

Annual Wetlands Workshop Explores Isabel's Impacts

Wise use of tidal wetlands in Virginia relies on the decisions of a diverse group—including waterfront owners, local wetland boards, and marine contractors.

In July, VIMS' Center for Coastal Resources Management provided citizens and elected officials with an opportunity to learn about the latest in

tidal-wetlands science by hosting their annual Tidal Wetlands Workshop.

Workshop leader Tom Barnard notes that "the event provides a unique opportunity for attendees to enrich their understanding of wetlands ecology and management through presentations, discussion, and 'hands-on' field exercises."

Fellows Earns Berth at EPA Conference

VIMS graduate students Paul Bradley, Kristin France, and Heidi Geisz have received a prestigious fellowship from the U.S. Environmental Protection Agency and attended the EPA Graduate Fellowship Conference in Washington, D.C. in October.

The trio attended the conference to present their research, learn about federal employment opportunities, and network with federal scientists, congressional representatives, and other fellows.

The conference website noted that the event "provides an opportunity for EPA to engage some of the nation's most promising young adults in meaningful interaction and discussion around some of today's emerging environmental science and policy challenges."

The students won the highly competitive fellowships as part of EPA's *Science to Achieve Results* (STAR) program. The fellowships support masters and doctoral students in environmentally related fields for up to three years. The Agency awards approximately 100 fellowships per year, from more than 1,000 applicants around the nation.

For his dissertation research under advisor Dr. Deborah Bronk, Bradley is

comparing nitrogen-uptake patterns in phytoplankton and bacteria from estuarine, coastal, and oceanic ecosystems. His work could have significant implications for nutrient management strategies in estuarine and coastal waters.

France is studying how changing regional biodiversity affects local diversity and ecosystem function. This information is critical for conserving diversity and managing essential ecosystem services in light of habitat fragmentation, non-native species introductions, and climate change. Her advisor is Dr. Emmett Duffy.

Geisz is investigating persistent organic pollutants in Antarctic seabirds. Her work will help inform policy change regarding pollutants such as BDEs currently produced and used in the U.S., and shed light on the impacts of pollutants such as DDT on fragile Antarctic ecosystem. Her advisors are Drs. Hugh Ducklow and Rebecca Dickhut. Ducklow manages the National Science Foundation's Long-Term Ecological Research program at Palmer Station in Antarctica.

For more information on the STAR fellowship program, visit <http://es.epa.gov/ncer/fellow/>

This year's workshop focused on issues raised by Hurricane Isabel. VIMS emeritus professor Dr. John Boon explained how sea-level rise in Hampton Roads helped boost Isabel's storm tide to within an inch of the level reached during the much stronger "Storm King" hurricane of 1933, and how continued sea-level rise will likely aggravate coastal flooding during future storms.

VIMS coastal geologist Scott Hardaway reported on Isabel's impact

on the local shoreline, as well as on coastal structures such as bulkheads, piers, and marinas.

During a morning field session participants learned to identify species of fresh and salt-water plants that help delineate tidal zones, and observed the effects of tidal range on wetland jurisdictional areas. A seining session allowed participants to get their feet wet while learning about the natural history of Chesapeake Bay's shallow-water inhabitants.



Workshop organizers were (Back row L-R): Tom Barnard, Carl Hershner, and David O'Brien. Front row (L-R) Walter Priest, Dawn Fleming, and Karen Duhring.

Crab Release *continued from page 3*

juvenile crabs. The tags, which consist of a tiny wire inserted into leg muscle, allow researchers to track the crabs despite repeated molting of the external skeleton. Researchers can easily identify a tagged and recaptured crab by passing it across a metal detector. Each of the crabs was also tagged with a dye visible through the transparent exoskeleton of the swimming legs.

After transporting the crabs to VIMS in iced coolers, the researchers released the animals into a shallow, muddy cove in the Catlett Islands (a pristine salt marsh habitat owned and managed by the Chesapeake Bay National Estuarine Research Reserve at VIMS), and another cove in Indian Field Creek, a pristine habitat under the protection of the Naval Weapons Station.

"Linking our scientific enhancement efforts with the federal protection and relatively pristine nature of many military installations may produce a favorable set of conditions for growth and survival of juvenile blue crabs," notes Lipcius.

The current research builds on experiments during 2003 in which

Lipcius, Seitz, and van Montfrans moved young crabs from York River and Tangier Island grass beds into the same Catlett Island coves. High survival rates among these transplanted crabs showed that the coves contain far fewer crabs than they are capable of supporting.

"Last year's experiments suggest that the ecosystem is below its carrying capacity, and that the blue crab is limited by recruitment, not resources," says Lipcius. In other words, low crab numbers aren't due to a lack of food, but to a shortage of young crabs.

"That's why enhancement using hatchery-reared crabs seems like a viable method for restoring the Chesapeake's blue crab population," says Seitz.

In addition to Lipcius, Seitz, and van Montfrans, the release efforts were aided by VIMS graduate students Russ Burke, Dave Hewitt, Deb Lambert, Chris Long, and Bryce Brylawski; and staff members Mike Seebo, Katie Knick, and Kristie Erickson. REU college interns Francisco Soto Santiago and Nicole Rohr and Governor's school students Ian Keene-Babcock and Jenny Geldermann also assisted with the June release.



VIMS graduate students Paul Bradley, Heidi Geisz, and Kristin France at the EPA Graduate Fellowship Conference in Washington, D.C. in October.