and teach two bioenergetics modeling short courses.

Don Gunderson was honored at the 15th Western Groundfish Conference with the first Career Achievement Award in recognition of excellence in groundfish research and management.

Julia Parrish chalked up two honors: she received the 2008 Seattle Aquarium Society Conservation Research Award and she was honored with the 2008 UW Distinguished Teaching Award. (Julia joins three other SAFS faculty who have received UW Distinguished Teaching Awards: Loveday Conquest, Ted Pietsch, and Tom Quinn.)

Tom Quinn also was honored by the UW, having been named the Marsha Landolt Distinguished Graduate Mentor for 2008.

—continued from page 10

artisanal fisheries and populations are declining. I and my Colombian and Spanish colleagues are investigating fish harvest dynamics. My fellow scientists are also studying small Amazon streams: typically 10–15 kilometers long, 1–3 meters wide, and a half meter deep. Comparisons of reaches of two different streams (reaches about 0.5 km long) have shown 130 species in one and 171 in the other. That there are so many fish species in this small area is ecologically amazing.

MD: What surprises did you discover during your Mount St. Helens research?

RW: Many lakes impacted by volcanoes with magmatic eruptions (e.g., high in sulfur and chloride) can become acidic. The St. Helens eruption was not highly magmatic, but it was hot enough to cook trees and dirt and extract organic matter and numerous chemical constituents, which greatly changed water quality in lakes and streams. We observed some of the highest dissolved organic concentrations ever seen in freshwater systems. Some enriched lakes (“organic–elemental soups”) were initially acidic and then became anaerobic for about one year. During the following winter and spring, snowmelt diluted enriched waters, and jump-started ecosystem recovery towards more autotrophic conditions. Mount St. Helens has taught us much about the resilience of ecosystems—that is, the capacity to recover from huge disturbances.

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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

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

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