



# The College of Ocean and Fishery Sciences News

UNIVERSITY OF WASHINGTON

SPRING 2003

## A NEW FOCUS ON CLIMATE CHANGE AT UW

Global climate change, widely considered to be one of the most pressing issues facing society in the 21<sup>st</sup> century, has a heightened focus at the University of Washington in the Program on Climate Change. Created under the umbrella of the College of Ocean and Fishery Sciences and the College of Arts and Sciences, the Program on Climate Change (PCC) is the focal point for climate-related teaching and research at the UW.

"The UW can claim more expertise in fields relevant to climate change than any other university in the world," says Professor James Murray, director of the Program. It's true--the university has specialists in atmospheric chemistry and radiation; carbon cycling; global climate systems; oceanography; sea ice, glaciers and continental ice; surface hydrology and landscape processes; paleoclimate reconstructions; terrestrial ecosystems; and climate impacts.

Murray and colleagues from 10 disciplines across campus thought UW's strengths in climate-change research and teaching could be advanced by being part of a cohesive program.

The PCC is charged with coordinating research and undergraduate and graduate teaching among units on campus. In principle, faculty and

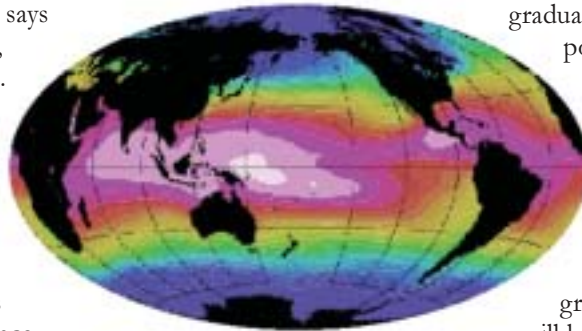
students have always been free to move back and forth between departments but, in practice, degree requirements and departmental responsibilities have limited the extent to which such interdisciplinary exchanges have taken place.

Beginning in 2002, the PCC offered a tightly linked sequence of three graduate-level courses that fulfill requirements in more than one department. An annual summer institute focuses on major research themes, stimulating cross-disciplinary interactions and training. PCC also supports graduate students and

postdoctoral researchers and provides seed grants for innovative interdisciplinary research.

It is thought that having a coherent climate program, embodied in the Program on Climate Change, will help attract additional federal and private funding to the UW.

Public education also is a goal of the new program, and each spring the PCC presents a free, public lecture. This year, Dr. Nathan Mantua, research scientist at the NOAA/UW Joint Institute for the Study of the Atmosphere and Oceans, will speak on Climate Impacts on the Pacific Northwest. The lecture will be held at 7 pm on Tuesday, May 27, 2003 in Kane Hall 120. For more information, see [depts.washington.edu/uwppcc](http://depts.washington.edu/uwppcc).



COLLEGE OF OCEAN AND FISHERY SCIENCES  
Dean Arthur Nowell

SCHOOL OF AQUATIC AND FISHERY SCIENCES  
Director David Armstrong

SCHOOL OF OCEANOGRAPHY  
Director Bruce Frost

SCHOOL OF MARINE AFFAIRS  
Director Marc Hershman

APPLIED PHYSICS LABORATORY  
Director Robert Spindel

WASHINGTON SEA GRANT  
Office of Marine Environmental and Resource Program (OMERP)  
Director Louie Echols

## SEHOME HIGH SCHOOL WINS ORCA BOWL

On February 8, 2003, a team of five students from Sehome High School in Bellingham took top honors at the 6th Annual Washington State Ocean Sciences "Orca Bowl". The group battled their way through stiff competition from fourteen teams hailing from across the state of Washington. The students will represent the state at the National Ocean Sciences Bowl final competition in

San Diego, California in April.

Orca Bowl team and coach from Sehome High School. Courtesy of T. Westby



At the College of Ocean and Fishery Sciences, we've been thinking hard about how to stay in touch with our alumni. This newsletter, printed twice a year, is one of those ways. We hope to give you a flavor of the work being done at the College, with the understanding that we can only provide a snapshot of the exciting activities in which our faculty, staff and students are engaged.

For more information on any of the Schools, please visit their websites:

[www.fish.washington.edu](http://www.fish.washington.edu)  
[www.ocean.washington.edu](http://www.ocean.washington.edu)  
[www.sma.washington.edu](http://www.sma.washington.edu)  
[www.apl.washington.edu](http://www.apl.washington.edu)  
[www.wsg.washington.edu](http://www.wsg.washington.edu)

Or visit the website of the College of Ocean and Fishery Sciences:

[www.cofs.washington.edu](http://www.cofs.washington.edu)

We welcome your comments or suggestions about how we can make this publication more relevant to you. Please send comments to: [cofsnews@u.washington.edu](mailto:cofsnews@u.washington.edu)

or to:

Newsletter  
University of Washington  
College of Ocean and Fishery Sciences  
Box 355350  
Seattle WA 98195-5350

Thank you for your input!

Angie Thomson-Bulldis  
Editor

Contributors to this issue:

Miriam Bertram  
Rebecca Espy  
John Horne  
Brian Rasmussen  
Anita Whitney



## STUDENT GROUP ADDRESSES SUSTAINABILITY

This winter, The Coastal Society, UW Chapter (TCSUW), brought five renowned faculty panelists from across the University together to share their perspectives on sustainability issues. Billed as “Perspectives on Sustainability: Integration Across Disciplines,” the panel event was hosted by The Coastal Society’s student-led, interdisciplinary team of students from the School of Marine Affairs, the Program on the Environment, the Evan School and the Law School.

TCSUW is a student chapter of the national organization of private sector, academic, and government professionals and students dedicated to actively addressing emerging coastal issues. This group celebrated its one-year anniversary in winter 2003, and has been actively coordinating events and opportunities for students to interact with other students, faculty, alumni, and professionals in the world of ocean and coastal management. The event this winter was aimed at reaching the College, University and greater Seattle communities.

Each of the panelist lent specific definitions to ‘sustainability’ that varied just as greatly as their

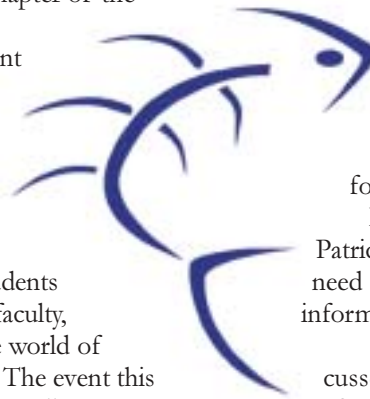
individual fields of expertise, highlighting the problem faced in addressing such a comprehensive issue—how does one define something so large and so dependent upon a multitude of factors?

Professor Iain Robertson, Chair of the Department of Landscape Architecture, was perhaps the most poignant in asking, “What is *un*-sustainable practice?” and urging the audience to adopt an attitude of humility with regard to their every-day needs. Craig ZumBrunnen, Professor of

Geography and co-Director of Program on the Environment, spoke of addressing sustainability across time scales; and the Law School’s Professor William Rodgers emphasized the need for an interdisciplinary focus to sustainability.

From this College, both Professors Patrick Christie and Julia Parrish discussed the need for science to be a vehicle for providing information and action.

In the end, the panelists discussed the event itself, citing its unique feature as a student initiative and the potential for similar events to develop a University contingent devoted to further discussion toward a sustainable future.



## AT APL: “IT WAS LIKE BEING ON THE MOON”

Dan Hayes is a PhD student in oceanography, working under the direction of Jamie Morison at APL-UW’s Polar Science Center. He traveled to the SHEBA ice camp in 1998 to pursue research that has developed into his dissertation topic. “It was like being on the moon in a way,” he recalls. For a scholar with a B.A. in physics and mathematics who chose to pursue a Ph.D. in oceanography because being an oceanographer would allow him to “get out and measure stuff,” it was a dream come true.

Hayes was part of an APL-UW group running an autonomous underwater vehicle back and forth at a set depth on a horizontal course beneath the ice and open-water leads. An upward-looking sonar, or “pinget,” measured the distance to the bottom of the ice overhead to within an accuracy of three centimeters. Sensors on the vehicle measured small variations in the temperature and conductivity of

the water. Additional sensors monitored the depth and pitch of the vehicle.

Measurements of temperature and salinity in the ocean are routine. What is unique about Dan’s data set is that the temperature and conductivity data will be used along with the vehicle’s excursions from its set depth to derive the vertical heat flux along the vehicle’s path. This is possible because of an innovative technique based on Kalman smoothing devised by Morison. Hayes developed the details, implemented the technique, and tested its feasibility. “His development of the Kalman smoothing algorithm for processing autonomous vehicle data was instrumental in the success of the field effort,” says Morison.

Dan’s studies are being supported by a three-year grant from the Office of Naval Research.

# DO KILLER WHALES HAVE DISTINCT VOICES?



Guen Jones

Do individual killer whales have distinct 'voices'? Today nobody knows, but current research by PhD student Guen Jones and Dr. John Horne at the School of Aquatic and Fishery Sciences, is designed to answer that question.

Killer whales produce a variety of sounds, the most frequent of which are pulsed calls. Members of a killer whale clan share a unique repertoire of pulsed calls, and variation in the production of pulsed calls has been documented across pods and among matrilineal groups but the amount of variation among and within individual killer whales has not been quantified.

To determine if sounds produced by killer whales are distinctive, Jones plans to use hydrophones to record whale sounds. Hydrophones are underwater microphones that are connected to recording devices. Dr. David Bain from the Psychology Department and The Whale Museum will provide access to a land-based hydrophone array. The array is located off the western side of San Juan Island in Haro Strait and will be used to localize whales that travel through the area. It is proposed that a mobile hydrophone array be used to track individual whales and collect detailed

behavioral data.

Jones will also collaborate with Dr. Les Atlas from the Department of Electrical Engineering to analyze the acoustic data. They will use voice recognition techniques, not previously applied to animal acoustic studies, to characterize and classify the killer whale calls. Jones will apply these techniques in a computer program that will automate the classification of calls and potentially recognize individual killer whale 'voices'.

Results from this project will enable Jones to develop a remote acoustic monitoring system for the Puget Sound resident killer whale population, whose numbers have seen a decline. In addition to population counts, vocal variations among individuals, age groups, gender, or behavioral activities can be acoustically monitored. Such a system will enable researchers to continuously monitor the population when observations are not possible (e.g. at night or low visibility). This non-invasive monitoring technique can also be applied to other aquatic or terrestrial animal species that produces sound.



Killer whale. Courtesy of J. Horne

## DEAN A. MCMANUS EXCELLENCE IN TEACHING AWARD

For many years, Professor Dean McManus introduced the world of geological oceanography to undergraduate and graduate students at the School of Oceanography. But in the early 1990s, he decided that the way he'd been teaching students needed to change.

Instead of focusing on the content he needed to cover in a given course, Dean chose to focus on what he wanted students to learn. He made radical changes to his teaching practice, include techniques like cooperative learning and project evaluation, and saw dramatic results. In fact, he was awarded the Distinguished Undergraduate Teacher Award of the College of Ocean and Fishery Sciences in 1995.

Inspired by his success, Dean was charged with developing a TA Preparation Program at the School of Oceanography. The program, first held in 2000, was designed to prepare students for their teaching responsibilities during graduate school, and help start them on the road to successful teaching career after their degree. Today, all

graduate students are required to participate in the course.

In 2001, the Mossfield Foundation honored Professor McManus and his efforts by establishing the Dean A. McManus Excellence in Teaching Award. This monetary prize is given to an outstanding Oceanography teaching assistant each academic year. Last year, two students shared the honor, Mikelle Rasmussen and Alana Althaus. With their initial gift, the Foundation hoped to inspire students towards excellence in teaching. Already, the School has received additional gifts toward the award, so it looks like others were inspired as well!



Professor Dean A. McManus and one of the first McManus Excellence in Teaching Award recipients, Mikelle Rasmussen. Courtesy of K. Newell

Editor  
Angie Thomson-Bulldis  
Layout  
Wake Robin Designs

University of Washington  
College of Ocean and  
Fishery Sciences

200 Ocean Sciences  
Building  
Box 355350  
Seattle, WA 98195-5350  
Phone: 206-543-6605  
Fax: 206-543-6393  
www.cofs.washington  
.edu

## GEORGE HONORED FOR SALMON DEDICATION

“If it weren’t for Gordy George, we would not be here tonight,” stated Hood Canal Salmon Enhancement Group (HCSEG) Executive Director Neil Werner when introducing Gordy at the auction to raise funds for the Scholarship and Internship Programs. In 1996, Gordy George suggested that the HCSEG provide scholarships to students in the Hood Canal area. The first goal of \$1,500 for one scholarship was reached at the annual meeting in 1997.

Gordon (“Gordy”) George is the Manager of UW’s Big Beef Creek Research Station located on Hood Canal. Gordy was honored at the auction for his contributions and service to the Group.

Lee Boad, the recipient of the first scholarship awarded in 1997, presented Gordy with a lifetime membership in the HCSEG and a certificate of appreciation for his service. Since the initial suggestion made by Gordy, over 40 scholarships have been awarded to students from several local high schools

in the Hood Canal drainage area. Thanks to funding provided by the Department of Natural Resources, the Nature Conservancy and the U.S. Fish and Wildlife Service, the program idea has expanded to include summer internships for students as well.

Although Gordy no longer serves on the Board of Directors of the HCSEG, he continues to contribute to salmon enhancement. He is the principal investigator of a project to raise Chinook salmon at Big Beef Creek Research Station every year. In addition to raising all those fish, Gordy barbecues the chicken for 60+ people who attend the Big Beef Chinook



George, at Big Beef Creek. Courtesy of UW

Release Day held annually in May, an event at which the new scholarship recipients are introduced. One of the local residents recently remarked “The University of Washington should be very proud of Gordy George. He has done more for salmon enhancement than anyone else.”

Nonprofit  
Organization  
U.S. Postage  
Paid  
Seattle, WA  
Permit No. 62



College of Ocean and Fishery Sciences  
Box 355350  
Seattle WA 98195-5350