Newsletter September 2014

News from the Dean

It was a very busy summer at SMAST and the new academic year is upon us. We are pleased to welcome our new students. A new student orientation and welcome reception was held on August 27. Our student leaders, Doug Zemeckis and Chang Liu, did an excellent job in orienting our new students and leading a question-andanswer panel discussion. The orientation was followed by a reception and dinner at the United Fishermen Club in New Bedford, with more than 70 people in attendance, including representation from across the UMass Dartmouth campus. It was a great way to kick off the academic year!



Congratulations to Ph.D. student Corey Eddy (Biology/SMAST), who won the "Best Student Paper Presentation" award at the international American Fisheries Society annual meeting held in Quebec City, August 17-21. Corey's paper, "Capture-Related Mortality and Post-Release Survival of Pelagic Sharks Interacting with Tuna Purse Seines in the Eastern Pacific Ocean," was coauthored by his advisor, Professor Diego Bernal. At the same meeting, UMass Dartmouth scientists and students authored or coauthored some three dozen oral and poster presentations.

Our faculty, staff and students have been very active in sharing our work in other professional and public venues. On June 30 and July 1, a workshop was held at New Bedford's Fairfield Inn on "Federal Fishery-Dependent Data Visioning" discussing the current and future fishery-dependent data needs and uses in the greater Atlantic region. Professor Steve Cadrin was a co-organizer. This was an important initiative to engage the fishing industry more effectively in data collection in support of fisheries management.

SMAST was showcased at the Commercial Marine Expo held in New Bedford on June 11-12 and at the Boston Seafood Festival on July 27, including presentations by Professor Kevin Stokesbury and Professor Emeritus Brian Rothschild. We are already making plans for our next event: the Working Waterfront Festival in New Bedford on September 27-28. Hope to see you there!



SMAST was also represented by faculty and students at the Ocean Carbon and Biogeochemistry Workshop held at the Woods Hole Oceanographic Institution on July 21-24. Presentations included one given by Ph.D. student Elissa Ward (Professor Cindy Pilskaln, advisor).

The SMAST scallop video survey team has reported its 2014 findings: populations are up, particularly the numbers of small scallops and especially on Georges Bank. The U.S. sea scallop resource averages 8 billion animals, but large increases in scallop populations seem to occur once every 10 years or so. A population spike from 2003 has supported a large part of the fishery for the past decade. The increase seen this year on Georges Bank is even larger than that of 2003, increasing the total estimated resource to 26 billion scallops.

SMAST faculty members continue to be successful in securing funding for their research. Recent awards totaling nearly \$5 million from NOAA and the Commonwealth of Massachusetts will fund SMAST scallop and groundfish research over the next two years. The National Oceanic and Atmospheric Administration has announced cooperative fisheries research projects, including four led by SMAST scientists, to be funded under the 2014-2015 Sea Scallop Research Set-Aside Program. A separate award of \$450 thousand from the state will support the continued development of new "no-capture" technology for fishery population surveys. Professors Miles Sundermeyer and Brian Howes of SMAST are among the principals of a new UMass system-wide EXperimental Center for Environmental Lidar (EXCEL), which has been established with a \$150K grant from the University's



Engineering/SMAST) is leading a first of its kind collaboration between the United States and India to support large-scale research on monsoon prediction. Researchers from the two countries are working together to understand ocean processes in the international waters of the Bay of Bengal and their relation to the annual monsoon, which is a dominant factor in the lives of the population of the Indian subcontinent. The Office of Naval Research is providing funding for the participating U.S. scientists and contributing the resources of the R/V Roger Revelle.

UMass Dartmouth Professor Amit Tandon (Mechanical

"Groundfish Port Recovery and Revitalization Plan for the Port of New Bedford/Fairhaven." The study was conducted by an SMAST-led research team fronted by Professor Dan Georgianna (Economics/SMAST). The report documents the recent decline of the regional groundfishery, assesses its effects on shoreside businesses, and makes recommendations for the revitalization of the fishery and improvements to the port. SMAST Professor Avijit Gangopadhyay recently returned from Brazil, where he spent part of his sabbatical as Distinguished Visiting Full Professor at the Oceanographic Institute of the University of Stop Paulo. During his



travels, he offered an intensive short-course in "Synoptic Ocean Prediction and Process Studies Using Feature Models" at three leading Brazilian oceanographic institutions in June and July. I hope everyone had a great summer. My best wishes to all for a successful 2014-2015 academic year!

SMAST Professor Miles Sundermeyer received his bachelor's degree in Math and Physics from the University of California, Santa Cruz, in 1991, and his master's (1995) and doctorate (1998) from the

Faculty Spotlight - Dr. Miles Sundermeyer

Massachusetts Institute of Technology/Woods Hole Oceanographic Institution Joint Program in Physical Oceanography. He joined the SMAST research team as a Post-Doctoral Fellow in 1998, and became a faculty member in 2001 and an Associate Professor in 2007. Professor Sundermeyer has been teaching college students since his own undergraduate days at UC Santa Cruz, and his success as an educator is evidenced by the consistent track record of his students being lead

American Meteorological Society annual meeting in 2006. Professor Sundermeyer heads up the Ocean Mixing and Stirring Laboratory at SMAST, which studies shearing and straining forces that are key to understanding dispersion in the ocean, affecting everything from the dispersal of microscopic organisms that form the base of the oceanic food chain to antropogenic pollutants such oil spills.



"By sending extremely short pulses of light (nanoseconds in duration), researchers can image objects in three dimensions with meter-to-centimeter resolution," Miles explained. "The EXCEL center is expected to exploit these capabilities, while providing a technical resource and expertise to the Commonwealth, the region, and beyond." Alumni Spotlight - Catherine "Cate" O'Keefe

Dr. Catherine O'Keefe received her Ph.D. from UMass Dartmouth in 2013. As a doctoral student, she had been chosen from among more than 400 marine scientists from all over the world to receive the Merit Award for

researcher at SMAST.

in marine policy.

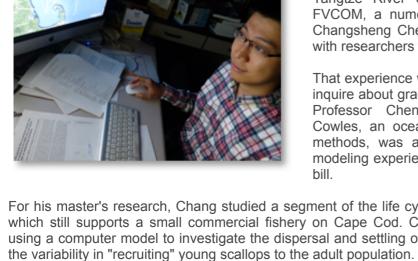
Environmental Lidar (EXCEL).

Cate's premier achievement has been the development implementation of the SMAST Bycatch Avoidance Program. The scallop fleet, whose success makes New Bedford the nation's #1 fishing port, is constrained by limits on bycatch (unintentional catch of non-target species). Bycatch allowances for yellowtail flounder, a species that cooccurs with scallops, are extremely low. If bycatch limits are approached, the scallop fishery can be closed, resulting in losses of millions of dollars. Cate collaborated with scallop fishermen and other scientists to develop the SMAST Bycatch Avoidance Program, which relies on daily emails from

Best Paper at the 2009 Annual Science Conference of the International Council for the Exploration of the Sea in Berlin. Since then, her accomplishments in fisheries science have focused on developing policy solutions through collaboration with the fishing industry as a post-doctoral

fishermen reporting their fishing locations and catches of scallops and yellowtail. SMAST analyzes the reports and emails a bycatch advisory, which helps fishermen to locate and avoid bycatch and thus maximize scallop catch. Participation in the scallop bycatch avoidance program has grown each year, with 253 vessels now participating and reporting, covering the majority of scallop fishing grounds. Cate's approach has inspired other similar programs. She has taken a scientific and academic approach to her work, resulting in several publications on bycatch avoidance in the scallop fishery, bycatch reduction, and more generally, data sharing for solving problems *****SMAST Alumni: Update us on your particulars with our new Alumni Connection Tool

Student Spotlight - Chang Liu SMAST graduate student Chang Liu received his B.S. in Marine Science from the School of Atmospheric Science, Nanjing



FVCOM, a numerical model originated by SMAST Professor Changsheng Chen and developed at SMAST in collaboration with researchers from Woods Hole Oceanographic Institution. That experience with FVCOM led Chang to contact SMAST and inquire about graduate school opportunities. It so happened that Professor Chen's SMAST colleague, Professor Geoffrey Cowles, an oceanographer who specializes in computational methods, was at that time looking for a student, one with

(China) University of Information Science & Technology. As part of his undergraduate research at Nanjing, he simulated the Yangtze River estuary and Hangzhou Bay currents using

modeling experience, ideally with FVCOM, and Chang filled the For his master's research, Chang studied a segment of the life cycle of the bay scallop, a much-prized resource which still supports a small commercial fishery on Cape Cod. Completed in 2013, Chang's research involved using a computer model to investigate the dispersal and settling of bay scallop larvae, particularly as it relates to

Now pursuing his Ph.D. research with Professor Cowles, Chang has shifted his attention to finfish, specifically to those that have been fitted with electronic tags that provide data on the temperature and pressure of the fish's immediate surroundings over time. Chang is comparing those tag data with the output of computer models to transform the pressure/temperature data into three-dimensional geographical space, in other words, to

reconstruct a track that represents the fish's travels while wearing the tag. Such information could provide insights



into fish behavior that would be invaluable to fisheries management.

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