

# Mann Urges Congress to Enact Ballast Water Standard

Dr. Roger Mann, Acting Director for Research and Advisory Services at VIMS, testified before the U.S House of Representatives in March concerning newly proposed international standards for managing invasive species in the ballast water of seagoing vessels.

Mann contended in testimony before the subcommittees on Coast Guard and Maritime Transport and Water Resources and Environment that the proposed International Maritime Organization (IMO) standards don't go far enough toward keeping non-native marine species out of Chesapeake Bay and other U.S. waters.

Mann argues for a standard that would require incoming

ships to kill 100% of ballast-water organisms larger than 50 microns. A micron is one millionth of a meter. A typical human hair is about 100 microns across.

"A 50-micron standard is sufficiently small to control all the life stages of most marine macro-organ-



Photo courtesy freefoto.com.

The ballast water needed by large vessels to provide stability when unladen poses a serious ecological threat when released.

isms, including eggs and larvae," says Mann. He contends that this standard could be met through existing technologies.

Most importantly, says Mann, quick adoption of a clear and quantifiable standard would jump start efforts to refine and develop technologies for improving ballast-water treatment.

Mann says that existing technologies could readily provide treatment that is more effective than traditional practices such as mid-ocean exchange, but that they are being kept from the marketplace by the lack of a consistent standard. Potential treatments include deoxygenation, filtration, heating, and dosing with ultraviolet light.

"We need to establish a clear standard so that entrepreneurs can move forward with research and development of methods to treat ballast water," says Mann. "The lack of a consistent, quantifiable standard keeps shipping interests and venture capitalists from investing in existing or new equipment due to concerns that a future standard may render it obsolete."

The proposed IMO standards would limit the population of organisms larger than 50 microns to about 10 organisms per cubic meter of water. Populations of organisms between 10 and 50 microns would be reduced to 10 per milliliter.

The IMO regulations, which would not take full effect until 2016, would allow vessels to meet these standards by exchanging their ballast tanks in mid-ocean. Current IMO guidelines encourage this practice but have no provisions for enforcement.

Mid-ocean exchange of ballast water is the traditional method used to help keep aquatic stowaways from invading foreign ports, but recent studies question its effectiveness.

Chesapeake Bay is the largest single recipient of ballast water on the East Coast. Norfolk alone receives more than 9,000,000 metric tons of ballast water per year, from 48 foreign ports. Release of ballast water and other human activities have introduced more than 160 non-native organisms to the Bay, including the Rapa whelk, the zebra mussel, and the Japanese shore crab.

Mann is an internationally recognized expert on non-native aquatic species and has provided advice on invasive-species issues at all levels of government. He has been studying the Rapa whelk since it first appeared in Chesapeake Bay in 1998.

The House requested Mann's testimony in light of its re-authorization of the 1996 National Invasive Species Act (NISA), which like the current IMO guidelines encourages mid-ocean exchange or equivalent measures on a voluntary basis. The Coast Guard, which is charged with monitoring the voluntary program, recently conducted a survey that showed the voluntary program is not accomplishing the objectives of NISA and should be made mandatory.

Mann admits that current technologies do not guarantee the exclusion of smaller phytoplankton and toxic dinoflagellates that cause red tides. But, he says, "We shouldn't be handcuffed by the search for ultimate control tools while good, although perhaps not perfect, technology is within grasp to address the ecological problem at hand."

For more information on the IMO's Global Ballast Water Management Programme, visit <http://globallast.imo.org>

—by Cory Staryk and David Malmquist

## Graves Receives Faculty Award

VIMS Professor Dr. John Graves has received the state's highest honor for professors. Graves was one of 11 statewide recipients of the 2004 TIAA-CREF Outstanding Faculty Award presented by the Commonwealth of Virginia.

Also receiving the honor was Professor Chi-Kwong Li of William and Mary's mathematics department. William and Mary is the only college or university in the state to have two faculty members recognized. The General Assembly and governor created the award in 1986. Winners must demonstrate a record of "superior accomplishments in teaching, research, and public service."

Graves and Li were honored January 21 during a ceremony in Richmond and a luncheon at Gov. Mark Warner's Executive Mansion. The recipients receive a specially designed plaque and a \$4,000 award.

"Our faculty members are truly the heart and soul of the College and their commitment to academic excellence is what makes William and Mary a unique educational experience for all our students," said William and Mary Provost P. Geoffrey Feiss. "Through their tireless efforts in all aspects of higher education, John Graves and Chi-Kwong Li have both gained the ultimate respect from their colleagues and students. William and Mary is extremely proud to have them represent the College in such a prestigious honor."

Graves came to VIMS in 1990. He serves as both a professor of marine science and chair of VIMS' Department of Fisheries Science.

An internationally recognized leader and scholar in the field of fisheries genetics and marine science, Graves has received more than \$3 million in research grants or contracts, published research findings in major scientific journals, and made presentations on his research around the world.

Since 1995, Graves has also served as chair of the U.S. Advisory Committee to the International Commission for the Conservation of Atlantic Tunas. Over the past eight years, Graves has helped the commission establish historic rebuilding plans for



Governor Mark Warner (R) presents Dr. John Graves with the SCHEV outstanding faculty award while State Senator H. Russell Potts (far L) and SCHEV Chairman Dr. Carl N. Kelly look on.

stocks of western Atlantic bluefin tuna, North Atlantic swordfish, and blue and white marlin.

Graves' students compliment him for his challenging courses and dedication to their own professional development. In addition to his work at VIMS, Graves has developed a series of courses in marine science for high school teachers and has also volunteered several times to teach an introductory biology course, "Principles of Biology: Organisms, Ecology & Evolution," to undergraduates at the College's main campus.

"My courses are rigorous, but I try to make them fun," Graves said. "I put a great deal of effort into teaching, and I expect as much back from my students. I believe that learning is a very personal process and that the role of an instructor is to inspire students to learn."

Graves earned his bachelor's degree in biology from Revelle College at the University of California, San Diego in 1975. He earned his Ph.D. in marine biology from Scripps Institution of Oceanography at the University of California, San Diego in 1981.