

VIMS Study Provides Foundation for UN Report

A study by VIMS Professor Dr. Robert Diaz on the causes and consequences of marine "dead zones" forms the basis for a key chapter in the 2003 Global Environment Outlook (GEO) Year Book. The Year Book is an annual review of environmental milestones by the United Nations Environment Programme (UNEP).

The 2003 GEO Year Book identifies the continued 'fertilization' of the ocean and consequent growth of oxygen-starved "dead zones" as a key emerging issue that governments must urgently address.

UNEP issued the 2003 edition of the Year Book during the 8th Special Session of the Governing Council and Global Ministerial Environment Forum, which met in Jeju, Korea in March.

Diaz is a world-renowned expert on nutrient pollution and the effects of low oxygen levels on bottom-dwelling

organisms. In 1995, he wrote a seminal article on the topic in *Oceanography & Marine Biology Annual Review*. The chapter in the 2003 GEO Year Book draws heavily on the findings of a more recent Diaz paper on dead zones, which will be published later this year in an Environmental Protection Agency report. VIMS graduate student Janet Nestlerode also contributed to the EPA report.

Dead zones occur when and where pollution by excess nutrients triggers low oxygen levels, making it difficult or impossible for fish, marine mammals, oysters, and other marine creatures to survive. The economic costs associated with dead zones are unknown, but predicted to be significant on a global scale.

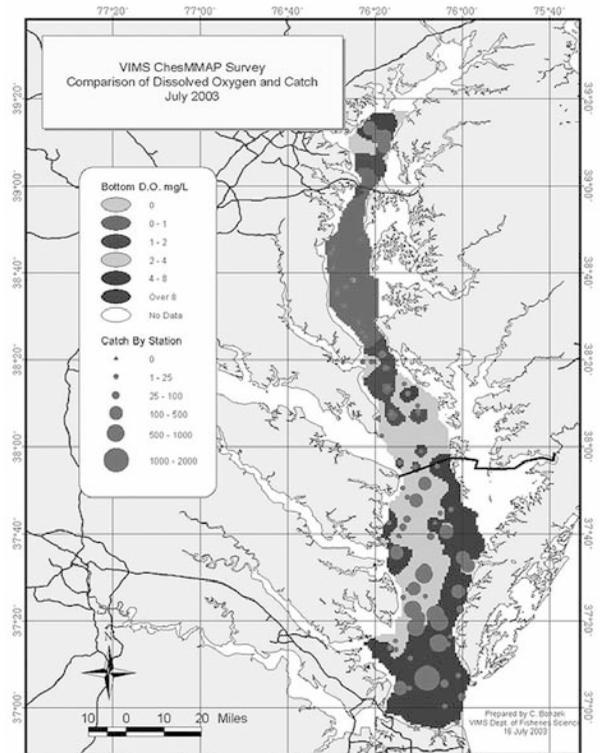
Diaz notes that the number and size of dead zones has doubled every decade since the 1970s, and that about

150 such zones now exist in the world's oceans and seas. They range in size from a few hundred acres to more than 25,000 square miles, about the size of West Virginia. A dead zone that developed in the Chesapeake Bay during July 2003 covered about 250 square miles. Some of the earliest recorded dead zones were in Chesapeake Bay. The most well known dead zone is in the Gulf of Mexico. Its occurrence is linked to nitrogen fertilizers brought to the Gulf by the Mississippi River.

Diaz argues that dead zones are fast becoming a bigger threat to fish stocks than over-fishing, a conclusion that the GEO report echoes. He and other experts also warn that global warming, with its likely increase in rainfall, may aggravate the problem. Diaz cites a modeling study showing that a doubling of carbon dioxide would double rainfall across the central US, increasing discharge from the Mississippi River by 20%. The model predicts that increased nutrient inputs from a stronger Mississippi would

decrease dissolved oxygen levels in the northern Gulf of Mexico by 30-60%.

The GEO Year Book project was initiated in response to the requirements of the UN's Agenda 21 on sustainable development and to a 1995 UNEP Governing Council decision.



Data from VIMS' ChesMMAP survey illustrate the large dead zone (upper dark area) that developed in Chesapeake Bay in the late summer of 2003.

Businesses in Marine Trades Willing to Pay for Training

A recent VIMS survey shows that marine businesses in the Mid-Atlantic states are ready to support a regional training and certification program for their employees.

Seventy-three percent of marine businesses in the region believe industry certification of workers is necessary, and 51% say the need for basic vocational training is just as important, according to the survey of 300 marine firms from North Carolina to New Jersey.

The certification training most in demand is for outboard and diesel mechanics, followed by fiberglass and electrical technicians, according to Thomas J. Murray, marine business specialist at VIMS.

"Just about everybody seems to agree there is a need for certification for existing employees," Murray says. "It standardizes what the consumers get." The survey results also show broad interest in ongoing vocational training, though consensus here is weaker, he says.

Some 320 marine businesses in the Chesapeake Bay region of Virginia, North Carolina, Maryland, and Virginia responded to the survey. Those businesses included 211 boatyards and marinas, 131 marine service and support companies, 102 boat and motor dealerships, 70 boat brokerages, and 27 boat and equipment manufacturers.

Altogether, the companies employ 5,765 full-time and 1,142 part-time workers.

The businesses reported 470 workforce vacancies last January and February when the surveys were taken, underscoring that in the Chesapeake as elsewhere, trained marine tradesmen are in short supply.

"Without an adequate pool of qualified employees, the industry cannot continue to grow and the entire coastal economy will suffer," Murray says in a report covering the survey results.

The survey was undertaken through the Northern Neck Planning District Commission, with grants from the U.S. Department of Agriculture and the Virginia Department of Community Development.

Murray says the commission is working on a strategy to train and certify more marine workers and encourage more marine business in the Tidewater region. It plans to develop a regional training program on Virginia's Northern Neck. The program would target its training at businesses in North Carolina, Virginia, Maryland, and New Jersey. Murray says Gov. Mark Warner also has identified the marine industry, along with health care, for future development.

—by Jim Flannery (This article was excerpted from the May 2004 edition of "Soundings: Trade Only.")

Assembly Names Library for Hargis

Virginia Governor Mark Warner signed a bill designating the VIMS library the William Jennings Hargis, Jr. Library in an April ceremony at the Capitol. The bill was introduced by Delegate Harvey B. Morgan (R-98th District).

Dr. Hargis led VIMS for 22 years, a period longer than any other director, and one marked by the greatest growth in staff, budget, and facilities. Hargis received the Virginia Life Achievement in Science award in 2003, and VIMS' Lifetime Achievement award this year.



From L daughter Susan Hargis King, Dr. Hargis and his wife Marcia, Governor Warner, Delegate Morgan, and VIMS Dean and Director Don Wright. For more on Dr. Hargis' Lifetime Achievement award, visit www.vims.edu/topstories