

AQUATIC & FISHERY SCIENCES

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

AUTUMN 2008

- 1 From the Director
- 2 Alumni Connections
- 4 Degrees 2007–2008
- 6 39th Fall Celebration
- 8 Awards and Honors
- 9 In Memoriam Warren S. Wooster
- 10 Gifts

From the Director

FALL QUARTER always brings a new cohort of enthusiastic students to our academic programs, infusing us with new energy and catalyzing learning for the coming year. It is my good fortune to lead a graduate-level “hot topics” seminar series each fall that introduces incoming students to a cross section of research issues covered in our faculty programs. Faculty teams assign readings that students critique online, followed by lively discussions when we meet each Thursday. I am awed by the level of insight and critical thinking that students impart through well-crafted written and spoken comments.

In November, the annual Graduate Student Symposium showcased our students’ research and their ability to inspire all of us. And each quarter, our undergraduates present “Capstone” talks as a culmination of their research experience. We are always impressed by the sophistication of their work and presentations.

This fall, we held our annual awards and honors convocation—the “39th Fall Celebration”—where we acknowledged our endowment contributors and the students and faculty who benefit from these funds. Several highlights of this year’s Celebration bear mention:

Several alumni spoke to the value of their education at SAFS, and we feature them in this issue. Their leadership, and that of others, was instrumental in ensuring success in ambitious endowment campaigns.

A slideshow was presented that featured the awards and recipients, with many photos of our students in the field and in the lab. We invite you to view this impressive display of donor generosity online: <http://fish.washington.edu/Celebration>.

Last, but certainly not least, in August, we announced the results of our year-long Students First Campaign. Thanks to you, our alumni and friends, we had very good news, indeed.

Students First Campaign

The results are in

The results of our SAFS Students First Scholarship drive are in, and campaign co-chair John Williams (UW ’69, ’78) and I are very happy to report that, collectively, 81 alumni and friends of SAFS gave an amazing \$140,647. This impressive figure is enhanced thanks to the UW promise to provide a 1:2 match when total contributions exceed the \$100,000 threshold, yielding another \$70,324. This results in a grand total of \$210,971 or \$10,549 annually in scholarship distributions. This is a wonderful addition to the SAFS endowment base, which will enable us to support students with tuition and other resources.

We all know the value of student scholarships: The generosity of our contributors is key to perpetuating our highly successful graduate and undergraduate programs. John and I want to personally acknowledge everyone who contributed to this effort—including continuing and new donors—as well as our staff, faculty, and students, who all played key roles.

We would especially like to acknowledge the passionate efforts of Cara Mathison and Linda Maxson in the College of Ocean and Fishery Sciences Dean’s Office, whose hard work contributed to the successful drive.

—David Armstrong

<http://fish.washington.edu>

Alumni Connections

Our alumni are an integral part of the SAFS family: They provide us a window on the “real world” as they pursue their careers; and they provide invaluable support in the form of experiential opportunities for our students and financial donations to our endowments. In addition, the ongoing dialogue we have with them about aquatic sciences is critical—from defining basic research opportunities to addressing topical problems, alumni help us ensure we are training our students to meet current and future needs.

We feature three alumni who share their memories of their UW days, their hopes for the School’s future, and why they continue to stay connected.

*Alumni articles contributed
by April Wilkinson*



Diane G. Elliott, BS '71, MS '76, PhD '85

Lynwood Smith, MS advisor

Marsha Landolt, PhD advisor

In addition to her research position with the US Geological Survey, Diane is an affiliate faculty member of SAFS.

“As a child, I was a pretty “fishy” person. I kept tropical fish as pets, loved to fish, and was an avid reader of Jacques Cousteau’s books. I resolved early on that I wanted to be a marine biologist, with a specialty in finfish. SAFS (at that time, the College of Fisheries) offered a curriculum that would allow me to pursue that dream. I was surprised when I walked into my first Fisheries class in the late 1960s and was the only woman student there. It hadn’t occurred to me that fishery science was, at that time, largely a male-only profession. However, as long as I studied hard and could hold up my end of a beach seine or handle the spawning Chinook and coho salmon that returned to the homing pond, I was considered an equal with the male students.

I have many warm memories of field trips and group study sessions with my classmates; the College of Fisheries community seemed like one big family. Those memories were brought back recently when I was at a local salmon hatchery, where volunteers were having difficulty handling the adult fish, which weighed up to 30 pounds. A part of me wanted to jump in the pond and show the volunteers some tips!

I was fortunate, as both an undergraduate and graduate student, to have access to relevant courses in other departments as well as those in Fisheries. My graduate research projects helped me hone abilities in formulating, conducting, and reporting research, and my experience as a teaching assistant helped me develop communication skills.

I chose to financially support SAFS for two principal reasons. First, I might not have been able to complete my PhD degree had I not received SAFS scholarships, and for that reason I feel indebted to the program. Second, I believe that financial support of SAFS represents an investment in the future. Students are the future educators, administrators, researchers, field biologists, and industry innovators who can help determine new directions in conservation and enhancement of aquatic and fishery resources worldwide. I am joined in my support of SAFS by my husband Richard, who also recognizes the importance of that support to the future of fishery resources.”

l to r: Diane Elliott, Susan Wang, Don Weitkamp

*photographers, l to r: April Wilkinson, Glenn VanBlaricom,
Courtesy of D. Weitkamp*

Susan Wang, MS '05

Dave Beauchamp/Glenn VanBlaricom, advisors

Susan works for NOAA Fisheries' Protected Resource Division in Long Beach, California.

“ I think one of SAFS' greatest strengths is its people. The staff are very supportive of students, professors are highly regarded experts in their respective fields, and students are hard working and excited about the studies they are pursuing. This combination creates a vibrant atmosphere for learning and is what makes SAFS such a great place and a successful program.

As a SAFS grad student, I had many opportunities to interact with NOAA scientists through seminars, conferences, field work, and other activities. I admired the work done by NOAA and the role it plays in bringing together researchers, resource managers, and resource users to discuss and develop strategies for managing and conserving aquatic resources.

At NOAA, we work to protect and conserve marine species and ecosystems. One of the biggest challenges we face is to base management decisions and policies on the best available data, which are often very limited. Being able to work closely with universities such as UW is a great benefit, enabling us to keep up to date on the latest research and work together with students, faculty, and staff to identify and address gaps in information.

Because of the work I did, the people I met and collaborated with, and the overall education I received at SAFS, my time there was one of the most memorable and rewarding experiences in my life. I'm constantly impressed by the level of research conducted by undergrad and grad students at SAFS, both from what I saw as a student and what I read about now in the newsletters. I know that this was made possible in part thanks to the financial support provided by donors. I want to give back by supporting SAFS so it can continue to provide high-quality educational opportunities for its students.”



Don Weitkamp, MS '71, PhD '77

Albert Sparks, MS advisor

Ken Chew, PhD advisor

Don is a consultant with Parametrix, Inc. in Bellevue, Washington.

“ As a student at UW Fisheries, I was provided a sound technical education and an understanding of how to apply what I learned. Doctors Albert Sparks and Ken Chew, as well as other professors, motivated me to continuously learn and professionally apply my knowledge. I have many fond memories of those years, among the best of which were the intense discussions with my professors.

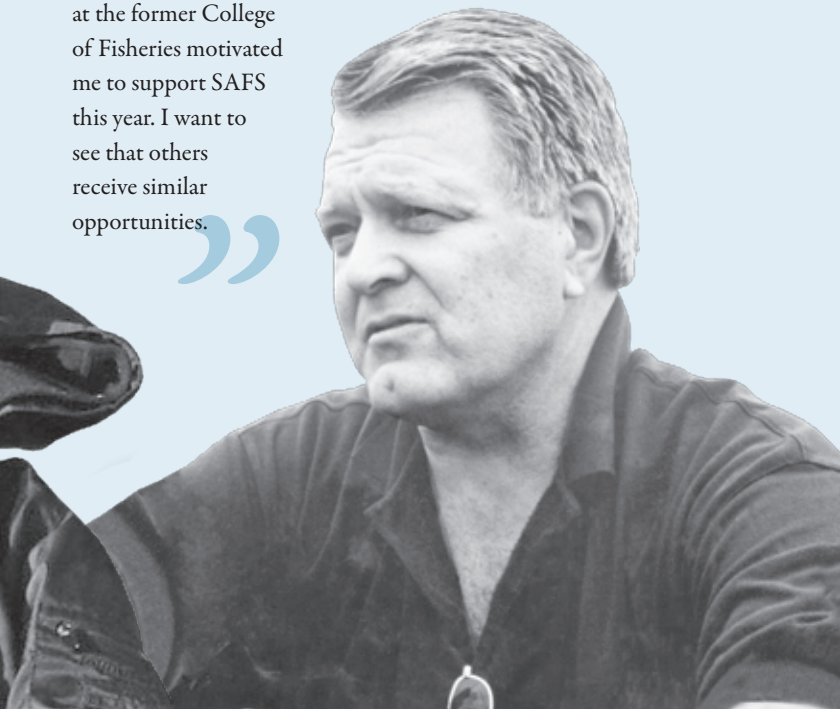
I began working as a consultant while still a graduate student because of necessity and the opportunity to work with many interesting people on a wide variety of projects.

While basic research can be limited in consulting, I have had sufficient opportunities to develop new information. My most professionally rewarding projects have involved habitat restoration. Twenty years ago I was fortunate enough to be a key player in the development, permitting, and construction of a new intertidal habitat at the mouth of the Puyallup River, located on a former Superfund site.

I would encourage students to take advantage of one of SAFS' greatest strengths: an environment that promotes a high degree of technical competence and a high level of professionalism. The foundation they receive will serve them well throughout their professional lives. I hope future students will have expanded options both in traditional fields as well as in emerging technologies.

Obviously, higher education needs to continue to play a leading role in research. Also, I think schools like SAFS need to equip students to deal honestly and effectively with their future roles as contributors to sound aquatic resource policies.

My gratitude for the professional opportunities I have had as a result of my experience at the former College of Fisheries motivated me to support SAFS this year. I want to see that others receive similar opportunities.”



Degrees Awarded, 2007–2008

Each fall issue, we acknowledge students who earned degrees for the preceding academic year. Our students study a broad array of disciplines, including biology, statistics, ecology, disease, and genetics, as well as many interdisciplinary subjects that acknowledge the complex interactions between humans, our environment, and the resources we rely upon.

Students pursue diverse, numerous foci, with subjects including fishes, invertebrates, marine mammals, seabirds, insects, and the aquatic and terrestrial ecosystems these organisms occupy; and issues including river ecology and rehabilitation, population and spatial dynamics, interspecies competition, pollution, and fisheries management, to name a few. Their work illustrates the breadth and scope of graduate research and highlights topical investigations at SAFS. (Advising professors for graduate students are indicated in parentheses.)

BS Degrees

Zachary Baldwin
Philip Campbell
Jason Ching
Benjamin Clemence
Charles Cooper
Devin Creek
Lisa Crosson

Julie Dodson
Aaron Dufault
Katie Fulkerson
Heather Gibbs
Jamey Hance
Cary Hofmann

Eahn Holm
Heather Hooper
Bryan Ishida
Daniel Levin*
Breck McCollum
Melanie Null

Aaron Park
Sarah Peterson
Carla Rothenbucher
Adam Shimer
Matthew Smith
Matthew Strang

Cullen Taplin
Abby Tillotson
Sean Walters
Chantell Wetzel
Tushara Williamson
Justin Willig

* COFS honors



MS Degrees

Charmane Ashbrook (Skalski) Selective Fishing and Its Impacts on Salmon: A Tale of Two Test Fisheries

Keith Denton (Quinn) The Utilization of a Salmon Subsidy by Resident Char (*Salvelinus* spp.)

Katy Doctor (Quinn) Spatial and Temporal Patterns of Homeward Migration and Population Structure in Sockeye Salmon (*Oncorhynchus nerka*) in the Wood River system, Bristol Bay, Alaska

Cristiane Elfes (VanBlaricom) Persistent Organic Pollutant Levels in North Pacific and North Atlantic Humpback Whales (*Megaptera novaeangliae*)

Michelle Havey (Quinn) Salmon Olfaction: Odor Detection and Imprinting in *Oncorhynchus* spp.

Neala Kendall (Quinn) Long-term Fishery Selection on Age and Size at Maturity of Bristol Bay, Alaska Sockeye Salmon

Roger Maney (Conquest) An Assessment of Surveyor Precision and Bias in Experimental Designs for Programmatic Stream Rehabilitation

Patrick Sean Nealon (Horne) Acoustic Sampling Effects on Chinook (*Oncorhynchus tshawytscha*) and Sockeye (*O. nerka*) Salmon Discrimination Using Time-based Echo Metrics

Caroline Paulsen (Essington) Evaluating Impacts of Hypoxia on Demersal and Benthic Marine Communities in Hood Canal, Washington

Paulson Ramirez (Simenstad) Emergent Aquatic Insects: Assemblage Structure and Patterns of Availability in Freshwater Wetlands of the Lower Columbia River Estuary

Kimberly Rand (Gallucci) Longitudinal Growth Differences in Atka Mackerel (*Pleurogrammus monopterygius*): Using a Bioenergetic Model to Identify Underlying Mechanisms

Erik R. Schoen (Beauchamp) Pelagic Trophic Interactions in Contrasting Basins of Lake Chelan

Sarah Spilseth (Simenstad) Short-term Competition Between Juvenile Chinook Salmon (*Oncorhynchus tshawytscha*) and Threespine Stickleback (*Gasterosteus aculeatus*) in Tidal Channels

Scott Stolnack (Wissmar) Patterns of Conifer Establishment and Vigor on Montane River Floodplains in Olympic National Park, Washington, USA



Tony Orr



PhD Degrees

Alexandre Aires daSilva (Gallucci) Population Dynamics of the Blue Shark, *Prionace glauca*, in the North Atlantic Ocean

Julian Burgos (Horne) Quantifying Walleye Pollock (*Theragra chalcogramma*) Spatial and Temporal Distribution Patterns in the Eastern Bering Sea

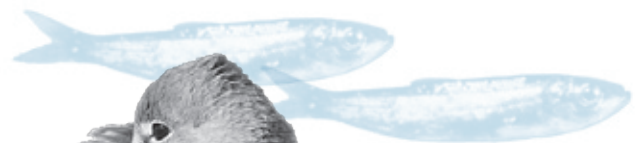
James C Bechtold (Naiman) Fluvial Sediment Influences on Floodplain Soil Biogeochemistry

Sage Chaiyapechara (Herwig/Friedman) Bacteria Associated with the Gastrointestinal Tract of Rockfish (*Sebastes* spp.) Larvae Reared in Aquaculture Settings

Mary Lander (VanBlaricom) Population Dynamics and Behaviors of Steller Sea Lions (*Eumetopias jubatus*) with Respect to Environmental Heterogeneity: Finding the Links

Nicholas Lowry (Gunderson) Biology and Fisheries for the Spot Prawn (*Pandalus platyceros* Brandt 1851)

Stephani Zador (Parrish/Punt) Management Implications of Factors Influencing Seabird Populations ■



Photographers: opposite page: Anne Beaudreau; this page: bird: Jonny Armstrong, fish: Dick Kocan



39th SAFS Fall Celebration

At our Fall Celebration each year, we acknowledge award-winning students and their benefactors. Thanks to the generosity of our alumni and friends, we have numerous endowments that help recruit outstanding students and support their education and research. They also fund student programs, like the annual Graduate Student Symposium, and equipment and facilities upgrades, and they help develop additional funding sources. This fall, we also acknowledged three recipients of endowed professorships, which enable our faculty to pursue unsupported research and other activities.

Student Awards 2008-2009

Melvin G. Anderson Scholarship in Fisheries

Judith Little

Achievement Rewards for College Scientists

Eric Larson, Jessica Silver

Donald E. Bevan Endowed Fund in Fisheries

This fund supports the annual Bevan Seminar Series on Sustainable Fisheries held each winter quarter.

Wilbert McLeod Chapman Memorial Scholarship

Morgan Sternberg

John N. Cobb Scholarship in Fisheries

Allison Linnell, Meryl Mims

Herbert T. Domenici Scholarship

Audrey Djunaedi

Lauren R. Donaldson Scholarship

Amanda Bruner

Claire L. and Evelyn S. Egtvedt Fellowship

Christopher Eaton, Daniel Widener

Floyd E. Ellis Memorial Scholarship

Ava Heston, Erika Pinney

James and Joy Ellis Scholarship in Fisheries

Sophie Pierszalowski

Faculty Merit Award

William Eldridge, Jason Cope, Keith Denton, Erin McClelland, Mary Ramirez, Alexandre Aires Silva, Sarah Spilseth, Gretchen Thuesen

Fisheries Memorial Award

John Brandon

Jack D. Geil Memorial Award

Schuyler Dunphy

Gilbert Ichthyology Research Fund

Rachel Arnold, Benjamin Frable, Chris Kenaley, Josh Kubo, Dawn Roje, Kimberly Sawyer

Graduate School Top Scholar Award

Meryl Mims

Theodor Jacobsen, Jr. and Sr. Fisheries Scholarship

Andrew Davison

Roy Jensen Research Fellowship

Marine Brieuc, Larissa Felli, Carey McGilliard

H. Mason Keeler Endowment for Excellence

Michael Ackerman, Anne Beaudreau, Nathalie Hamel, Maureen Hess, Michael Schrimpf

H. Mason Keeler Lake Washington Fund in Fisheries

Gordon Holtgrieve

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

Douglas Kinzey

Vincent Liguori Fellowship

Joanna Smith

Shao-Wen Ling Memorial Scholarship

Colleen Burge

Victor and Tamara Loosanoff Fellowship

Jennifer Griffiths, Eric Larson,

Galen and Helen Maxfield Fisheries Scholarship

Joanna Smith

Gilbert B. Pauley Award

Amy Yahnke

Gerald J. Paulik Memorial Fund

Douglas Kinzey

right: students Michael Schrimpf and Anne Beaudreau in the field

John G. Peterson Scholarship

Neala Kendall

William H. Pierre, Sr. Fellowship

Colleen Burge, Mackenzie Gavery

Edward Allen Power Scholarship in Fisheries

Billie Perez, Miguel West

Quistorff Fund in Fisheries

Kimberly Sawyer

Robert E. Resoff Scholarship

Benjamin Frable, Juliana Stephan

Samuel and Althea Stroum Scholarship

Morgan Sternberg

W. F. Thompson Scholarship

Jacqueline Schwartzstein

Richard Van Cleve Scholarship

Douglas Kinzey

Richard T. Whiteleather Endowed Scholarship

Charlotte Boyd, Susan Johnson

Walter Yonker Memorial Fund

Kristy Forsgren

We also recognize those endowments from which no award was made this year but which will continue to support our students, faculty, and staff in the future, including the following four funds:

DeWitt Gilbert Fisheries–Journalism Scholarship

John E. Halver Fellowship

H. Mason Keeler Endowed Scholarship in Fisheries

Oscar Skau Student Research Fund

In order to remain consistent with each donor's expressed intent, SAFS frequently designates a combination of endowments to create a single award package for select students, including tuition, research expenses, and stipends.

Faculty Endowed Professorships

Lowell A. Wakefield Endowed Professorship in Ocean and Fishery Sciences

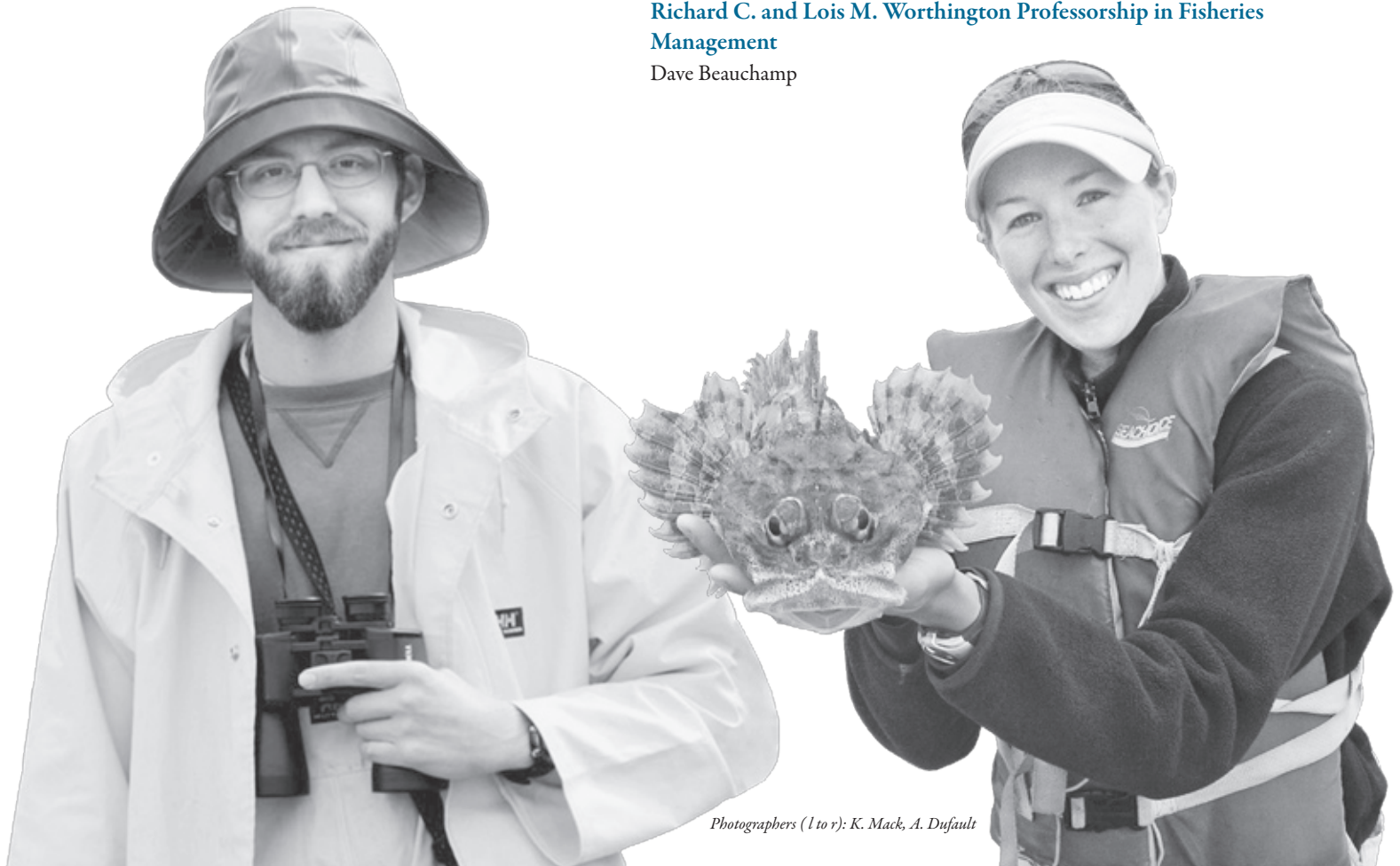
Tim Essington

H. Mason Keeler Professorship in Fisheries:

Daniel Schindler

Richard C. and Lois M. Worthington Professorship in Fisheries Management

Dave Beauchamp



Photographers (l to r): K. Mack, A. Dufault

Awards & Honors

Faculty

Naiman Named Doctor Honoris Causa

In October 2008, Bob Naiman was awarded the title of Doctor Honoris Causa of Paul Sabatier University. This honorary doctorate was approved by the French Ministry of Foreign Affairs and was bestowed in a formal ceremony in mid October.

Conquest to Coordinate NSF Partnership Grant

Loveday Conquest has been appointed Faculty Coordinator for Seattle-area high schools in a partnership grant, funded by the National Science Foundation. The grant supports placing graduate students from UW SAFS, Biology, and Oceanography in Puget Sound high schools, where they will work with teachers to craft basic science lessons and projects that promote understanding of the interdisciplinary science of oceanography and marine research. Graduate student Amanda Bruner is the SAFS Teaching Fellow for the first year.

Endowed Professorships

Endowed professorships help attract and retain top scholars. These endowments enable our faculty to attract outstanding graduate students, purchase critical equipment, and explore new research directions for which funding might not otherwise be available. Five SAFS faculty were recently awarded endowed professorships:

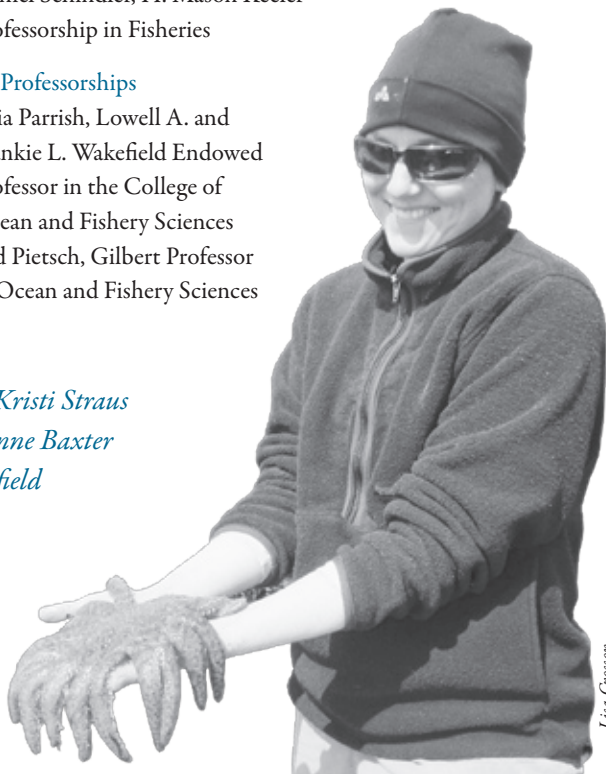
SAFS Professorships

- Tim Essington, Lowell Wakefield Endowed Professorship in Ocean & Fishery Sciences
- David Beauchamp, Richard C. and Lois M. Worthington Professorship in Fisheries Management
- Daniel Schindler, H. Mason Keeler Professorship in Fisheries

COFS Professorships

- Julia Parrish, Lowell A. and Frankie L. Wakefield Endowed Professor in the College of Ocean and Fishery Sciences
- Ted Pietsch, Gilbert Professor of Ocean and Fishery Sciences

l to r: Kristi Straus and Anne Baxter in the field



Lisa Crosson



Kate Myers

Mary Hunsicker with her faculty advisor, Tim Essington, receiving the W. F. Thompson Award

Students

Grad Students Sweep Awards at PCSGA Annual Meeting

In Autumn 2008, SAFS graduate students swept all three student awards at the 62nd Annual Meeting of the Pacific Coast Shellfish Growers Association. Lisa Crosson (MS student of Carolyn Friedman) won the Best Student Paper award. And Anne Baxter (MS student of Russ Herwig) and Kristi Straus (PhD student of Carolyn Friedman) won the student scholarship award competition.

Hunsicker Nets W. F. Thompson Award

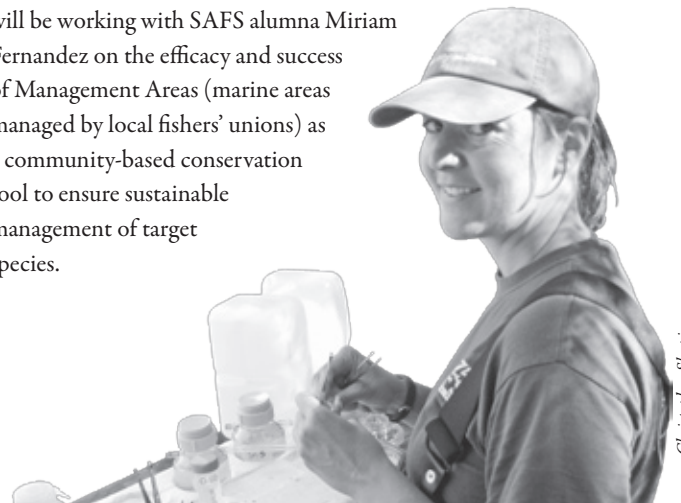
Last September, SAFS graduate student Mary Hunsicker (Tim Essington, advisor) learned that she won the W. F. Thompson Award for Best Student Paper of 2006. The award, granted by the American Institute of Fishery Research Biologists, is based on a highly competitive review process of papers submitted by students across the country.

Undergrad Selected for First Non-University PhD Program

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

Graduate Awarded Fulbright Fellowship

Katy Doctor (Tom Quinn, advisor) was awarded a Fulbright Fellowship to study in Las Cruces, Chile. She will be working with SAFS alumna Miriam Fernandez on the efficacy and success of Management Areas (marine areas managed by local fishers' unions) as a community-based conservation tool to ensure sustainable management of target species.



Christopher Skapin

In Memoriam

Warren S. Wooster, 1921–2008

Warren Wooster passed away on 29 October 2008. During his latter career, he held faculty positions in both the School of Marine Affairs and the School of Aquatic & Fishery Sciences (1976–1991). During 1979–1982, he served as Director of the School of Marine Affairs. Wooster was also very involved in the deliberations that led to the formation of these two schools' parent unit, the College of Ocean and Fishery Sciences. He retired from both institutions as Emeritus Professor, yet he returned to campus almost daily—by bicycle—to mentor students.

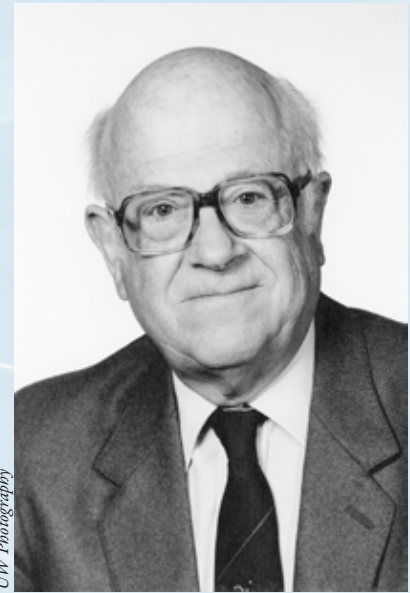
Wooster was a chemical, physical, and fisheries oceanographer who earned his advanced degrees at California Institute of Technology (MS 1947) and Scripps Institution of Oceanography (PhD 1953). He was fluent or familiar with several languages (Spanish, French, German, Russian), having lived at various times in South America and Europe.

Wooster was especially known for his national and international efforts to bring the fields of oceanography and fisheries closer together. He was an efficient but tactful, persuasive, and patient negotiator on many planes, not easily discouraged by adversity, and trusted by students and colleagues at home and abroad.

He held numerous distinguished offices, including the first Secretary of UNESCO's Intergovernmental Office of Oceanography (1961–1963); chairman of the Graduate Department of the Scripps Institution of Oceanography (1967–1969); Chairman of the Ocean Sciences Board of the US National Academy of Sciences/National Research Council (1978–1981); and President of the International Council for the Exploration of the Seas (ICES, 1982–1985). He is especially known for founding the North Pacific Marine Science Organization (PICES, for Pacific ICES). He is widely recognized as the father of PICES and served as its first chairman (1992–1996).

While he served in many important scientific offices, Wooster recognized the limitations of organizations that have no management responsibilities. He sought to bridge the gap “between academic studies...and the practical and political problems of determining and establishing allowable catch rates.” Crossing this bridge was “more salient than ever with recognition of the need for ecosystem management and growing awareness of the influence of environmental variations on the abundance and distribution of fish stocks” (http://sma.washington.edu/faculty/w_wooster.html).

The scope and breadth of Wooster's contributions to aquatic sciences were summed up in a 1976 letter by National Science Foundation head, Feenan D. Jennings: “He is one of the few people I know of who really fit the term, ‘a man for all seasons.’”



At SAFS, Wooster worked with faculty and students on fisheries–oceanography issues, and supervised several graduate students who went on to establish successful careers in fisheries management working for NOAA Fisheries.

SAFS professors emeritus Don Gunderson and Bob Francis reflected on their impressions of Wooster: Gunderson noted, “Warren saw the need to get oceanographers and fisheries researchers to work together more closely long before other scientists of his time, and worked hard and creatively to forge alliances across these two disciplines.” Francis expanded: “Not only was Warren a mentor in the area of fisheries oceanography for me and many others, he was a mentor to me in dealing with university politics when I came in as the Fisheries Research Institute director. His office door was always open and he always greeted me with a warm smile and friendly voice. Warren was a real catalyst for developing an awareness of the overall marine environment when dealing with ocean policy, in particular fisheries, issues. I feel fortunate to have known and worked with him—a real scholar and gentleman.”

Wooster was a also long-time amateur photographer, working mainly with black-and-white film in his own darkroom and holding several exhibits at the University of Washington.

Contributions in Wooster's name may be made to the Clarissa and Warren Wooster Endowed Fund at the University of Washington: https://secure.gifts.washington.edu/common/gift.asp?source_typ=3&source=MCKERN.

To learn more about Warren Wooster, please see his webpage: http://www.sma.washington.edu/faculty/w_wooster.html.

—Sources: Karl Banse, Tom Leschine, John Knauss (PICES)

Gifts, 2007–2008

The many alumni and friends of our school play an important role in supporting our programs through their generous financial gifts. During 2007–2008, our donors continued their longstanding charitable contributions to our School. We acknowledge and thank our many benefactors for their sustained support.

up to \$1,000

Dr. and Ms. James R. Adams
Mr. and Mrs. Dean J. Adams
Dr. and Mrs. Dayton L. Alverson
Mr. and Mrs. Robert D. Anderson
Mr. Greg Anderson & Ms. Patsy Dickinson
Dr. Jill B. and Mr. Murray M. Andrews
Elizabeth A. Babcock, PhD
Mr. Jon D. Baker and Ms. Anne Windsor
Ms. Andrea Noel Balla-Holden
Dr. and Mrs. William H. Bayliff
Becton Dickinson & Company
Mr. and Mrs. Kirk T. Beiningen
Ms. A. Bennett and Mr. J. June
Mr. and Mrs. Gordon B. Bergum
Bio Analysts, Inc.
Mr. Richard Eugene Bohn
Ms. Mary A. Bradshaw
Dr. and Mrs. Jeff M. Breiwick
Dr. Lauren Bricker and Mr. Ruben Ortega
Richard D. Brodeur, PhD
Dr. David Atherton & Ms. Moira Campbell
Dr. and Mrs. Rick D. Cardwell
Mr. and Mrs. Jose R. Carrasquero
Dr. and Mrs. Bobb Carson
Mr. and Mrs. W. R. Carter, III
Dr. Margaret and Mr. Tony Carter
Mr. and Mrs. Forrest E. Carvey, Jr.
Ms. Sandra L. Chatfield
Mr. and Mrs. Joe Chew
Mr. Raymond G. Chinn
Clipper Seafoods, Ltd.
Mr. Michael J. Cooksey
Mr. R. Critchfield and Ms. J. S. Bricker
Mr. and Mrs. David A. Croonquist
Ms. Gail Y. Crosthwaite
Mr. and Mrs. Joseph M. Cummins III
Ms. Kelly M. Curtis
Dr. Michael L. Dahlberg
Dr. and Mrs. Jonathan P. Davis
Mr. and Mrs. Michael B. Dell
Mr. Dennis H. Di Julio
Mr. and Mrs. Gene S. DiDonato
Mr. and Mrs. Jerry O. Doble
Mr. and Mrs. Brian E. Ducker
Mr. and Mrs. Charles Dave Duvall
Mr. and Mrs. Quentin A. Edson
Mr. William H. Eldridge
Dr. Diane and Mr. Richard Elliott
Mr. and Mrs. Gerald M. Erickson
Dr. and Mrs. William T. Fairgrieve
Mr. L. Jay Field and Ms. Deborah Dwyer
Mr. and Ms. Frank L. Figg
Mr. and Mrs. Earl L. Finn, Jr.
Mr. and Mrs. Edward A. Firch
Ms. Lauri K. Freidenburg
Mr. and Mrs. Kurt L. Fresh
Ms. Sharon F. Frucci & Mr. Max Auguste
Mr. and Mrs. Robert J. Gerke
Dr. and Ms. Albert E. Giorgi
Grays Harbor Audubon Society
Mr. and Mrs. William F. Grimm
Donald R. Gunderson, PhD
Dr. and Mrs. James M. Gurtisen
Mr. Ray A. Hanowell
George Y. Harry, Jr., PhD
Mr. Douglas E. Harshfield
Mr. Douglas R. Helton
Dr. and Mrs. Russell P. Herwig
Mr. and Mrs. Thomas L. Herzig
Mr. and Mrs. Richard W. Hicklin
Mr. and Mrs. George Hirschhorn
Dr. Anne and Mr. John Hollowed
Prof. Claire Horner-Devine
Mr. James Hannah and Ms. Jo Ellen Hose
Mr. and Mrs. Robert Howard
Mr. Burt Howell
Alix Hugret
Saang-Yoon Hyun, PhD
Mr. Henry J. Iske
Mr. and Mrs. James C. Isom
Mr. and Mrs. Daniel H. Ito
Mr. Ronald A. Iverson
Mr. Donald C. Iverson
Dr. and Mrs. Orlay W. Johnson
Jubilee Fisheries Inc.
Ms. Jane W. Jung
William Arnold Karp, PhD
Ms. Marilyn T. Kawasaki
Mr. and Mrs. Donald Keith, Jr.
Mr. and Mrs. Siegfried F. Kiemle
Ann M. Kiernan, PhD
Mr. Kevin E. Kiernan
Mr. and Mrs. John A. Knutzen
Mr. and Mrs. Shogo Kusumi
Dr. and Ms. Boyd E. Kynard
Mr. Brian James Langseth
Mr. and Mrs. Mark G. LaRiviere
Mr. and Mrs. Sing Leong
Mr. and Mrs. Kenneth M. Levitt
Ms. Sharon Marie Lind
Mr. John B. Linth, Sr.
Mr. and Mrs. Jon R. Linvog
Prof. and Mrs. John Liston
Ms. Mary W. Lo
Mr. and Ms. Robert E. Loeffel
Mr. J. Andres Lopez and Ms. Ellen Smolker
Mr. and Mrs. Richard L. Major
Ms. Karen Mariuchi
Dr. and Mrs. Douglas J. Martin
Mr. and Ms. Richard W. Mattson
Ms. Susanne F. McDermott
Mr. and Mrs. Guy R. McMinds
Mr. Edward F. Melvin
Bruce and Marie Miller
Mr. Talbott Miller and Ms. Linda Maxson
Mr. Matthew Backus & Ms. Jessica Miller
Mr. Alan Mullendore and Ms. Carolyn Lie
Mr. Mark Nelson & Ms. Kathryn Sobocinski
Mr. Philip Raymond Nelson
Mr. and Mrs. Stephen K. Nishimura
Mr. Henry Noble and Ms. Helen Gilbert
Ms. Loretta O'Brien
Mr. and Ms. Richard J. O'Connor
Ms. Doris Oda
Mr. Norman Oshiro
Mr. and Mrs. Eric Y. Pearson
Mr. and Mrs. Thomas H. Peck
Mr. and Mrs. Mark G. Pedersen
Ms. Evelyn D. Pedersen



P. Sean McDonald



Morgan Bond

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

Robert & Evelyn Pedersen Family Fdn
 Dr. and Mrs. James Arthur Perdue
 Prof. G. Pigott and Dr. B. Tucker-Pigott
 Prof. Ellen Pikitch & Mr. Allen Zwickler
 Mr. Kim Heidebrink & Ms. Victoria Poage
 Mr. Richard J. Poelker
 Mr. and Mrs. Ted M. Poston
 Ms. Hannah Proctor
 Puget Sound Energy Foundation
 Prof. and Mrs. Andre E. Punt
 Mr. and Mrs. Kenneth Roberson
 Ms. Rae Anne Roberts
 Dr. Jill B. Rolland
 Mr. and Mrs. Lloyd O. Rothfus
 Dr. and Mrs. Gary T. Sakagawa
 David B. Sampson, PhD
 Ms. Jessica Leanne Sanford
 Mr. and Mrs. Richard P. Schneider Jr.
 Mr. and Ms. Dean M. Schwicherath
 Mr. and Mrs. Alvin D. Seda
 Mr. Franklin R. Shaw
 Mr. and Mrs. Todd L. Shaw
 Mr. Michael F. Shepard
 Mr. Allen M. Shimada
 Dr. and Mrs. Chinhua H. Sigler
 Mr. and Mrs. Danny E. Sjolseth
 Mr. Cory Smith & Ms. Roberta Connelly
 Ms. Kristin Stahl-Johnson
 Mr. and Mrs. Earl N. Steele
 Mr. and Mrs. Cleveland R. Steward
 Mr. Ian J. Stewart
 Ms. Nicole D. Stewart
 Dr. and Mrs. John A. Strand, III
 Mr. Dan B. Strombom & Ms. Nona Henderson
 Mr. and Mrs. Mervin D. Swanson
 Dr. and Ms. Ronald M. Thom
 Ms. Elizabeth A. Thompson
 Ms. Valerie J. Thorson
 Mr. and Mrs. Howard R. Traver
 Two Herons Foundation
 Dr. and Mrs. Carl F. Tyner
 Ms. Amy S. Unthank
 Ms. Carol D. Valentine
 Mrs. Lois E. Van Hying
 Ms. Susan S. Wang
 Florian Magno Ward, PhD
 Mr. and Mrs. Duane A. Weaver

Mr. and Ms. Stephen R. Weeks
 Mr. and Mrs. David Weigand
 Laurie A. Weitkamp, PhD
 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
 Ms. Yvonne E. Woelke
 Mr. and Mrs. Robert J. Wolotira
 Ms. B. J. Wong
 Ms. Corine A. Yee
 Mr. and Mrs. Richard W. Yoder, Jr.
 Mr. and Mrs. Timothy P. Zadina
 Drs. Richard and Helen Zakour
 Mr. Mark Zimmermann & Ms. Beth Hacker

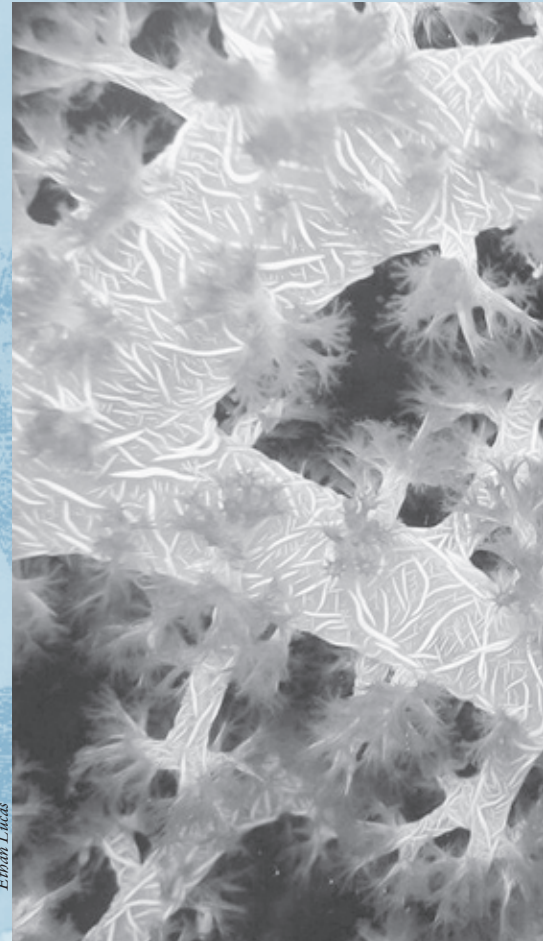
up to \$10,000

Animal Behavior Society
 Aquatic Ecosystem Restoration Fdn
 Janet and David Armstrong
 Ms. Tanya L. Bevan
 Chignik Regional Aquaculture
 Dr. L. Conquest and Mr. Von Kleinschmidt
 Dr. Timothy Essington
 EWOS Canada Ltd.
 Fidelity Investments Char Gift Fund
 Carolyn S. Friedman, PhD
 Ms. Yasuko T. Fukano
 Dr. and Ms. Ray Hilborn
 Mr. and Ms. O. E. Kerns, Jr.
 Michael A. Liguori, M.D.
 Mr. F. Marolda & Ms. M. Liguori-Marolda
 N American Benthological Society
 Ocean Beauty Seafoods Inc.
 Mr. T. C. Ohaus & Ms. L. M. Kristofik
 Julia K. Parrish, PhD
 Prof. Gilbert and Dr. Patricia Pauley
 Walter T. Pereyra, PhD
 Peter Pan Seafoods, Inc.
 Mr. and Mrs. David A. Power
 Dr. C. Simenstad & Ms. S. Martin
 Snopac Products Inc.
 Society For the Study of Evolution
 Prof. Frieda B. and Mr. Jack H. Taub
 University of California at L.A.

Dr. and Mrs. Donald E. Weitkamp
 Dr. and Mrs. John G. Williams
 Yardarm Knot, Inc.

more than \$10,000

Alaska General Seafoods
 AYK SSI
 Clairmont/Evelyn Egtvedt Char. Tr.
 Estate of Evelyn S. Egtvedt
 Mrs. Dorothy T. Gilbert
 Icicle Seafoods Inc.
 International Pacific Halibut Commission
 National Fish & Wildlife Foundation
 The Nature Conservancy
 North Pacific Research Board
 The Pew Charitable Trusts
 Trident Seafoods Corporation
 Washington Friends of Farms & Forests
 World Wildlife Fund



Ethan Lucas

AQUATIC & FISHERY

SCIENCES

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 below.)

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