

# Impact

**VIMS** | WILLIAM  
& MARY  
VIRGINIA INSTITUTE OF MARINE SCIENCE

News About VIMS

## EELGRASS RESTORATION AIDS OVERALL RECOVERY OF COASTAL BAYS

The reintroduction of eelgrass into Virginia's coastal bays—a joint effort among VIMS, the University of Virginia, The Nature Conservancy, and the Virginia Coastal Zone Management Program—is one of the great success stories in the annals of marine restoration.

Between 1999 and 2010, program partners have broadcast 37.8 million eelgrass seeds across 309 acres in 4 coastal bays. Those plantings have now expanded naturally into 4,200 acres of lush eelgrass meadow.

A recent issue of *Marine Ecology Progress Series* features 9 articles by VIMS scientists and colleagues describing the 15-year restoration process and explaining how the resulting “state change” from bare seafloor to lush eelgrass meadows has led to a healthier and more vibrant ecosystem overall. A final article, however, cautions that the restored meadows are vulnerable to global warming.

Eelgrass flourished in the seaside bays of Virginia's Eastern Shore until the 1930s, when a wasting disease and hurricane wiped it out. When the eelgrass

disappeared, so too did the food and nursery habitat it had provided to marine organisms and seabirds. One notable loss was the bay scallop—which had previously supported a significant commercial fishery.

VIMS professor Robert “JJ” Orth—head of the seagrass restoration and monitoring program at VIMS—notes that two factors combine to make Virginia's coastal bays an ideal spot for restoring eelgrass and studying the resulting ecosystem changes.

First, the bays are part of the Virginia Coast Reserve. Managed by The Nature Conservancy, the reserve has been under intensive study since 1987 as a Long Term Ecological Research (LTER) site administered by the University of Virginia. That's important, says Orth, because “Ongoing baseline studies by LTER scientists in the absence of eelgrass set the stage for understanding the subsequent ecological benefits of restoring eelgrass as a dominant species.”

Second are the reserve's relatively pristine waters, which receive low levels of

nutrient pollution from the surrounding watershed. Clear water is key for transmitting the sunlight that seagrasses need to thrive.

A paper by VIMS professor Ken Moore and colleagues expands on the link between water quality and eelgrass abundance. It shows that increased abundance of eelgrass in the coastal bays is countered by decreased or static abundance in nearby areas of lower Chesapeake Bay where waters are less clear and warmer during the summer.

Overall, the studies reveal that the observed increases in ecosystem health show no signs of leveling off—even after nine years of eelgrass recovery—thereby suggesting that full restoration has not yet been reached. VIMS' role in the restoration effort continues to benefit from a new state-of-the-art seagrass lab, which was funded in part by a gift of \$150,000 from the Norfolk Southern Foundation. —<http://bit.ly/vcrmeps>



SAV researcher Scott Marion helps eelgrass seeds drop from flowering shoots for later collection. The seeds will be used for restoration.

## VIMS TEAM ASSISTS IN ANTARCTIC MARITIME RESCUE

VIMS Professor Walker Smith and his research team, conducting marine studies aboard the research vessel *Nathaniel B. Palmer* in Antarctica's Ross Sea, were involved in early January in the rescue of 7 injured fishermen from a stricken South Korean vessel, and transport of the injured to the U.S. McMurdo Research Station.

The 167-foot fishing vessel *Jeong Woo 2* caught fire about 370 miles northeast of McMurdo and 2,000 miles south of Christchurch, New Zealand, killing 3 crewmen. From McMurdo, the injured fishermen were airlifted to Christchurch for assessment and further treatment.

Smith, graduate students Anna Mosby and Sean Charles, and marine technician Liza Delizo were aboard the *Palmer* as part of a 6-week NSF-funded research expedition to study the role that iron plays in controlling the growth of phytoplankton in the Ross Sea. Smith is an internationally known phytoplankton expert with more than two decades of Antarctic research experience.— <http://bit.ly/palmrescue>



The *Jeong Woo 2* on fire in the Ross Sea. Photo courtesy of Walker Smith/VIMS.

## PARTNERSHIP EXPLORES FEASIBILITY OF COMMUNITY-SUPPORTED FISHERY

Local seafood once provided a major economic and cultural link between Chesapeake Bay and the people in its watershed. Today—with a few exceptions—the crabs, oysters, and fish on your plate are more likely to come from the Gulf Coast, Caribbean, or Far East.

A new partnership between Virginia Sea Grant, VIMS, and the College of William and Mary's Mason School of Business and Marshall-Wythe School of Law, is exploring whether a community-supported fishery is a feasible means to help reverse this trend by promoting greater consumption of locally harvested fish and shellfish.

Project leader Troy Hartley, Director of the Virginia Sea Grant program at VIMS,

## VIMS PARTNERS WITH COAST GUARD FOR VESSEL SAFETY

VIMS continued its on-going efforts to promote vessel safety with the recent visit of personnel from the U.S. Coast Guard station in Milford Haven. The USCG staffers instructed VIMS researchers and crew in the use of the type of pump the Coast Guard would supply if responding to a sinking vessel. Participating in the training were scientists from the Northeast Area Monitoring & Assessment Program (NEAMAP) at VIMS, whose multispecies fishery research takes place aboard commercial fishing vessels in the open Atlantic between Cape Hatteras and Cape Cod.

Sharon Miller, Marine Safety Manager at VIMS, says “Hands-on training and experience with safety equipment, as well as conducting safety drills, contributes to individuals thinking as a survivor and not as a victim.” Miller notes that commercial fishing is easily the most dangerous job in America, with a rate of 116 deaths per 100,000 workers.



*Vessel Pump: From L: Researchers Hank Brooks and Jim Garliland of VIMS learn about the vessel pump from USCG MK3 (Machinery Technician Third Class) Henry.*

says “Community-supported fisheries—‘CSFs’—connect fishermen directly to local markets. Consumers pay for a share of the fishermen’s catch, and in return receive fresh seafood on a regular basis.”

The first part of the feasibility study—interviews with W&M students, faculty, and staff—showed significant interest within the W&M community in support of locally harvested and sustainable seafood.

If findings from a follow-up survey of the local community confirm the positive interview comments, the project team will create a business plan that details how to best proceed in terms of staffing, storage, transport, finance, legal arrangements, and other factors.

Hartley stresses that market conditions and product supply are unique to every CSF location, but that all CSFs share



*Local Interest: Rustam Arstanov (L), an MBA student in W&M's Mason School of Business, discusses a community-supported fishery (CSF) with Melody and Kaare Loftheim of Williamsburg during the 2nd Sundays Arts and Music Festival on March 11th.*

what he calls “triple bottom-line business goals.” These include increasing the viability of local economies, cultivating healthy ties within and between rural and urban communities, and encouraging an ethic of environmental stewardship.

—<http://bit.ly/csfva>

## “PROJECT HEALING WATERS” ENGAGES DISABLED VETS IN FLY FISHING

VIMS has partnered with the Fly Fishers of Virginia and Dominion Power to help rehabilitate disabled veterans through a unique program called Project Healing Waters.

Susanna Musick, head of the VIMS component of the Virginia Game Fish Tagging Program, supported the project this winter by helping veterans tag and release their catch during three fly-fishing training events at the “Hot Ditch” near Dominion’s Chesapeake Energy Center.

The events “provided a wonderful opportunity for VIMS to partner with members of industry and conservation to support veterans,” says Musick. Speaking of one of the participating veterans, Dave Conklin, she says, “Watching Dave cast is poetry in motion. His graceful casting

is an achievement, one that he enjoys sharing with the other veterans involved in the project.”

In addition to receiving training in fly casting, the veterans also learned about the importance of catch-and-release fishing and helped contribute to the Virginia Game Fish Tagging Program’s goal of encouraging recreational anglers to enhance data-collection efforts for poorly studied species such as red drum, black drum, cobia, tautog, and speckled trout.—<http://bit.ly/vimsheal>



*Project Healing Waters: More than 30 volunteer fishing guides and wounded warriors came to Dominion’s Chesapeake power plant to fish at the Hot Ditch on January 17, 2012. Photo ©Janet Krenn/VASG*

# GLOUCESTER PT. ROTARY CLUB CONTINUES WARINNER FELLOWSHIP AT VIMS

Members of the Rotary Club of Gloucester Point recently visited VIMS to present a \$5,000 check to Dean and Director John Wells. The funds will support the second year of a graduate student fellowship established by the club at VIMS in 2011.

During their visit, the Rotarians also heard a research update presented by the two inaugural fellowship recipients—VIMS graduate students Anna Mosby and Annie Murphy.

The Rotarian's annual fellowship gift honors J. Ernest Warinner, a fellow Rotarian who retired as an adjunct assistant professor at VIMS in 1991 after a 30-year career. Mr. Warinner, who passed away in March 2011, was an expert in the use of radioisotopes to track biological and physical processes in nature.

Also present for the gift presentation and research update were Mr. Warinner's widow Frances Warinner and son Robert Warinner.

The Warinner Fellowship is the result of an ongoing fundraising effort through the Gloucester Point Rotary Charitable Foundation. The funds are received by the VIMS Foundation, a nonprofit 501(c)(3) organization that supports VIMS' mission of education and research.

During her research update, 2011 fellowship recipient Annie Murphy described how Rotarian support has aided her study of the ecological impacts and sustainability of clam aquaculture on Virginia's Eastern Shore. Virginia's hard

clam industry is the nation's largest, with total revenues in 2010 of \$25 million.

Warinner Fellow Anna Mosby described her study of phytoplankton in Antarctica's Ross Sea. These tiny floating plants form the base of the marine food web and play a key role in climate change by removing carbon dioxide from the atmosphere. Carbon that is exported to the deep sea via this "biological pump" contributes nothing to current global warming.

Rotary Club president Roger West says "We're pleased to continue our support of research and scholarship by graduate students at VIMS, and really enjoyed learning about how the Warinner Fellowship has helped Anna and Annie to advance their studies of issues with both local and global importance. It's a fitting tribute to Ernie's lifework and accomplishments."

Wells says "we greatly value this generous support from the local community in honor of an individual who gave so much to VIMS, the Gloucester area, and the Commonwealth."  
— <http://bit.ly/warfelvims>



Members of J. Ernie Warinner's family at VIMS. From L: Mr. Robert Warinner and Mrs. Frances Warinner, with VIMS graduate students Annie Murphy and Anna Mosby.

## POKER RUN TO HELP RAISE FUNDS FOR VIMS

The Colonial Sail and Power Squadron will host Hampton Roads' largest dinghy and kayak event on Saturday June 16, 2012 at Dare Marina in Yorktown. All proceeds of "The Poker Run" will benefit VIMS. Participating kayaks, dinghies, jet skis, and motor craft will pick a playing card at designated locations around Chisman Creek. On returning to Dare Marina, those with the winning hands will be announced and prizes awarded. Participants can take part either by manning a vessel or setting up a table to sell items. All entries pay a \$20 registration fee, which enters one boat or rents one table. Student registration is \$10. Participants

raise money for their vessel by collecting sponsorship donations from friends, neighbors, and coworkers.

The sponsors for this year's event are Colonial Sail and Power, West Marine, West Marine Express, Joe and Mimma's, IHOP in Yorktown, Ken Matthews Garden Center, and Appomattox River Company. For details, visit <http://bit.ly/dprvims>



During the first Poker Run held in April 2010, Kevin Spanik of VIMS picks up one of his playing cards at the Bell Island Marina on the Back River in Hampton.

## UPCOMING EVENTS

### **May 16th, 2 - 4 p.m.**

Science Under Sail: Chesapeake Bay Drifters

### **May 19, 10 a.m. - 3 p.m.**

Marine Science Day

### **May 23th, 2 - 4 p.m.**

Science Under Sail: "Ghost" Pots in the Bay

### **May 30th, 2 - 4 p.m.**

Science Under Sail: From HMS to ROV-- The Past and Future of Marine Research

### **Fridays- June 1- Aug. 31, 10:30 a.m. - noon (except for July 6th)**

Public tours, by registration only.

### **June 6th, 2 - 4 p.m.**

Science Under Sail: Oysters on the Main Sail

### **June 16th, 9 a.m. - 3 p.m.**

3rd Annual Dinghy Poker Run

### **June 19th, 6 - 8 p.m.**

Discovery Lab: Ocean Chemistry and Acidification

### **July 17th, 6 - 8 p.m.**

Discovery Lab: Fishes of the York River

*Please visit:  
[www.vims.edu/public](http://www.vims.edu/public)  
for more information about  
these events*

## BAY'S BLUE CRAB POPULATION REACHES 19-YEAR HIGH

Data from the 2011-12 Blue Crab Winter Dredge Survey show a boom in Chesapeake Bay's blue crab population, fueled by a large increase in the abundance of juvenile crabs. The baywide survey is conducted annually by VIMS and the Maryland Department of Natural Resources.

The results were announced on April 19th in a press release from Virginia Governor Bob McDonnell and Maryland Governor Martin O'Malley.

Survey results show the Bay's total population of blue crabs has reached 764 million, due to 4 years of a baywide stock-rebuilding program. This is 66% more than the 2011 abundance level of 460 million crabs, and the highest level recorded since 1993. The baywide blue crab stock abundance is now more than triple the record low of 249 million, set in 2007, the year before the stock-rebuilding program began.

In announcing the results, McDonnell said "This is fantastic news. The crab population is the highest it has been in the past 20 years, and to see this record

production of juveniles is truly remarkable. Those crabs will grow over the summer and many will reach market size in the fall. Those that aren't harvested and brought to the dinner table will become the building blocks for future generations of crabs."

Governor O'Malley said "Just a few short years ago, the future did not look bright for our blue crab population.

Our female crabs were being overfished, and our fishery was at risk of complete collapse. We teamed up with our neighbors in Virginia and at the Potomac River Fisheries Commission to make the tough choices, guided by science, to reverse that population decline."

The survey shows this year's numbers are the result of a baywide baby boom—an increase from 207 million juvenile crabs last year to 587 million this year. That's the highest number of juveniles ever recorded, obliterating the old record of 512 million set in 1993.

The survey results sounded one important cautionary note: the recorded number of spawning-age females dropped

roughly 50% from 2011 levels, down to 97 million. But that level remains above the healthy-species threshold, and these types of fluctuations are neither unprecedented nor unexpected.

Professor Rom Lipcius, head of the Winter Blue Crab Dredge Survey at VIMS, says "The recorded number of spawning age females is a warning signal that requires a risk-averse, prudent management strategy to avert another decline." Crab abundance had declined by 70% before the baywide stock-rebuilding program began in 2008.

Scientists are exploring the possibility that this winter's unusually warm water temperatures may have played a role in the 2012 results by altering the crab's overwintering behavior, and thus their availability to the survey gear. The National Estuarine Research Reserve site at the Goodwin Islands (near the mouth of the York River) showed bottom temperatures for December to March about 4° warmer than the previous 5-year average.

Fishery managers will learn more about the baywide levels of spawning-age female crabs this summer from VIMS' and Maryland's summer crab trawl surveys. —<http://bit.ly/bcwds2012>



Blue Crab (*Callinectes sapidus*).  
Photo by Gabrielle Saluta.

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