

# Impact

Oyster toadfish and offspring  
©Paula Dye

FALL 2020 NEWSLETTER

VIRGINIA INSTITUTE OF MARINE SCIENCE

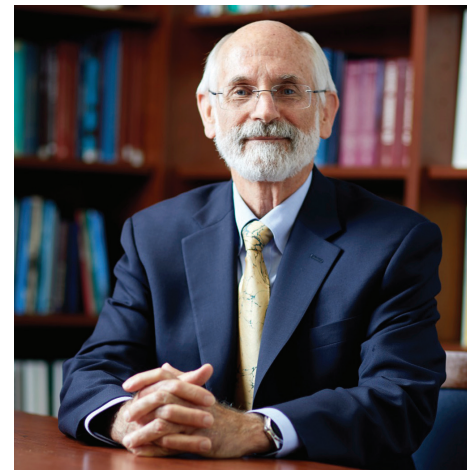
## DEAN AND DIRECTOR WELLS TO RETIRE IN 2021

After 16 years as director of VIMS and dean of the School of Marine Science, Dr. John T. Wells announced he will retire on June 30, 2021.

"It has been my honor to serve as dean and director since 2004," Wells said. "VIMS is a world class institution, defined first and foremost by the people who work and study here. The superb value and unsurpassed quality of what we do as an institution and then deliver, year after year, to the Commonwealth of Virginia, the nation, and the world is possible because

of their hard work, dedication, and innovation."

Wells arrived at VIMS following a 25-year career as a marine geologist on the faculty at UNC Chapel Hill and Louisiana State University and a 15-year overlapping stint as editor of *Marine Geology*. As VIMS dean and director, he oversees daily operations and strategic planning for one of the largest marine research and education centers in the United States, with approximately 425 faculty, staff, and



> Dean and Director John T. Wells

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## SUPPORTERS PROPEL VIMS TO RECORD-BREAKING CAMPAIGN FINISH

William & Mary concluded its transformational billion dollar *For the Bold* fundraising campaign on June 30. After exceeding an initial goal of \$15 million in 2015 for its portion, VIMS went on to raise \$26.5 million - more than double any previous campaign total. Gifts came from 6,107 supporters, including community members, VIMS alumni, W&M alumni, VIMS faculty and staff, and corporations and foundations.

"This is an outstanding achievement," said



> Campaign dollars are helping to fund VIMS' effort to bring back bay scallops.  
© R. Snyder/VIMS.

A. Marshall Acuff, Jr., chair of the VIMS campaign. "People are increasingly aware that research at VIMS benefits the Chesapeake Bay and coastal communities worldwide, and they want to partner in that effort."

*For the Bold* funds are already transforming programs and lives across VIMS. Twenty-two new graduate fellowships are helping VIMS recruit and retain the highest caliber students for the School of Marine Science. The first-ever, fully privately funded fellowship was

established by the Freeman Family Foundation for the study of marine plastics and is already funding a top scholar.

Campaign dollars are helping to fund VIMS' effort to bring bay scallops back to the waters off Virginia's Eastern Shore, both through aquaculture and restoration of the natural population. That support is coming in part from a private family fund at the Hampton Roads Community Foundation, as well as 200 donors who contributed a total of \$20,000 to the Save Our Bay Scallops crowdfunding campaign.

Innovations at VIMS are being accelerated through the Dean

*Continued on page 2*

## VIMS' MARINE SCIENCE DAY GOES GLOBAL

In a typical year, VIMS would normally welcome thousands of people onto its Gloucester Point campus for Marine Science Day. However, 2020 has been anything



>Quinn from Yorktown, VA, won top honors for his creative oyster bed costume.

but typical. The pandemic gave VIMS the opportunity to reimagine the annual spring open house and offer it in a different way. This year, VIMS brought Marine Science Day directly into people's homes by going digital.

On May 30 the Marine Science Day site went live. Suddenly the local, one-day-only event was accessible to anyone in the world, with content available to registrants for an entire year. The new virtual platform allowed users to participate in activities, watch live presentations, and interact with scientists throughout the day. Participants were able to hear about the latest VIMS research on topics such as oysters, fisheries, sea-level rise, marine debris, harmful algal blooms, marine science careers, and more.

Jason and Dorsie Reese from Creekside Catering offered a cooking demonstration online, and Chef Wade O'Neill from the Culinary Arts School shared a special Marine Science Day recipe for sautéed rockfish.

The annual art and costume contests went virtual, which created a fun opportunity to add pets to the costume contest. Entries were received from all over the country, and the judges had hard decisions to make. The grand prize winner was Quinn, from Yorktown, VA, whose costume was a very creative oyster bed.

This year's Marine Science Day reached more than 2,000 curious minds across the country and around the world. Participants represented 41 states and 12 countries, including Australia, Ireland, and Portugal. Access to the Marine Science Day platform will last through April 2021, so guests can continue to explore the day's content at their leisure. VIMS received overwhelmingly positive responses about the first virtual Marine Science Day, and many teachers have reported that they are using the platform in their classroom to teach students about the marine science.

"Marine Science Day 2020 was an unqualified success," said VIMS Dean & Director John Wells. "The day was truly remarkable and offered an outstanding example of our top-quality outreach efforts."

*Supporters propel VIMS to record-breaking campaign finish continued from page 1*

and Director's Innovation Fund, established by the Joan & Morgan Massey Foundation and the Nunnally Charitable Trusts during the campaign. Dr. Lisa Kellogg and Dr. Kirk Havens are the most recent recipients of awards from the fund. In an effort to find a better sampling method to study fish in the Chesapeake Bay's restored oyster reefs, Kellogg is developing an app to help recreational anglers identify, measure, and track the fish they catch. Havens is developing products using a biodegradable polymer as an alternative to plastics.

Outreach efforts are also underpinned by private support. Programs such as Marine Science Day, summer camps, and public lectures bring marine and coastal science into our communities. From January 2015 through June 2020, more than 128,370 people were reached through VIMS educational outreach programs.

Now, with many programs being delivered virtually, VIMS is increasingly connecting with people around the world. Marine Science Day was conducted virtually in 2020 and reached individuals in 41 states and 12 countries.

"Our supporters are helping make transformational change at VIMS," said Dean and Director John Wells. "Paired with continued support from the state and winning federal grants and contracts, VIMS' growing philanthropic base will provide us with the flexibility and stability needed to meet emerging challenges and take advantage of opportunities well into the future."



>Outreach efforts such as Marine Science Day are underpinned by private support. ©Aileen Devlin

To learn more about the campaign and VIMS' accomplishments over the past five years, check out the 2015-2020 VIMS Impact Report at <https://bit.ly/impact1520>

## NEW SONAR SUITE ADVANCES THE VIRGINIA AND VIMS RESEARCH

Through a visionary investment by the Commonwealth of Virginia, the research vessel *R/V Virginia* was designed, built, and delivered to become the flagship of the VIMS fleet. Scientists at the institute had a vision of their own. While the vessel was already the most advanced ship in its class, the addition of a sophisticated sonar suite, made up of a multibeam and echosounder, would give scientists and students advanced tools to study the marine environment and keep the *Virginia* at the cutting edge for years to come.

With a \$1,000,000+ price tag, the sonar suite represented a significant investment. VIMS turned to The Mary Morton Parsons Foundation, which generously awarded a \$400,000 challenge grant to fund nearly half the cost and challenged VIMS to raise at least \$400,000 by June 2020.

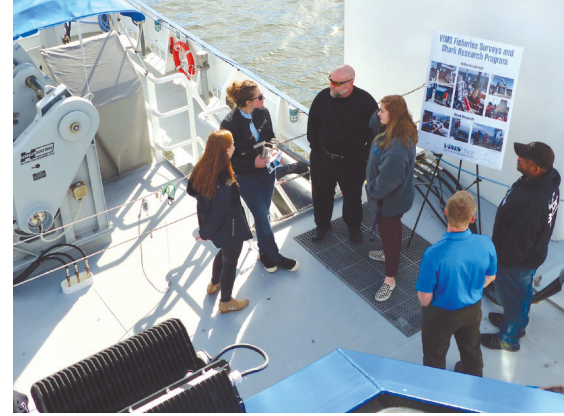
VIMS put out the call to its supporters, and they responded with enthusiasm. Marshall Acuff and Phyllis Cothran inspired more than \$70,000 of support through a special mailing. As part of the challenge publicity effort *R/V Virginia* traveled to Richmond and Alexandria to host tours for the public,

school groups, William & Mary alumni, and philanthropic supporters. A crowdsourcing effort rallied 86 donors to give more than \$18,000 toward the match. The rest was met with grants and gifts to the *R/V Virginia* Outfitting Fund that ranged from \$1 to \$50,000.

Vessel operations staff are now following a complex schedule for purchasing and deploying the sonar suite, which includes hauling the vessel out of the water. A lot of planning goes into getting the sonar equipment installation done exactly right so that high quality data can be collected. After installation, time will be allocated for testing, which will be fit in around already-scheduled cruises. Supporters of the outfitting campaign will receive updates as the process continues.

The faculty, staff, and students at VIMS thank everyone who helped make the purchase of the sonar suite possible and recognize the people and foundations who will have spaces on the vessel named for them or their loved ones.

- Bridge: The Mary Morton Parsons Foundation
- Engine Room: Nunnally Foundation
- Ship's Galley: Beazley Foundation



>Visitors tour *R/V Virginia* in Richmond.

- Dry Lab: In Memory of Dr. Rebecca Dickhut
- Wet Lab: In Memory of Dr. David Hata
- Main Deck Head: Charles Natale, Jr. and Donna Natale
- Captain's Bunk: Bob and Peg Freeman
- Scientific and Marine Crew Bunks:
  - CAPT Hal Hardaway, USN (Retired)
  - CAPT Mo Lynch, USNR (Retired)
  - The Peter & Mary Russo Family Foundation
  - Laura Daughtry Smart and Samuel C. Smart, O.D.

The following gifts will be acknowledged on the *R/V Virginia*:

- A. Marshall Acuff, Jr.
- Beazley Foundation
- John Paul Causey, Jr.
- D. Bruce Christian & Spas Christian
- Brian W. Clarke & Ellen Nelson Clarke
- Rachel Dickhut
- Sakae Hata
- Dr. Samuel Cooper Smart & Laura Daughtry Smart
- Clifford Cutchins IV & Jane M. Cutchins
- Adrian "Casey" G. DuPlantier, Jr. & Kay DuPlantier
- Margaret Freeman
- CAPT Hal Hardaway
- Henry "Chip" Hortenstine III & Catherine Hortenstine
- Wayne K. Johnson, Jr. & Robin Schools Johnson
- CAPT Maurice P. Lynch
- Charles Joseph Natale, Jr. & Donna Mary Natale
- Nunnally Family Foundation
- The Mary Morton Parsons Foundation
- The Peter & Mary Russo Family Foundation
- William J. Strickland & Lydia Strickland
- Anne Marie Whittemore

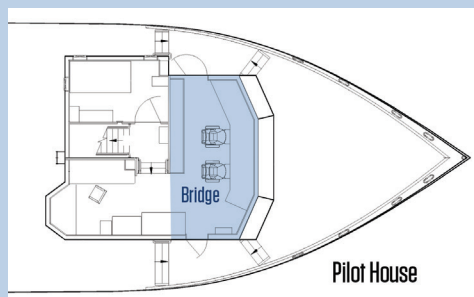
### BRIDGE: THE MARY MORTON PARSONS FOUNDATION

Last year The Mary Morton Parsons Foundation generously awarded a \$400,000 matching grant to VIMS in support of the effort to purchase a \$1 million sonar suite for the *R/V Virginia*. Thanks to the generosity of hundreds of supporters, VIMS successfully met the foundation's challenge. In appreciation, VIMS is naming the ship's bridge in honor of the foundation.

"The Mary Morton Parsons Foundation has a history of supporting environmental projects throughout the Commonwealth," said Amy Nisenson, executive director of The Mary Morton Parsons Foundation. "Our board thinks highly of the work that VIMS is doing to protect and preserve Virginia's marine environment and recognizes the enormous impact VIMS research has on the Chesapeake Bay and our coast."

Mary Morton Parsons (1903-1990) was the only child of William Smith Morton, a life-long resident of Richmond and a founder of the Home Beneficial Life Insurance Company. She formed the foundation through her inheritance to support a variety of philanthropic purposes, from the arts to historic preservation to fundamental community needs.

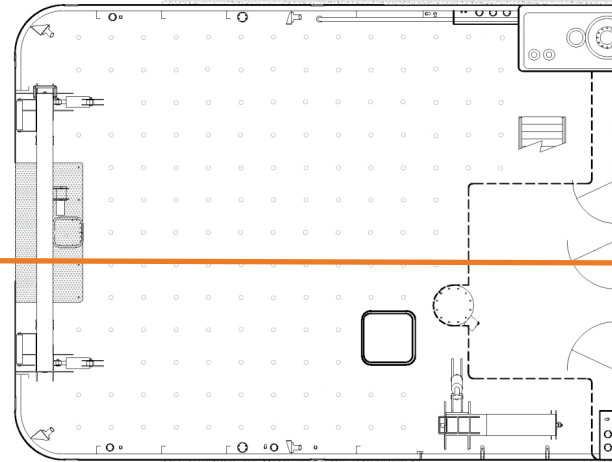
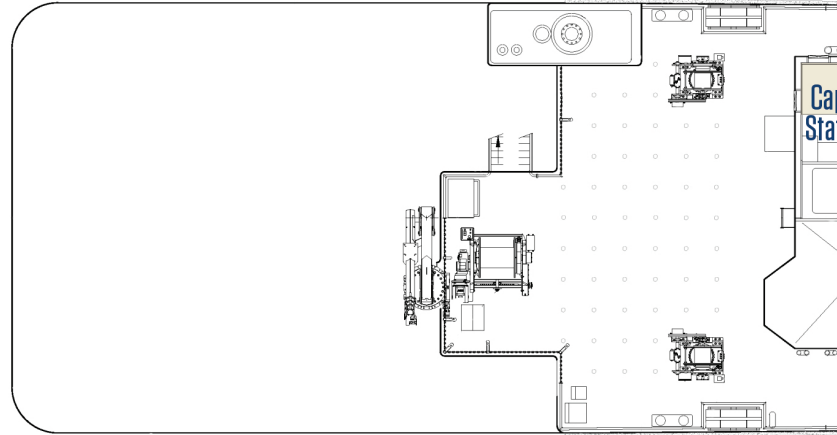
Today, the foundation's board seeks to perpetuate the desire and legacy of Mrs. Parsons: That we all work together as a community to make the greater Richmond area a better place to live and work and that we preserve the related traditions and history of our Commonwealth.



**CAPTAIN'S BUNK: BOB AND PEG FREEMAN**

Peg Freeman was introduced to VIMS by her late husband, Bob, who served on the VIMS Council and was an avid fisherman. "He was a natural fit for VIMS," Peg said, "and he loved it." VIMS Dean and Director John Wells worked closely with Bob during his tenure on the council and said "Given Bob's passion for VIMS, we created the Robert M. Freeman Volunteer of the Year award and honor his legacy each year at our annual awards ceremony."

Peg visited VIMS with Bob over the years, and the more she learned about the research, the more interested she became. Since Bob had been particularly interested in the VIMS research vessels and Peg was impressed with the R/V *Virginia*, she decided to make a gift in support of the new vessel. "It's fun to have a bunk—the place to rest—and the boat is fascinating," she said. Peg and her children share a concern about plastic in the marine environment and funded the Freeman Family Fellowship in Marine Plastic Pollution during the recent *For the Bold* campaign.



**DRYLAB: IN MEMORY OF DR. REBECCA DICKHUT**

If there is one thing Rachel Dickhut wants people to know about her daughter, Rebecca, it's that she was a wonderful person. That sentiment is shared by the many friends, family members, and former VIMS colleagues who gave to the R/V *Virginia* Outfitting Fund in her memory.

"VIMS was very important to Rebecca," Rachel said, and the environment has always been important to the entire family. "She was hired at a time when there weren't many women in science," Rachel noted, and that makes the Dickhut family particularly proud of all Rebecca accomplished.

Dr. Rebecca Dickhut joined the VIMS faculty in 1989. During her 22-year career, she became an internationally recognized expert in the field of environmental science, studying pollutants on a global scale and their implications for ecosystem health, especially in Antarctica and the Chesapeake Bay. Along with her students and collaborators, Rebecca published nearly 50 papers over her career.

Rebecca was a respected teacher and advisor who served as major professor to 16 graduate students. She also shared her knowledge and experience with hundreds of students as a long-time instructor of core courses in the School of Marine Science at VIMS. She was

known for working throughout her career to broaden participation and strengthen networking of women in science. Rebecca passed away in November of 2011.

The wet lab aboard the *Virginia* will be named in Rebecca's honor. "We are excited about this because it would make Rebecca happy," Rachel said.



**WET LAB: IN MEMORY OF DR. DAVID NOBORU HATA**

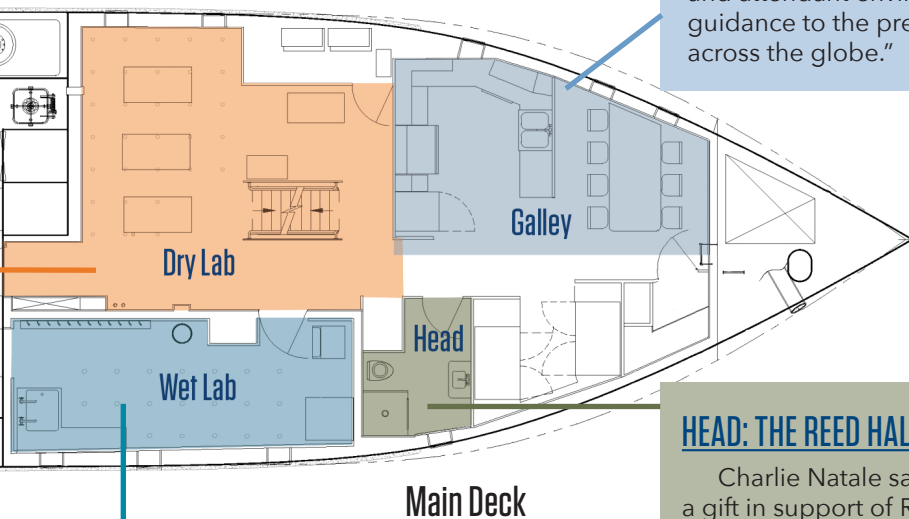
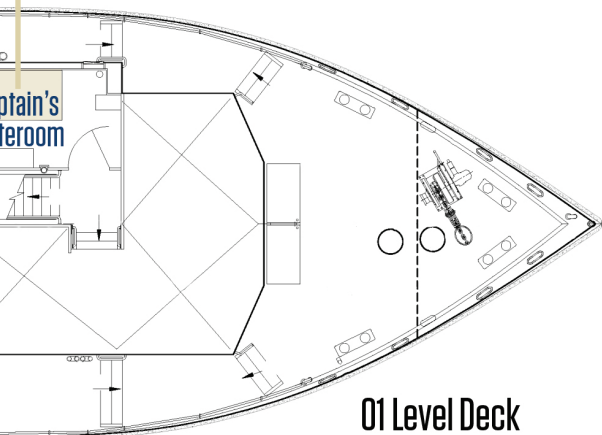
Sakae Hata remembers her son David as someone who was very modest and always got along with other people. When he received his Ph.D. in 1993, he invited the family to come to Virginia for graduation, and she realized how important VIMS was to him.

After David passed in November 2019, his mother found VIMS campaign letters that he had kept, including the challenge for equipping the R/V *Virginia*, so she knew he was interested in supporting the institute. She decided to memorialize David through a naming gift for the vessel, and many of David's friends and colleagues, including Dr. Jack Musick, his faculty advisor at VIMS, contributed.

"David was extremely patient," Musick remembers at VIMS that required meticulously measuring the water's patience. I also fondly remember his quiet sense of humor.

At the time of his death, David was a research scientist at Virginia Tech. The wet lab aboard the *Virginia* space [on the vessel] after him makes me happy," says Musick. "I will be doing research every year."

## R/V VIRGINIA OUTFITTING FUND



### SHIP'S GALLEY: BEAZLEY FOUNDATION

The Beazley Foundation, founded in 1948 by Fred W. Beazley, was tasked with the primary mission of enhancing educational opportunities and enlightenment. "The dedicated purposes of VIMS create a perfect partner with Mr. Beazley's vision," said Judge Richard S. Bray, foundation president. "Construction of the R/V *Virginia* brings a powerful asset to VIMS and, with it, an opportunity by the foundation to strengthen the research capacity of the vessel with the power of multibeam sonar. The foundation is pleased to assist the project with financial support needed to help fund such technology." The galley aboard R/V *Virginia* will be named in honor of the Beazley Foundation in appreciation of that support.

Judge Bray noted that "Since inception, VIMS has provided the expertise of data collection, interpretation, and related advisory services essential to prudent management of the Commonwealth's marine resources. Of equal importance, countless students have received the unique education and experience offered by the institution's distinguished graduate program. Today, graduates of VIMS span the world and, sharing the knowledge and training in marine life and attendant environment issues learned at VIMS, bring professional guidance to the preservation of such abundant, but fragile, resources across the globe."

### HEAD: THE REED HALL LIBRARY

Charlie Natale said he and wife, Donna, gave a gift in support of R/V *Virginia* because it was a natural legacy gift for them. Charlie and Donna were part of the VIMS community while Charlie was earning his master's degree from the William & Mary School of Marine Science and working shipboard as a geological oceanographer. He graduated in 1982.

Today Charlie is president and CEO of his own company, ESS Group, Inc., an environmental and engineering firm, and a member of the VIMS Foundation Board. As a board member, he has the opportunity to stay abreast of research at the institute. "VIMS has outstanding scientists who are working to advance marine science research and education," Charlie said, "and the public advisory services they provide are second to none."

With a great sense of humor, Charlie chose the vessel's "head" (bathroom) for the couple's naming opportunity. "It's fun!" he said. "We would like the name on the head to be "The Reed Hall Library" to reflect the importance of the deep contemplation and scientific reading and understanding that goes on in the head of a vessel."

Reed Hall was home to VIMS Geological Oceanography for decades. Before that, it had been home to the keeper who ran the ferry from Yorktown to Gloucester Point. Charlie remembered that Reed Hall's tiny bathroom was created via the conversion of an existing small clothes closet and was "always chock full of old maps, scientific reports, and data plots," so there wasn't room to do much!



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r in the Department of Fisheries and Wildlife *Virginia* will be named in his honor. "Naming a Sakae said. "It will be on the water, where he did

# NAMING GIFTS IN SUPPORT OF THE R/V VIRGINIA OUTFITTING FUND

## CREW BUNKS

### CAPT Hal Hardaway, USN (Retired), William & Mary '71

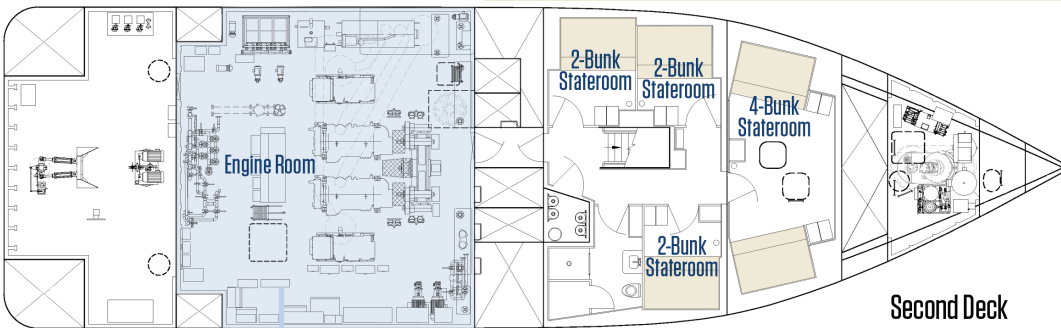
A graduate of William & Mary, Hal Hardaway '71 has long been familiar with VIMS. At one time he had thought that he might get his master's degree there after he finished a three-year commitment with the Navy, but he ended up staying on



active duty for 30 years.

After retirement, he even thought about getting an M.S. from VIMS just for fun. "Then 9-11 happened," Hal said, "and I was recruited to work in national intelligence."

Hal said he supports VIMS because he cares about the oceans and marine life,



Second Deck

and VIMS' research helps the marine environment. Naming a bunk is special to him because he spent a lot of time onboard ships during his Navy career, and he enjoyed touring the *Virginia* when it was docked in Alexandria, VA, last year.

### CAPT Mo Lynch, USNR (Retired)

Newly separated from the Navy, Maurice "Mo" Lynch was exploring graduate school options when he met Bill Hargis. Hargis, VIMS' director and dean (1959-1981), talked about the marine science program and his dreams for VIMS, and Mo liked what he heard. Since he was wooing Gin at the time and holding out for her to say yes to marrying him, he figured staying in the area would improve his chances. He stayed, and she said "yes." After receiving his Ph.D. in 1972, he accepted a position at VIMS and worked there until he retired in 1996.



Mo said that as an undergraduate student at Harvard he learned about the importance of giving back. Because he had a very interesting, rewarding career at VIMS, he enjoys providing support for the biggest needs of the institute. He will have a bunk named in his honor.

## ENGINE ROOM: NUNNALLY FOUNDATION

The engine room onboard the R/V *Virginia* will be named to honor the Nunnally Foundation's gift to support purchase of the vessel's sonar suite. Established in 1970 by the late Moses D. Nunnally, Jr., the foundation supports a variety of charitable activities in the Greater Richmond, Virginia, area, including the fish collection at VIMS. Nunnally was president of the Home Beneficial Life Insurance Co. and an avid fisherman. He was a founding member of the Virginia Anglers Club in the early 60s.

Since 1991, the Nunnally Foundation and Trusts have provided vital support to VIMS initiatives such as the Dean & Director's Innovation Fund, the Fisheries Science Building, the Moses D. Nunnally Professorship, and the Nunnally Ichthyology Collection Endowment. Their investment in the collection has grown it into a global research resource with a full-time manager and more than 500,000 fish specimens. It serves as a repository for fishes from all over the world, with an emphasis on fishes of the Chesapeake Bay, Virginia freshwater, the coast of Virginia, and the Western North Atlantic. It is a valuable resource used by VIMS scientists and various state agencies, and collection specimens are loaned for scientific research worldwide.

### The Peter and Mary Russo Family Foundation

When family friend and advisor Rich Lafferty '74 suggested to Peter Russo, Jr., that his family's foundation support the R/V *Virginia* fundraising effort, Russo agreed it was a good fit. "Because my father, Peter Russo, Sr., served in the Coast Guard, supporting the vessel was especially interesting to us." The family did make a gift, and a bunk will be named in honor of The Peter and Mary Russo Family Foundation.

### Laura Daughtry Smart & Samuel C. Smart, O.D.

Sam and Laura Smart are William & Mary grads ('67 & '68) who grew up spending time at the oceanfront. Sam is interested in fishes from around the world and has spent a lot of time sailing. Laura first visited VIMS with the Garden Club of Virginia. She was impressed with the research and how scientists were working to solve problems in the marine environment.



The couple decided it would be fun to give to the R/V *Virginia* outfitting effort, and a bunk will bear their names. Laura noted that she gets seasick and would never be found on a bunk at sea, but she's glad to support the crew and contribute to the place they lay down to rest. Sam was very impressed when he saw the *Virginia* at a port call in Richmond, and realized "With the new sonar, the possibilities for the vessel really will be endless."

They said both have learned a lot through VIMS educational programs. "The work VIMS is doing is really important, as we're in an environmental crisis," Laura said. "The science is so valuable."

*John Wells to retire in 2021,  
continued from page 1*

students, and an annual operating budget of \$52 million. His leadership responsibilities extend to all aspects of VIMS' three-part mission of research, education, and advisory service.

"John has led VIMS to new heights with wisdom and creativity," said William & Mary President Katherine A. Rowe. "The legacy of his time at the helm of VIMS is impressive: relationships built across the Commonwealth and nation; impactful solutions that support a healthy marine environment; research and public education cultivated in partnership with a generation of marine scientists. His leadership has benefitted William & Mary, the Chesapeake Bay, and Virginia's coastal communities in lasting ways."

## **EDUCATION**

Under Wells' leadership, the School of Marine Science established 37 privately funded Graduate Fellowships, whose endowments help attract top-notch students from around the world. It also recently launched a new M.A. program designed to produce graduates with the knowledge, skills, and experience needed to translate, integrate, and apply marine science to issues of pressing societal concern.

Dr. Linda Schaffner, associate dean of academic studies at VIMS, said "We continue to attract top students because John has remained fully committed to our mission of educating the next generation of leaders in marine science. He has been a strong supporter of all our education and outreach programs, working tirelessly to bring in the state and private support that allows our graduate program to stay competitive with top peer institutions."

Wells strategically filled 28 faculty positions vacated primarily through retirements, most held by professors with decades of experience. "Our hiring of a new cohort of world-class faculty is one of my single proudest accomplishments," says Wells.

He also supported greatly expanded efforts to communicate science with the public, including his funding for and participation in VIMS' annual Marine Science Day open house, monthly After Hours lecture series, and public tours.

*>Wells joins former Supreme Court Justice and W&M Chancellor Sandra Day O'Connor for a tour of the VIMS campus in 2007.*



## **RESEARCH & ADVISORY SERVICE**

Wells' leadership has also elevated VIMS' role in advisory service, as mandated in 37 sections of the Code of Virginia. During his tenure, VIMS scientists have helped guide major decisions concerning Chesapeake Bay restoration, shoreline protection, blue crab harvesting, oyster aquaculture, offshore wind development, channel deepening, port expansion, management of ground- and surface-water supplies, and widening of both the Hampton Roads and Chesapeake Bay bridge tunnels.

Dr. Mark Luckenbach, VIMS' associate dean of research and advisory services, said "John built very strong relationships with the Virginia General Assembly and several governors by regularly engaging and clearly articulating VIMS' key role in addressing Virginia's needs in marine resource management. His conviction that our advisory mission should be grounded in the best available science and delivered in an unbiased manner cemented the institution's reputation as an honest broker of environmental science."

Wells' tenure included the 2019 launch of VIMS' new 93-foot flagship R/V *Virginia*, built with a \$10 million investment from the Commonwealth. "It's got the flexibility to do almost anything on the water that our scientists might want to do, now or in the future," Wells said.

He also led efforts at VIMS to conceive, plan, and fund several new state-of-the-art research and administrative buildings. These include the planned Acuff Center for Aquaculture, a state-of-the-art shellfish research hatchery to support Virginia's rapidly expanding oyster aquaculture industry, and major improvements to the VIMS' Eastern Shore Laboratory, home to important work on clam

aquaculture, bay scallop restoration, and coastal resiliency.

## **BUILDING FOR THE FUTURE**

Wells' legacy includes building both a solid financial foundation and the infrastructure needed to meet future challenges. During his tenure VIMS completed a record-breaking fundraising campaign and underwent an unprecedented period of transformational building. The Eastern Shore Seawater Lab was dedicated in 2012, and work is now underway on a series of new buildings and renovations that will significantly modernize the Eastern Shore campus. The Gloucester Point campus has been transformed by the addition of Andrews Hall, the Seawater Research Lab, Davis Hall, and a new Facilities Maintenance Building. A ground breaking will be held soon for the new, state-of-the-art Acuff Center for Aquaculture.

Wells was instrumental in efforts to launch and sustain the Commonwealth Center for Recurrent Flooding Resiliency, a partnership established in 2016 by VIMS, W&M, and Old Dominion University to better meet the growing challenge of sea-level rise and recurrent flooding. "The Center positions VIMS and W&M as global players in resiliency and climate-change adaptation," said Wells.

Wells also established a Diversity and Inclusion Committee to increase representation of minority groups at VIMS. Founded on a "Principles of Community" document, the committee reports directly to the Dean and Director and has wide latitude in helping to create and maintain the best possible environment in which diversity can thrive.

"VIMS has accomplished much in the past 16 years," Wells said, "and I am leaving with full confidence in its future."

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[www.vims.edu/impact](http://www.vims.edu/impact)



## DEAD ZONE REPORT CARD REFLECTS WEATHER, IMPROVING WATER QUALITY

An annual report of “dead-zone” conditions in the Chesapeake Bay during 2020 indicates the total volume of low-oxygen, “hypoxic,” water was considerably less than in recent years. Scientists attribute this good news to a combination of favorable weather factors and management actions designed to curb nutrient runoff into the waters of the nation’s largest estuary.

Dr. Marjy Friedrichs, a VIMS professor and report card co-author, says “There was considerably less bay hypoxia in summer 2020 than in the past several years. Precipitation and nutrient runoff were slightly lower than average early in the year—and much lower than during the very wet years of 2018 and 2019—while unseasonably cool temperatures in May and September also helped to curtail the duration of the hypoxic season.” Cooler water can hold more oxygen, and slows the rate at which bacteria in

bottom waters remove oxygen through respiration.

Friedrichs says “Overall the news is good for the bay. Even despite long-term warming temperatures, hypoxia is decreasing due to nutrient reductions—a testament to the fact that management actions to curb nutrient pollution are working.”

Friedrichs developed the Annual Chesapeake Bay Dead Zone Report



> Low oxygen levels can force striped bass from the cool bottom waters they prefer. © D. Malmquist/VIMS.

Card with Dr. Aaron Bever, who earned his Ph.D. from William & Mary’s School of Marine Science at VIMS in 2010.

The summer dead zone is one of the major water quality concerns facing the Chesapeake Bay. The dead zone forms when rivers supply excess nitrogen from fertilizers, wastewater, and other sources, fueling short-lived blooms of algae. Bacteria then eat the dead, sinking algae, consuming from bottom waters the dissolved oxygen that fish, shellfish, crabs, and other animals need to survive. Bay dead zones peak during summer, when hot weather encourages algal growth and bacterial decay, and reduces how much oxygen the water can hold.

The team’s report card summarizes oxygen conditions in the bay each year as estimated by their 3-D, real-time hypoxia forecast model, based on 35 years of water-quality data collected by the Chesapeake Bay Program.