Wetlands Workshop Promotes Informed Resource Management

Scientists from VIMS' Center for Coastal Resources Management (CCRM) discussed shoreline and wetland issues with members of local wetland boards and other resource managers during a recent Tidal Wetlands Workshop on the William and Mary campus.

The one-day conference, "Avoid-Minimize-Compensate Through Integrated Shoreline Management," provided up-to-date information on shoreline protection, management, and policy issues—the three core areas of the CCRM Wetlands Advisory Program.

The workshop focused on promoting an integrated, cross-jurisdictional approach to shoreline management along with a discussion of living-shoreline treatments.

"Participants in our outreach programs develop an increased awareness of the ecologic functions of riparian buffers, marshes, intertidal flats, and the adjacent shallow-water environment," says program director David O'Brien. "They also learn to recognize that the impacts of shoreline protection projects can't always be easily mitigated."

The conference included a computerized audience response system that allowed the 116 participants to cast votes from their seats on relevant wetlands and shoreline-related questions. Evaluation comments show that participants enjoyed the apparatus: "I liked the system because it helped me gauge how much I was retaining and understanding," said one participant. "I enjoyed seeing what the other wetlands boards think," noted another.

The Wetlands Advisory Program at VIMS has been providing wetlands and shoreline information to the public since the late 1960s. "In supporting the Commonwealth's no-net-loss wetland policy, technical information applied at the local level leads to more informed and ecologically favorable resource management decisions," says O'Brien.

To view workshop presentations and photos, go to ccrm.vims.edu/seminar2006.htm

David O'Brien addresses workshop participants.

Fish Vision

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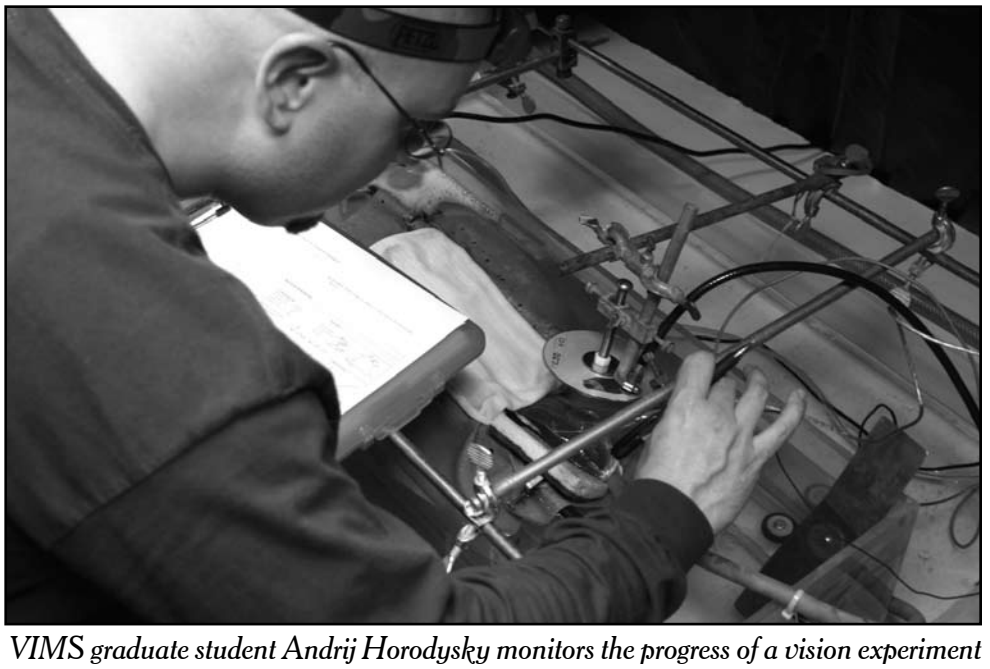
"You've got two animals that are competing for the same food. How do they do it? Stripers use color to see and feed during the day. Weakfish use contrast sensitivity to see at night."

"What these fishes have done is divvy up the visual world," says Brill.

For the most part, study of stomach contents by VIMS researchers confirms what Horodysky's vision research predicts. Work by Dr. Rob Latour shows that the stomachs of weakfish are largely empty during the day, and then quickly begin to fill with small fishes and shrimp as evening falls. Work by graduate student Kathleen McNamee shows that striped bass have full stomachs during daylight hours, but that the stomachs gradually empty through the night.

One intriguing aspect of Horodysky's research is the disparity he's found between the prey items that striped bass are adapted to see—large, fast-moving fish like menhaden—and the items that actually occur in their stomachs—mostly small crustaceans like juvenile blue crabs and mysid shrimp.

Horodysky and his faculty advisors hypothesize that striped bass are living in a visual world very different from the one evolution prepared them for. That's because human activities in the Bay watershed and the demise of the native oyster have dramatically reduced the clarity of Bay waters.



VIMS graduate student Andrij Horodysky monitors the progress of a vision experiment using an Atlantic croaker (Micropogonias undulatus).

The world of Chesapeake Bay stripers was once bright and colorful. Anecdotal evidence from Captain John Smith and others suggests that visibility in the Bay once measured in the tens of feet. Even a century ago, Bay waters were clear enough to allow plant growth at depths of more than nine feet. Now sunlight penetrates to only half that depth.

"Chesapeake Bay used to be very clear," says Brill. "Now we've made it mucky. So we see the visual ecology of the Bay changing. Our argument is that over evolutionary time these fish have made certain visual choices, then suddenly find themselves in a visual environment they didn't evolve in."

This visual mismatch could have important implications for fisheries managers, who traditionally make management decisions based on the relative abundance of predator and prey—the number of striped bass or menhaden netted per unit area.

"What we're getting at," says Horodysky, "is that it isn't the number of prey per meter that's most important to these visual predators. It's the number they can see. Is there a visual issue, with the Bay being turbid, being murky? If you can't see very far, how is that affecting your ability to feed? These are larger questions we can begin to chip away at once we get our baseline data. We can't start to answer these questions until we know the limits of the eye."

In the meantime, Brill and Horodysky plan to expand their research to other popular recreational fish like summer flounder and cobia, and also to the forage fish—most notably menhaden—that so many recreational species depend on for food.

For Virginia's anglers, the most important question for Horodysky might be how a better understanding of fish vision can give them better luck on the water. "I can't guarantee that anyone who uses these data is going to catch more fish," responds Horodysky. "But they will be able to make more informed choices."

Horodysky, himself a fly-tier and avid angler, notes that his color research does confirm at least one common saying that Bay anglers use when selecting a lure for striped bass: "If it ain't chartreuse, it ain't no use."

"Nothing in the wild is ever chartreuse," says Horodysky, "but the color is right smack dab in the middle of a striper's visual range. They can see it really well."