

The Crest

Current Issues in Coastal Ocean and Estuarine Science

VIMS to Begin New Ecosystem Management Study

For years, fisheries within Chesapeake Bay have been managed on a species by species basis, with management plans that do not take into account factors such as the abundance of competitors, predators, and forage species. With a funding commitment of \$629,000 from the Virginia Environmental Endowment (VEE), scientists at VIMS will soon launch an innova-

tive three-year project that will focus on developing a model for multi-species management of sustainable fisheries within the Chesapeake Bay. This is a new approach that will consider the entire ecosystem and be based on the development of a food web model for the lower Chesapeake Bay. Scientists now know that population levels of

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CBNERRVA Receives Coastal America Partnership Award

William Reay and Eric Wooden of CBNERRVA were recently recognized by Coastal America for their work in a 10-acre tidal wetland restoration monitoring project at the Ft. McHenry National Monument in Baltimore, Maryland. The Ft. McHenry Wetland Restoration Team received Coastal America's 2000 Partnership Award. The team included participants from the National Aquarium in Baltimore, federal agencies, state and local governments, universities, and various community organizations working to restore and maintain critical wetland habitat within Baltimore Harbor. The project, initiated in 1997, focused on a wetlands mitigation site that was created for the construction of the Ft. McHenry tunnel. This wetlands site is important because it is located at the head of a tidal tributary that receives water from three mostly urban watersheds and because it is located at a highly visible public access site, Ft. McHenry National Park, that receives approximately 600,000 visitors annually.

The restoration effort of the wetlands at Ft. McHenry National Park was noted in the 1999 Coastal America Progress Report. At that

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The 46-year Trawl Survey will provide basic information to underpin the ecosystem management study, which will begin in July.

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commercially important fishes are greatly affected by the abundance of their prey, their predators and their competitors. These relationships change over the life history of a species, and can be greatly influenced by the environment. Fishing, as well as environmental fluctuations, can seriously alter community structure, impacting the abundance of predator and prey species. "The delineation and understanding of such interactions are critical to the sustainable management of the lower Bay ecosystem," said Dr. John Graves, Chair Department of Fisheries Science, VIMS. "The award from the Virginia Environmental Endowment provides us with a unique opportunity to develop a model that will allow fishery managers to forecast the impacts of various actions on the ecosystem as a whole"

This work will build on VIMS Juvenile Trawl Survey, a 46-year series monitoring the abundance of juvenile fishes in Chesapeake Bay and tributaries and some environmental conditions. The project will be coordinated with researchers at other institutions on the Bay who are also working on various aspects of the food web within Chesapeake Bay. Ultimately, these data will be used to develop a more comprehensive model for fishery managers, allowing them to predict the outcome of various scenarios. For example, currently striped bass populations are up. What impact do elevated levels of striped bass have on their prey species such as bay anchovy, blue crab, and menhaden? How do these impacts

affect other species such as bluefish, red drum, and weakfish that also feed on bay anchovy, blue crab and menhaden? Scientists feel that some of the data necessary to understand these kinds of food-web interactions are not known. As the model is developed, the needs for further food web research will be highlighted. "Building a dynamic model will force us to take inventory, to see where information is needed to develop predictive capabilities," explains Dr. Richard Wetzel, Chair Department of Biological Sciences at VIMS and co-director of the project.

The grant from the Virginia Environmental Endowment will also permit researchers at VIMS to update the Status of Stocks and Species Information document they developed in 1995. The original document, which included a synopsis of information on important recreational fishes of Chesapeake Bay, will be revised and expanded to include data on the feeding habits and relationships of many important forage species, as well as several non-resident species in the lower Chesapeake Bay. This document will be available on the VIMS web site.

Gerald P. McCarthy, Executive Director of Virginia Environmental Endowment, stated that "This work will enable scientists to develop the knowledge and applications needed by managers to make decisions based on a complex and far more complete suite of information." The goal of the work is to develop an ecosystem based fisheries management plan with models that will provide better tools to forecast the impact of a management act or

environmental event on a particular species as well as on the ecosystem as a whole. Sustainable fisheries are essential to maintain ecological, economic and social benefits provided by the resources.

McCarthy said that VIMS has just the right combination of experience, skills, and information to undertake this important and groundbreaking work. "This initiative will eventually change the way the fisheries of the Chesapeake Bay are managed, and allow for

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time, long-term monitoring in the Ft. McHenry wetlands was an aspiration of the restoration effort, but not a realization. The implementation of the long-term monitoring aspect of the project did not happen until CBNERRVA became involved with the National Aquarium in Baltimore and the Ft. McHenry Restoration Team. With funds provided by NOAA, CBNERRVA established long-term water quality and meteorological stations at the restoration site and conducted training workshops on those stations for staff of the National Aquarium in Baltimore and environmental science students at Morgan State

the possibility of sustainable fisheries in the Bay for generations to come." He added, "VIMS is taking a leadership role in coordinating the scientific work on sustainable fisheries research in the Bay. They are inviting their colleagues to work cooperatively so that the Living Resources goals of the Chesapeake 2000 Agreement may be reached. The Endowment is very excited at this new direction and honored to be able to help."

University. Students at Morgan State University are under the direct supervision of Dr. Livingston Marshall, a VIMS alumnus.

Coastal America is an organization that encourages and promotes the partnership of federal, state, and local governments, tribal, non-governmental organizations, and private entities working together on coastal conservation, restoration, and education projects.



Dr. William Reay and Eric Wooden (third and fourth from left) receive Coastal America Award.