

Impact

FALL 2025
NEWSLETTER

VIMS | WILLIAM
& MARY
VIRGINIA INSTITUTE OF MARINE SCIENCE



>Newly planted marsh vegetation on Penniman Spit, which was saved from eroding into the York River thanks to a Department of Defense-funded collaboration that supported military readiness at Naval Weapons Station Yorktown while paying ecological dividends for the region. Learn more on page 13.
Photo by Donna Milligan.

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SUSTAIN OUR SCIENCE FOR SOLUTIONS

The essential work conducted by W&M's Batten School & VIMS is made possible, in part, by the generosity of private philanthropists who value coastal and marine ecosystems and the communities that rely on them.

These supporters see the critical difference the Batten School & VIMS create as we conduct research, make discoveries, develop solutions, train the next generation of scientists, educate the public and advise industry policymakers and practitioners.

If you'd like to support our community of difference-makers, from our researchers and students to our educators and support staff, consider making a gift to sustain our science and the incredible people who make it happen.

To make a gift, scan the QR code, visit vims.edu/giving or call 804-684-7846.



COVER PHOTO: Virginia bay scallops by Reba Turner Smith.

85 YEARS OF COASTAL & MARINE EXCELLENCE



1940: The Virginia Fisheries Laboratory (VFL) opens its doors after the Virginia General Assembly allocates a few thousand dollars to "the laboratory in Yorktown" to study oyster depletion. The VFL offers classes toward W&M's Master's Program in Aquatic Science.

1942: The VFL sets up an Eastern Shore field station in Wachapreague to study ribbed mussels.

1943: W&M and the VFL award their first master's degree.

1950: To make way for the Coleman Bridge, the VFL moves across the York River to Gloucester.

1955: The popular Chesapeake Bay juvenile finfish and blue crab surveys begin, and continue today as key fishery management tools.

1940's

1950's

BRIDGE FUNDING HELPS SUSTAIN MARINE RESEARCH DURING UNCERTAIN TIMES

As economic uncertainty and shifting federal budget priorities put pressure on research entities across the country by delaying, reducing and canceling funding streams, William & Mary's Batten School & VIMS are taking proactive steps to safeguard our mission. The VIMS Impact Fund, an unrestricted fund dedicated to meeting our most pressing needs, is now being leveraged to close funding gaps and ensure our critical scientific work continues without interruption.

"There has never been a time when private philanthropy has played a more important role at the Batten School of Coastal & Marine Sciences & VIMS than now," said Ellen Leverich, executive director of the VIMS Foundation and Batten School & VIMS Advancement. "The VIMS Impact Fund will provide bridge funding for research to ensure that scientists can continue making progress developing practical solutions for those whose livelihoods and properties are dependent on the health of our waterways."

Batten School & VIMS researchers whose work is impacted by funding stoppages can receive bridge funding from the VIMS Impact Fund. Already, our scientists have started to receive and utilize this vital assistance.



>Kirwan's team visits five sites in the region as part of their vegetation survey work. Photo provided by Matt Kirwan.

As part of the National Science Foundation's Long-Term Ecological Research Program, Matt Kirwan '02 investigates the effects of sea-level rise on Virginia's barrier islands and adjacent marsh and forest ecosystems. This research relies on consistent data collection, yet despite more than 30 years of continuous support, Kirwan and his team recently faced a sudden 7-month gap in funding.

However, thanks to bridge funding from the VIMS Impact Fund, Kirwan's group was able to continue their monitoring efforts.

"You might think that one year wouldn't make a difference in such a long data set, but this year we actually captured an unusually high number of dead trees," said Kirwan. "That data will allow us to constrain the salinity conditions that lead to tree death and better predict the impacts of climate change on coastal forests."

"It is imperative that research scientists, like Matt, can continue their work when faced with funding delays and shortfalls," said Leverich. She also noted that, as the Batten School & VIMS continue to navigate unpredictable research support, the bridge funding initiative is a lifeline not just for scientists, but also for the ecosystems and communities that depend upon our research.

Kirwan confirms that the support makes a real difference, for both research and morale. "I was really discouraged before the bridge funding was announced," he said, "but these funds gave me the confidence to keep moving forward with our research, and



>Kirwan measures the ongoing impact of sea level rise and the extent to which salt marshes migrate into dying forests. Photo provided by Matt Kirwan.

the assurance that VIMS had my back. It would be easy to shut down in the face of adversity, but this funding reminded me that our work is important, and people really care. VIMS gave me a clear signal that we weren't going to quit."

Contributions to the VIMS Impact Fund help ensure that the development of science for solutions to coastal challenges can continue without disruption. To make a gift toward bridge funding for our researchers, visit vims.edu/giving/where-to-give/ and click on VIMS Impact Fund (2550).



>A drone photo of the Long-Term Ecological Research Program site. Photo provided by Matt Kirwan.

1960: The VFL's Eastern Shore Laboratory (ESL) is established as a permanent research outpost in Wachapreague to monitor oyster pathogens and pursue aquaculture research.

1961: W&M's School of Marine Science (SMS) is established at the VFL to offer both M.S. and Ph.D. graduate degrees.

1962: The VFL is renamed the Virginia Institute of Marine Science (VIMS) and designated as an independent state institution.

1962: ESL's main laboratory opens, and work there culminates in Virginia's hard clam aquaculture industry.

1967: The juvenile striped bass survey begins. Federal funding is discontinued in 1973, terminating the survey, but funding and implementation are reinstated in 1980.

1968: The VIMS Wetlands Program, a precursor to the Center for Coastal Resources Management (CCRM), is formed when the Virginia legislature orders "a study and report on all marsh and wetlands in the state."

ACTIVATING ENTREPRENEURIAL ENERGY TO PURSUE COASTAL & MARINE SOLUTIONS

THE DEAN & DIRECTOR'S INNOVATION FUND EMPOWERS RECIPIENTS TO WORK AT THE INTERSECTION OF RESEARCH AND ENTERPRISE

From revolutionizing environmental DNA (eDNA) sampling to developing "forever chemical" detection tools and pioneering sustainable aquaculture systems, the Dean & Director's Innovation Fund at William & Mary's Batten School & VIMS continues to invest in bold, early-stage research with high potential for commercial outcomes.

"The Innovation Fund empowers VIMS researchers to launch high-impact, early-stage work that bridges disciplines and strengthens research capacity," said recent recipient Bongkeun (BK) Song, a professor at the Batten School of Coastal & Marine Sciences. "It supports pilot studies that generate the necessary data needed to pursue major federal funding and brings together experts across multiple fields to address complex sustainability challenges."

Established in 2018 with generous support from the Joan and Morgan Massey Foundation and the Nunnally Charitable Trusts, the Innovation Fund supports projects that advance innovation and economic productivity in marine science with both financial funding and business mentorship. By functioning like a marine science-focused version of the popular television show *Shark Tank*, the program nurtures ideas that can grow into environmental solutions, entrepreneurial ventures and transformative partnerships.

NEW RECIPIENTS ARE TURNING REVOLUTIONARY IDEAS INTO REAL-WORLD IMPACT

The 2025-26 award cycle highlights how the Innovation Fund serves as a powerful catalyst for sustainable development, with new projects that promise environmental benefit, commercial potential and public engagement. The three initiatives that received recent funding were selected because



>Researchers in the Indian Ocean prepare to utilize the SQUID-e. Photo provided by Paul Clerkin.

they embodied the program's founding vision: to foster forward-thinking research that bridges science and economic opportunity.

SQUID-e: A SMARTER WAY TO SAMPLE eDNA

Analyzing genetic material shed into the environment has high research potential, but eDNA sampling can become expensive and technically complex, especially in deep-sea conditions. However, Ph.D. students Paul Clerkin and Miguel Montalvo believed that eDNA collection could remain straightforward and affordable, no matter the environment. To prove it, they invented the Semi-passive Quick Underwater In-situ Deployment eDNA (SQUID-e) sampler, for which they were recently awarded Innovation Funds.

The device uses natural water pressure during towing to filter eDNA from seawater, eliminating the need for complex pumping systems and reducing costs and maintenance. The SQUID-e's modular, user-friendly design makes it adaptable for professional researchers and accessible for citizen scientists.

Clerkin and Montalvo aim to validate and benchmark the device's performance in the lab and field, with long-term plans for commercial production. By enabling widespread,

standardized eDNA monitoring, the SQUID-e could support global biodiversity research and unlock new markets for marine technology.

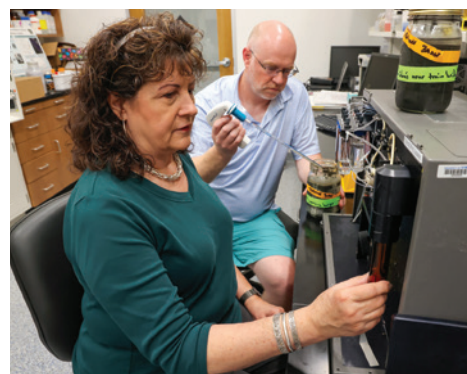
"The Innovation Fund is incredibly valuable to Batten School & VIMS researchers, because it funds projects for which it might be harder to find initial support, but can pay off long-term with a commercial component," said Clerkin. "We are really thankful for this in-house opportunity."

TACKLING FOREVER CHEMICALS WITH CUSTOM ANTIBODIES

Dubbed "forever chemicals" due to their environmental persistence, polyfluorinated alkyl substances (PFAS) pose growing threats to ecosystems and human health. Yet traditional detection methods are slow and expensive. VIMS scientists Mary Ann Vogelbein, Kimberly Reece and Hamish Small proposed a creative solution: custom-built monoclonal antibodies that detect PFAS quickly and affordably.

The team is working toward developing antibodies tailored to PFAS, building on prior success detecting contaminants like polycyclic aromatic

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>Vogelbein and Small conduct "forever chemical" research using a biosensor tool. Photo by John Wallace.

85 YEARS OF COASTAL & MARINE EXCELLENCE

1968: VIMS begins its partnership with the Virginia Sea Grant to study shellfish and provide advisory services.

1968: W&M's SMS at VIMS grants its first Ph.D. degree.

1972: The Virginia Wetlands Act directs VIMS to begin a regular, county-by-county survey of coastal marshes, which CCRM continues annually today.

1973: The annual longline shark survey begins, continuing today as the world's oldest continuously running survey of its kind.

1975: VIMS opens a research hatchery for experiments in oyster breeding.

1978: VIMS scientists begin regularly mapping submerged aquatic vegetation (SAV) and conduct biological research, including reproductive ecology, which becomes foundational for later restoration efforts.

1960's

1970's



Photo by Reba Turner Smith.

BAY SCALLOPS SURGE ON THE EASTERN SHORE

Virginia's bay scallop population is experiencing an unprecedented resurgence, thanks to years of dedicated restoration work led by the Batten School & VIMS Eastern Shore Laboratory (ESL) in Wachapreague. Once locally extinct due to habitat loss, today bay scallops are multiplying in the restored eelgrass meadows of the southern coastal bays along the Eastern Shore. Now, a recreational fishery could be on the horizon.

VIMS ESL's 2025 Bay Scallop Survey documented an average density of 0.114 scallops per square meter, with researchers routinely finding multiple scallops within a single square meter – something unimaginable just a few years ago. With the recent trend of progressive growth, researchers estimate the population will double in less than 1.5 years.

"The restoration of bay scallops to their former range along the Virginian Eastern Shore represents a significant societal and ecological achievement," said VIMS ESL Director Richard Snyder.

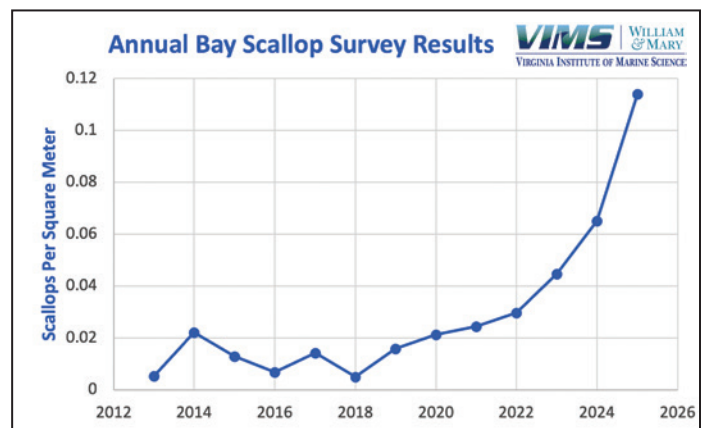
Importantly for seafood lovers, the new numbers match Florida's minimum population density for a stable population, opening the possibility that Virginians may one day be able to harvest local bay scallops themselves.

The commonwealth currently has a moratorium on harvesting wild bay scallops.

"In New England, North Carolina and Florida, individuals with a fishing license can harvest scallops," explained VIMS ESL Assistant Director Stacy Krueger-Hadfield. "The next step for us is to review management and regulatory frameworks being used for harvest elsewhere and provide advice to the Virginia Marine Resources Commission to establish rules for Virginia, so that we don't decimate the population we just restored."

Bay scallops (*Argopecten irradians*) once thrived in Virginia waters until seagrass wasting disease decimated the scallops' natural habitat of eelgrass. For approximately 90 years, the species was absent from the commonwealth's coastal bays.

However, in 1997, Batten School & VIMS researchers launched a seed-based submerged aquatic vegetation (SAV) restoration project now



>Once locally extinct, the Virginia bay scallop population is increasing exponentially due to restoration work by the Batten School & VIMS.

considered the most successful seagrass restoration in the world. With the reintroduction of eelgrass, scientists saw an opportunity to restore bay scallops as well. Early years showed relatively low, fluctuating numbers, but recently the bay scallop population has surged and researchers say its upper limit remains unknown.

For individuals who want to philanthropically support ESL's restoration of bay scallops, contributions can be made to the Eastern Shore Laboratory (3525) or to the Bonnie Sue Internship Program Fund (4262), which dedicates an annual summer intern to scallop care and deployment.

1979: VIMS is reorganized to return to the administrative umbrella of W&M and scientists are accorded full faculty status.

1984: VIMS receives state funding for SAV restoration, which involves transplanting adult plants and investigating the feasibility of seed planting. The SAV mapping program becomes an annual initiative, continuing today as the largest and longest running of its kind in the world.

1991: Administered as a partnership between VIMS and the National Oceanic and Atmospheric Administration, the Chesapeake Bay National Estuarine Research Reserve in Virginia (CBNERR-VA) is designated as the nation's 18th research reserve.

1997: VIMS researchers launch a seed-based SAV restoration project which is now considered one of the largest and most successful in the world and led to the subsequent restoration of bay scallops.

1980's

1990's

A FIREFIGHTER WHO BECAME A ROYALLY RECOGNIZED MARINE SAFARI GUIDE

ADELE PILE PH.D. '96 FOUND THE BATTEN SCHOOL & VIMS TO BE A PERFECT MATCH FOR HER TRAILBLAZING SPIRIT

Adele Pile and her husband, Stuart, never expected that their eco-tourism business would win awards. Great Barrier Reef Safaris was initially envisioned as a simple retirement business, yet it found prestigious recognition at the 2022 Beyond Service Awards. Presented by the King's Trust Australia to honor military veteran entrepreneurs, Stuart, a former member of the navy, won the Environmental Warrior Award, while Great Barrier Reef Safaris was personally selected by then-Prince Charles as the Business of the Year.

For someone who started their professional career as the first female firefighter in the Alexandria Fire Department in Virginia, Pile's journey to becoming a royally recognized conservationist has been winding and unexpected. "I went straight from high school into working for the fire service," she said. "After five years, I was ready for change, but I was basically only qualified to drive big trucks and spray water on things."

After enrolling at Boston University, Pile joined the marine program and spent a semester at Woods Hole Oceanographic Institution, which catalyzed a passion for marine science. After graduation, Pile spent a year exploring Australia, funded by a prominent Ada Draper Award, and then began

her pursuit of a graduate degree at the Batten School & VIMS.

MENTORSHIP EMPOWERS CUTTING-EDGE RESEARCH

Supported by a Sea Grant scholarship, Pile first earned a master's degree from the Batten School under advisor Rom Lipcius. Then, for her Ph.D., Pile studied under Mark Patterson, known for his work in coral physiology and robotics. "When I told Mark I was going to accept his fellowship offer," Pile recounted, "he said, 'Great! What size wet suit do you wear?'"

Soon enough, Pile found herself in Siberia's Lake Baikal, the world's oldest and deepest lake and home to freshwater sponges. Her doctoral research turned out to be revolutionary. "At that point, no one knew what sponges ate, because they eat plankton that are too small to even be counted with a microscope. I realized we needed to use laser technology, but only a handful of labs in the world were doing it at the time," she recounted.

"Mark said, 'If you can organize with one of those labs, I'll pay for you to go.' So, I took the samples from Siberia to a lab in Hawaii. It was really important work, because it totally changed the way we think about how carbon cycles around the planet."

Though using a flow cytometer is today a common practice to count bacteria, Pile estimates that, at the time, she was one of only four people in the world who knew how to do

so. It was these types of opportunities in graduate school that made her burgeoning career possible.

"During my time at VIMS, I created a unique toolkit of skills that I could apply to problems," she said. "It wasn't just the technology. I knew how to do field work. I knew how to set up a proper experimental design. I knew my way around a research vessel. All of those intangible, soft skills that you can't get if you're not at a place where you're immersed in it are just part of the DNA of VIMS."

FROM MARINE RESEARCH TO ECO-TOURISM

Pile's toolkit led her to a post-doctoral position at Harbor Branch Oceanographic Institution, where she applied her techniques in the Bahamas and the Gulf of Mexico, publishing seminal works in which she answered longstanding questions about what deep-sea creatures eat and how they acquire nitrogen.

Looking for a change, Pile then moved to Australia to work at Flinders University, followed by the University of Sydney where she ran a large deep-sea research lab which completed the first submersible expedition into an



> Pile helps to monitor the Great Barrier Reef as part of the Tourism Reef Protection Initiative. Photo provided by Adele Pile.



>Pile uses her research background to lead snorkeling safaris on the Great Barrier Reef. Photos provided by Adele Pile.



>Mentor Dr. Mark Patterson and Pile during a research cruise.

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85 YEARS OF COASTAL & MARINE EXCELLENCE

1997: The Virginia General Assembly establishes the Aquaculture Genetics and Breeding Technology Center (ABC) at VIMS.

2000: The Carl Hershner Teaching Marsh opens for educational programming.

2007: A Virginia Sea Grant (VASG) institutional program is established at VIMS and the following year VASG transfers its headquarters from the University of Virginia to VIMS.

2010: W&M's SMS at VIMS begins offering classes toward a minor in marine science for W&M undergrads.

2018: The 93-foot research vessel *Virginia*, purpose-built for VIMS, is added to Marine Operations' fleet of 30+ small boats and larger vessels.

1990's

2000's

2010's

GET TO KNOW THE NEW BATTEN SCHOOL STUDENTS!

Twenty-eight new students have matriculated into W&M's Batten School of Coastal & Marine Sciences & VIMS for the fall 2025 semester. They include three Ph.D. students, 11 M.S. students, three M.A. students and 11 Stravitz Scholars – undergraduates in the inaugural cohort of W&M's new bachelor's degree program in coastal & marine sciences. Here are just a few of the new faces on our campus:



Nina Jones
M.A. student from Williamsburg, VA

"VIMS offers a lot of things that other programs don't – specifically, being partners with the state, which provides a lot more opportunities for students. We need that kind of partnership now more than ever."



Sophia Tearman
Ph.D. student from Grapevine, TX

"I'm absolutely thrilled to get started. It's a dream program at a beautiful location. I'm most excited about the new perspectives from all the new people I'll get to meet."



Jonathan Williams
M.S. student from the Eastern Shore, MD

"I'm excited to be in a marine science space. Even though my focus will be on ocean modeling, there are so many class options that give you exposure to different fields, and I really like that interdisciplinary approach."



Elias Mitrokostas
Undergraduate student from Wellesley, MA

"It means a lot to be a Stravitz Scholar. We're in an incredibly lucky position to be on the cutting edge of a growing field and to be supported in so many different ways, so it means more than I can describe, and it means a lot of great things ahead."

WAVE MAKER AWARD BESTOWED TO PROFESSOR FOLLOWING HEROIC RESCUE

On Monday, July 7, Batten School & VIMS Professor Donglai Gong was at the beach with his family when he noticed a woman struggling in the York River, desperately clinging to the Coleman Bridge. He took immediate action to secure a Batten School & VIMS vessel and departed with a volunteer from Abingdon Volunteer Fire & Rescue.

When they arrived, Gong and the rescue volunteer not only pulled the victim out of the water, but also another Good Samaritan who had jumped in to save the woman but then became swept up by the river's strong tidal current themselves. Both rescued individuals were successfully transported to shore.

Said Gong in a public message to his coworkers, "VIMS is an awesome community and it's great to be able to give back when needed. Thanks to all the vessel operations folks for the upkeep of our fleet and offering effective training over the years, making mobilization for fieldwork and unanticipated emergencies such as this quick and easy."

As a small recognition of the quick-thinking and courage that saved at least one life, Batten School Dean & VIMS Director Derek Aday honored Gong with a Wave Maker award. Wave Makers is an internal recognition program that honors members of the Batten School & VIMS for their contributions to our mission and commitment to our community values.



>After the rescue, Gong and the rescue volunteer take a selfie to commemorate the unexpected moment. Photo by Donglai Gong.

2021: W&M's SMS at VIMS welcomes its inaugural cohort in a newly formed M.A. in Marine Science program. The first M.A. degrees are awarded two years later.

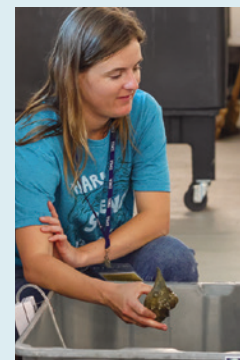
2022: The ESL campus completes a multi-million-dollar redesign and rebuilding project.

2024: W&M's SMS is renamed as W&M's Batten School of Coastal & Marine Sciences to honor a historic \$100 million gift from Jane Batten HON '17, L.H.D. '19 that, in part, establishes a bachelor's program in coastal and marine sciences, the first such degree offered at a public university in Virginia.

2025: W&M's Batten School & VIMS welcome their first undergraduate majors, who attend tuition-free thanks to another incredible gift of \$50 million from Dr. R. Todd Stravitz '82 and the Brunckhorst Foundations.

Over the past 85 years, the Batten School & VIMS have awarded more than 1,000 Ph.D., M.S. and M.A. degrees to our graduate students and conducted groundbreaking research that has transformed marine science, industry and policy.

2020's



The 23rd annual Marine Science Day, the marquee outreach event at the Batten School & VIMS, drew more than 2,000 attendees in late May to the sunny Gloucester Point campus. Then, in September, the VIMS Eastern Shore Laboratory (ESL) in Wachapreague opened the doors of its waterfront Seawater Laboratory to the public for the 12th annual Marine Life Day.

During each open house event, the public was able to learn and interact with scientists and students who presented their marine research through posters, hands-on activities and educational demonstrations. From live touch tanks, scallop harvesting activities and river seining to a marine science career fair, seafood

EDUCATING AND INSPIRING THE PUBLIC ON MARINE SCIENCE DAY & MARINE LIFE DAY

EXHIBITS, ACTIVITIES AND DEMONSTRATIONS BRING MARINE SCIENCE TO LIFE FOR ALL AGES

cooking tutorial and costume contest, there were exciting and varied exhibits for attendees across generations.

"We have a 7 year old, a 12 year old and a 17 year old, and every year they all love it," said Melissa Davidson, a Marine Science Day attendee. "It's so valuable, and it really gives us great opportunities to learn new things and have hands-on experiences. It's wonderful."

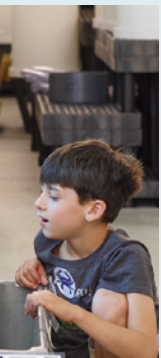
ESL Director Richard Snyder similarly praised Marine Life Day for supporting and educating the local community. "It has become a premier fall event on the Eastern Shore, connecting people to the hidden wonders of the marine resources all around them," he said. "Parents and grandparents bring their children and say they learn something new each year."

Both events draw attendees from across Virginia. "The kids are excited,



ESL Marine Life Day 2025





Marine Science Day 2025



and they like the new experiences," said Shannon Tillery, who brought her entire family to Marine Science Day from Petersburg. "They're learning they can be whatever they want to be."

Combined, the two events were brought to life by more than 300 staff, students and other supporters who volunteered their time to organize and set up the open houses, direct traffic, present research, supervise activities and more.

"This event would not be possible without the effort, inventiveness and enthusiasm brought by our staff and volunteers," said Reba Turner Smith, the manager of ESL's Castagna Shellfish Research Hatchery and one of the key

organizers of Marine Life Day. "Bringing together this varied group of scientists, students and staff and getting to see them engage with curious guests is incredible to witness."

Students at the Batten School & VIMS especially benefit from the chance to practice communicating science to new audiences. "Sharing with the general public and with kids is my favorite thing," said M.S. student Elena Hoang about interacting with participants at the Marine Science Day touch tanks. "They're hesitant at first, but once they touch a blue crab, they get excited."

By the end of each event, volunteers had heard from countless visitors who

found the experiences to be interesting and meaningful. "It's always humbling to hear that members of our community are inspired by the activities and information, whether they're motivated to make more conscientious decisions in their daily lives or encouraged to pursue marine science as a career," said Kristen Sharpe, assistant director of outreach and engagement.

Marine Science Day and Marine Life Day are made possible through the generosity of our supporters and sponsors. To contribute to these events, and to year-round educational opportunities, please consider making a gift to the VIMS Outreach Fund (4117).



hydrocarbons (PAHs) in the aquatic environment. The project could lead to valuable intellectual property, commercial licensing and further funding while providing a much-needed tool for environmental agencies and researchers.

"Without support from the Innovation Fund, it would not be possible to advance the development of a novel monoclonal antibody for these forever chemicals," said Vogelbein. "It's a complex task, but I'm ready to dive in with my great team of researchers."

SUSTAINABLE AQUACULTURE VIA MACROALGAE CO-CULTIVATION

The largest award of the year went to the multidisciplinary team of BK Song, William Walton, Andrew Scheld and Stacy Krueger-Hadfield for their innovative approach to sustainable aquaculture. Their project explores integrated multi-trophic aquaculture (IMTA), where oysters are co-cultivated with macroalgae.

IMTA systems can improve water quality, reduce nutrient pollution and mitigate ocean acidification, while also producing edible "sea lettuce" products. Through trials with Virginia shellfish growers, the team will test shared grow-out systems and wastewater-based cultivation methods. Researchers can then evaluate biological compatibility, cost-effectiveness and sea lettuce market feasibility.

"The fund creates opportunities for VIMS researchers and students to build collaborations that promote innovation and entrepreneurial opportunities. These opportunities, in turn, may lead to new commercial enterprises," said Song. "Our project not only benefits Virginia's aquaculture industry, it also promotes cleaner waterways, sustainable food systems and greater

public engagement in environmental stewardship."

DEDICATED EXPERTS PROVIDE ASSISTANCE FAR BEYOND THE LAB

More than the funding itself, what distinguishes the Dean & Director's Innovation Fund is the ecosystem of support integrated throughout the program. Proposals are evaluated by a dedicated Innovation Fund Working Group made up of seasoned leaders in science, business and philanthropy. This group doesn't merely award grants; it provides mentorship, business feedback and strategic guidance to help researchers define market opportunities, frame proposals and plan for commercialization.

For the SQUID-e team, the Working Group's input helped refine their project boundaries and market positioning. "We were asked to think about the potential market for our device, which definitely helped us develop the scope of the idea," said Montalvo.

Song similarly praised the Working Group for their prudent feedback. "They encouraged the team to be thoughtful about where intellectual property could be identified and protected," he said.

SEED FUNDING PROVIDES A PROVEN RETURN ON INVESTMENT

Catalyzed by generous philanthropic support and guided by Working Group expertise, previous Innovation Fund awardees have demonstrated extraordinary returns on investment (ROI). Modest grants have led to millions in external funding for further research, commercial applications and enhanced public services.

Marjorie Friedrichs received early Innovation Fund seeding to improve the accuracy and utility of her Chesapeake Bay Environmental Forecasting System (CBEFS), which predicts salinity, temperature, hypoxia, harmful algal blooms, sea nettles and pathogens. She then leveraged that work into more than \$385,000 in grants from the National Oceanic and Atmospheric Administration.

Thanks to the funding chain that started with the Innovation Fund, CBEFS is now a vital tool in support of Virginia's multimillion dollar fishing and tourism industries.

"Chesapeake Bay stakeholders, including anglers, charter boat captains, aquaculturists, coastal resource managers and the general public continue to use our environmental forecasts, upon which they have come to depend," said Friedrichs.

Similarly supported by the Innovation Fund, Derek Loftis' StormSense project later secured \$340,000 from the U.S. Geological Survey, while Lisa Kellogg's RecFish app received four additional grants totaling \$953,157 from the National Fish and Wildlife Foundation.

Each of these projects enhanced knowledge of marine science, generated additional research funding and contributed to economic development and public engagement – precisely the type of ROI the Innovation Fund is designed to support.

A PLATFORM FOR IDEAS WITH PURPOSE (AND PROFIT POTENTIAL)

The Dean & Director's Innovation Fund reflects a simple but powerful belief: when researchers are given the freedom and resources to be bold, their ideas can shape the future. In supporting concept-stage innovation, the program helps VIMS serve not only as a leader in marine research but also as an effective incubator for science-based, commercially viable entrepreneurship.

"I highly recommend other researchers apply for the Innovation Fund," said Friedrichs. "This is a novel opportunity for scientists to pitch innovative ideas to secure support for new projects that might not be eligible for more standard funding."

Song reiterated the unique possibilities made possible by the Innovation Fund. "It enables VIMS researchers and students to build collaborations that promote innovation and entrepreneurial opportunities. These opportunities, in turn, may lead to new commercial enterprises while enhancing learning opportunities for students and researchers alike."



>Song collecting additional samples in the field. Photo provided by BK Song.



>Members of Krueger-Hadfield's lab in the field collecting samples of "sea lettuce." Photo by Stacy Krueger-Hadfield.

MEET YOUR ADVANCEMENT TEAM!

The Office of Advancement at the Batten School & VIMS is tasked with securing resources to ensure our scientists, students, faculty and staff have the support necessary to continue their critical work, make new discoveries and meet emerging challenges. We work collaboratively with new and long-time supporters alike to match donor interests with the Batten School & VIMS' greatest areas of need.

Ellen Leverich
Executive Director
VIMS Foundation
Batten School
& VIMS
Advancement

Ellen joined the Batten School & VIMS in February 2025. Previously, she served as the vice president of college advancement for SUNY Geneseo, New York's public honors college. Ellen has additional leadership-level experience at The Bloomsburg University Foundation, Virginia Commonwealth University (VCU) and United



Way. Following an undergraduate education at SUNY Geneseo, she earned an MPA from VCU. Ellen lives in Williamsburg and enjoys hiking, kayaking, crafting and live music. She also serves as a board member for the Foundation for Family and Community Healing.

"I feel privileged to work at the Batten School & VIMS and to support the research engine here. The work VIMS scientists and students are engaged in is critical for the preservation of our waterways and coastal properties."

Contact Ellen at emleverich@vims.edu or (804) 684-7101.

Crystal Booker
Director of
Development

Crystal joined the Batten School & VIMS in January 2024 following previous experiences in an array of nonprofit roles, including outreach coordinator, data analyst, grant writer,



fundraiser and director of development and communications. Crystal graduated from Old Dominion University in 2017 with a bachelor's degree in international and global studies. She currently lives in Gloucester with her family and, in her spare time, enjoys photography and volunteering, including serving on the Gloucester Resource Council.

"I've wanted to work at VIMS since I was a child, so being here is like a homecoming for me. I love learning about our research and its impact on the world from the scientists making it happen, while helping our supporters find paths to making a difference in areas they find meaningful."

Contact Crystal at cbbooker@vims.edu or (804) 684-7099.

If you're interested in supporting the Batten School & VIMS, or if you are already a supporter but have not yet met our newest advancement team members, please reach out! We'd love to meet you and discuss how new and ongoing support keeps the Batten School & VIMS thriving in a rapidly changing world.

NEW ENDOWMENT SERVES STUDENTS, HONORS A BROTHER'S LOVE FOR THE OUTDOORS

When Stephen "Stevie" Peters passed away in 2024, the former shipyard employee left behind a legacy of love for fishing and the natural world. To memorialize that passion, his brother, Danny Peters, established the Stephen Peters Fellowship Endowment (1863) at the Batten School & VIMS. This generous

gift supports graduate student research and ensures that Stevie's name endures in a way that continues to make a difference for students and science.

Stevie, a 1969 graduate of York High School and a 1973 graduate of Newport News Shipbuilding and Drydock's Apprentice School, retired in 2012 after a long and fulfilling career. Though he had no direct ties to the Batten School & VIMS, he shared a lifelong love of fishing with Danny, a marine science enthusiast and retired educator. Danny recognized that the proceeds from



> Danny Peters (left) has made an important gift in memory of his brother, Stevie Peters (right). Photo provided by Danny Peters.

Stevie's estate could be used to support hands-on student research on the Chesapeake Bay, an ecosystem deeply reminiscent of their childhood memories fishing and exploring the outdoors.

Inspired by the work and friendship of the late Batten School & VIMS Professor Dr. Robert "Bob" J. Byrne—Danny taught Byrne's daughters at

York High school—Danny chose to align the new endowment with Byrne's existing legacy fund.

"It's for student research, it's for travel, it's for anything to promote graduate students at VIMS," said Danny of the new endowment, which will help empower student research and academic experiences. "They're committed to the field, but it's expensive. Students are really struggling to fund their work and going to conferences and things like that are also big expenses. I'm very appreciative of the help I've had in my life, and I want to pay that forward to others."

The gift was formalized in June 2025, and more funding will follow as additional assets are liquidated. "It'll take time," Danny explained, "but I'll continue to give as my CPA advises. All of Stevie's money will go into this endowment."

Though Stevie never stepped foot on the Batten School & VIMS campus, his memory now helps power the next generation of marine science discovery. Danny hopes others will be inspired to make similar gifts, either in memory of loved ones or simply as a way of giving back. "Everyone has had some kind of assistance in getting to where they are today," he said. "So why not pay it forward to help others? You don't have to spend a huge amount of money, but there are ways in which you can give and make a difference."

Through this tribute, Danny has not only honored his beloved brother but also helped ensure that future scientists have the support they need to carry their research into the Bay and beyond. Said Danny, "It's all worked out very well and I'm very pleased that it has. I'm glad I can do something to help the students at VIMS."

TRAWLING THROUGH TIME: 70 YEARS OF THE JUVENILE FINFISH TRAWL SURVEY

THE BATTEN SCHOOL & VIMS REGULARLY MONITOR CHESAPEAKE BAY SPECIES, INCLUDING THE INVASIVE BLUE CATFISH

For seven decades, the Batten School & VIMS have built one of the most important data sets in fisheries science: the Juvenile Finfish Trawl Survey. Launched in 1955, the survey now monitors more than 1,200 sites each year across the lower Chesapeake Bay and its tributaries, providing ongoing snapshots of the region's fish populations. These long-term data are critical for ecological understanding and fisheries management.

"The basic point of the survey is to monitor juvenile fishes over time and use consistent methodologies so we can compare one year to the next in perpetuity," said Troy Tuckey, a senior research scientist. That consistency enables scientists and managers to distinguish sustained trends from natural fluctuations. "Nature doesn't respond in a year," Tuckey noted, "so you need a long-term perspective."

The trawl survey began with limited sampling in the York River, but it gradually expanded to include the James and Rappahannock Rivers, as well as the Chesapeake Bay proper. "It's morphed over time," said Mary Fabrizio, a professor at the Batten School & VIMS. "Now it's much more in tune with the needs of fisheries and fishery management."

Today, the team gathers samples monthly using a five-minute tow of a

20-foot net to collect thousands of juvenile fish. "We skim right across the bottom, but we don't trawl over areas where we know there are sponges, sea grass, oysters or other obstructions," said Tuckey. "We're trying to observe nature, then put it back in place and move on. We identify 'em, measure 'em, toss 'em overboard."

That low-impact, high-value method produces data that inform stock assessments for species ranging from summer flounder to blue crabs, among many others. "Resource managers use the survey data to make their decisions, but our work is the fundamental science upstream of the management component," Tuckey clarified.

Over the decades, the trawl survey has documented major ecological shifts. "Climate change is affecting the Chesapeake Bay, and we're seeing fishes respond to those changes," said Fabrizio. "We're also able to document when an invasive species arrives in the system, how it becomes established and then how it might spread."

One such invasive species is the infamous blue catfish, introduced in the 1970s by the Virginia Department of Game and Inland Fisheries. "They thought it was a good idea to establish a recreational fishery. Unfortunately, no one wondered what the consequences would be literally downstream," Fabrizio explained.

The trawl survey has not only recorded the rise of the blue catfish but also the correlated decline of native fish occupying similar habitats. "That is a clear signal that we have found from the survey data," said Fabrizio. "As blue catfish increase, native white catfish decrease."

"They've just flatlined," Tuckey confirmed. "It's the same with white perch. For the past several years, we haven't seen any, in any of the rivers. That's really concerning."

While continuing to increase in the York River, the blue catfish population



>After sorting, fish are quickly measured and returned to the water. Photo by Ethan Smith.

does seem to have plateaued in the James and Rappahannock Rivers. However, Tuckey cautioned, "their numbers have flattened out, but at a really high level. There's a lot of blue catfish."

Informed by survey data, the Virginia Marine Resources Commission (VMRC) recently eliminated a size limit on blue catfish, allowing anglers to keep the largest speci-

mens. The VMRC has also approved permits for commercial watermen to test targeted electrofishing, allowing them to stun and harvest blue catfish with minimal impacts to native species.

Another newcomer to the Bay is the white shrimp, which is not invasive, but arrived as waters have warmed and now supports a commercial industry. "The data from the survey supported the opening of a shrimp fishery, which is a cool outcome," said Tuckey.

As the climate shifts and fish populations change, the trawl survey is also evolving. A newly modernized research vessel enables state-of-the-art data collection, while a recently approved five-year funding cycle promises greater stability. "Now we can breathe easier, do our work and plan for the future," Fabrizio said. "We've come a long way."

The trawl survey will also continue as a vital research platform for graduate students who help staff the survey. "I've loved going out and learning with the trawl team," said first-year graduate student Aileen McDonald. "I'm very excited to use the data for my research."

As one of the longest continuously running fish surveys in the nation, the Juvenile Finfish Trawl Survey continues to be a pivotal and influential operation in the Bay and beyond, informing citizens and policymakers up and down the East Coast. Motivated by that success and propelled by the dedicated scientists at the Batten School & VIMS, the trawl survey will carry on its crucial work for decades to come.



>Blue catfish are a harmful invasive species to Virginia. Photo provided by Mary Fabrizio.



>Marine Scientist Wendy Lowery (left) and Laboratory Specialists Aimee Comer (middle) and Katherine Nickerson (right) sorting fish on a recent leg of the trawl survey. Photo by Ethan Smith.

SHORING UP NAVAL READINESS AND ECOLOGICAL RESILIENCE

A MULTI-MILLION DOD REPI PROJECT AT NAVAL WEAPONS STATION YORKTOWN BRINGS TOGETHER A TEAM OF SCIENTISTS TO DEVELOP SOLUTIONS THAT PROTECT THE BASE WHILE BENEFITING THE ENVIRONMENT



Anyone familiar with the beaches at historic Yorktown, Virginia, has seen examples of William & Mary's Batten School & VIMS' expertise in resilient shoreline planning and design. But follow one of the Navy vessels under the Coleman Bridge, and you'll find a much larger effort – a \$4.5 million Department of Defense (DoD) Readiness and Environmental Protection Integration (REPI) project that safeguards Naval Weapons Station Yorktown (NWSY) while paying ecological dividends for the entire region.

The idea began nearly a decade ago, when Batten School & VIMS Professors Rom Lipcius and Rochelle Seitz commuted past the base.

"Every morning, I would drive past the Naval base and look at their expansive pier system. I thought, 'this would be a perfect spot for an oyster sanctuary,'" recalled Lipcius.

He reached out to NWSY Natural Resources Manager Tom Olexa, who had a related concern: the eroding shoreline surrounding the base, especially the R3 Pier, a vital Navy supply line. Together, they began shaping a project that would pair ecological restoration with military readiness.

They drew in colleagues – experts Scott Hardaway and Donna Milligan of the Batten School & VIMS Shoreline Studies Program and oyster reef specialist Russ Burke of Christopher Newport University. The group secured early grants from the Chesapeake Bay Trust and Chesapeake Research Consortium to facilitate initial designs and permits. Pew Charitable Trusts later championed the work, paving the way for full REPI funding.

The project grew to encompass two centerpiece efforts: restoring Penniman Spit, a marsh-fringed landform in danger of eroding into the river, and installing intertidal and subtidal oyster reefs along the R3 Pier and Penniman Spit. Both strengthened base infrastructure while advancing Chesapeake Bay restoration goals.

PROTECTING PIERS, ENSURING READINESS

The DoD's REPI Program fosters partnerships that protect military installations while providing broader ecological and community benefits. At NWSY, that mission was clear.

"Number one is protecting our R3 Pier infrastructure," said Olexa. "Anything we can do to prevent erosion along that pier directly supports military readiness."

Seitz's team first gathered ecological baseline data, then Burke installed an array of artificial oyster reefs intertidally along the pier's shoreline and in adjoining shallow, subtidal waters.

"We installed a variety of shallow, intertidal reefs that dissipate wave energy and trap sediment for shoreline stability. Offshore reefs focus on oyster recruitment," said Burke. "These were installed extensively around the R3 Pier and are also a prominent feature in the Penniman Spit design."

For Seitz, the reefs are about more than oysters. "Like coral reefs, they create entire ecosystems. Mud crabs, blue crabs, fish – all find refuge there. Our monitoring shows these reefs boost biodiversity and secondary production across the food web."

Hydrodynamic modeling confirmed the site's value as an oyster sanctuary. "Our models showed larvae produced at these reefs will drift toward commercial harvest grounds, while a portion return to sustain the reefs themselves," said Lipcius. "It's like a savings account for oyster restoration."

REBUILDING A VANISHING LANDMARK

Penniman Spit once stretched more than 14 acres into the York River, protecting a unique ecosystem in Kings Creek and shielding the base's



>TOP: Flanked by project stakeholders, Captain Dan Patrick, Naval Weapons Station Yorktown commanding officer, cuts a celebratory ribbon signaling an end to the nearly five-year project to stabilize, protect and restore Penniman Spit. U.S. Navy photo by Max Lonzanida.

>BOTTOM: Low tide at the R3 Pier exposes intertidal artificial reefs that help stabilize the shoreline while providing habitat for oysters and other organisms. Photo by Russ Burke.

shoreline. By 2019, storms and tides had carved a channel through its middle, shrinking it to less than two acres.

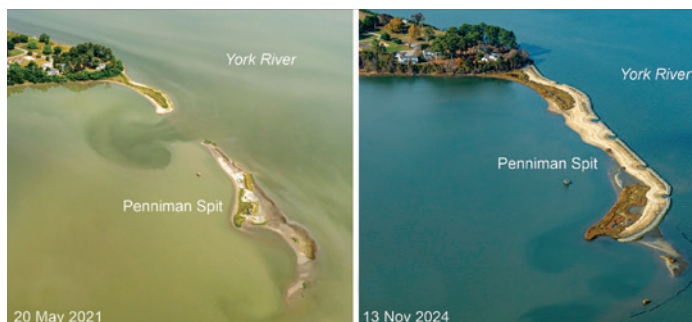
"Penniman Spit was disappearing before our eyes," said Milligan. "Without it, not only would the shoreline be subject to erosion, all of the sediment and habitat it sheltered would get swept into the York River."

Milligan and Hardaway designed a "hybrid living shoreline," combining rock sills, 24,000 tons of sand and more than 90,000 marsh grasses. The project restored 2.25 acres of new marsh, protected nearly five acres more and stabilized almost 2,000 feet of shoreline.

"It's cheaper to build a rock wall, but you don't get the ecosystem services," said Hardaway. "A hybrid design creates habitat as well as protection. Shellfish, particularly oysters, grow well on the rocks. Even gaps between boulders matter – they shelter crabs and juvenile fish while shielding vegetation behind them."

Milligan and Hardaway have extensive experience in these types of designs, having worked for decades with local municipalities around Virginia's coast. "Our work is designed for permanence and protection. Facing Nor'easters and hurricane surge, you need something that truly holds," said Milligan.

The project not only rebuilt a natural shield but also will revive the spit's role as a training and recreation site for the Navy. By far the largest and most expensive component of the project, the effort earned the Virginia Governor's Environmental Excellence Award.



>Before and after aerial photos of Penniman Spit show the scale of the restoration project. Photos by the Shoreline Studies Program.

45 YEARS OF CONSECUTIVE GIVING, NOW ANCHORED BY IRA CONTRIBUTIONS

CAPT. MAURICE LYNCH M.A. '65, PH.D. '72 AND VIRGINIA LYNCH GIVE TO THE BATTEN SCHOOL & VIMS VIA QUALIFIED CHARITABLE DISTRIBUTIONS

Distinguished emeritus professor, Captain Maurice “Mo” Lynch (U.S. Navy, Ret.), and Virginia “Gin” Lynch have centered their lives around service, science and sustained charitable giving, especially to the Batten School & VIMS, which they have supported faithfully for more than four decades. From Mo’s early days as a Navy UDT/SEAL to his long tenure as a professor, the Lynches have maintained an unwavering commitment to giving back, freely offering their time, talent and treasure to advance marine research.

After graduation from Harvard and five years of active-duty service in the Navy, Mo earned his M.A. and Ph.D. from the Batten School & VIMS. In 1972, he joined the Batten School faculty and served for 30 years in roles including assistant director and head of biological oceanography, associate dean of academic affairs and acting director of development.

“I spent so much of my life there. It means a lot to me,” said Mo. “I really liked what I was doing at VIMS



> From his time in the Navy to his tenure at the Batten School & VIMS, Lynch’s career was dedicated to service. Photos provided by Maurice Lynch.



– research and teaching – but with a specific goal in mind, which was to essentially focus on the Chesapeake Bay and surrounding waters. You always had a mission, which was to understand that place and how to keep it healthy.”

While in academia, Mo also spent 26 years continuing to serve and advance in the Navy’s reserve ranks, finally retiring at the rank of captain. That same

sense of service shaped his family’s giving. “We support VIMS out of thanks for what they gave to us,” said Mo. “We’re paying it back so that other scientists and students can have support.”

Mo first started donating to the Batten School & VIMS as a graduate student. Then, in 1980, Mo and Gin generously began what is now 45 years of uninterrupted giving. “We started by giving small amounts, what we could,” said Mo. “Then I was getting promoted, which let us give a little more. I was doing very interesting work at VIMS, so I just felt giving back was a responsibility that had been inculcated in me.”

Most recently, the Lynches have made significant contributions through qualified charitable distributions (QCDs) from Mo’s individual retirement account (IRA). “I realized that was the best thing to do for us,” he said, noting that giving directly from his IRA allowed him to meet his required minimum distribution (RMD) while minimizing his tax burden and maximizing support for the Batten School & VIMS. “I was able to give much more money to VIMS, and it was just a nice way to do it without costing me more in taxes.”

Over the years, the Lynches have supported a wide range of programs including the Visitor Center renovation, Hargis Library, the R/V *Virginia* and CBNERR-VA. Since retirement, Mo has not only supported his alma mater financially, but also with his time and wisdom. “I became a regular volunteer who gave tours, presented lectures and helped on Marine Science Day,” he recounted. “I enjoyed that very much.”

Though family commitments have limited their volunteer time in recent years, the Lynches remain enthusiastic advocates and donors. “We still give to VIMS because we enjoy being part of the community,” said Mo. “I try to keep up with what’s going on as much as I can, and there’s still stuff I’d like to do for them. I still feel as though I’m part of VIMS.”

Through service, leadership and a lifetime of charitable giving, Mo and Gin Lynch have helped shape the Batten School & VIMS into the institution it is today and continue to support its success for generations to come.

A firefighter who became a royally recognized marine safari guide, continued from page 6

active underwater volcano. There, they discovered new hydrothermal systems dominated by vertebrates, which was named in 2006 as one of the top global scientific achievements of the year.

Soon after, Pile made another discovery: she met Stuart, with whom she started Great Barrier Reef Safaris. “I found this little business for sale that did tourism, transport services and supported scientific research as a general boat for hire,” said Pile, who pitched the idea to her husband over dinner. Two months later, the couple was in Mission Beach finalizing their purchase of the business – two weeks before Australia’s first covid lockdown.

“We survived the pandemic because research institutes weren’t allowing their scientists to go do field work; boats are such close quarters,” said Pile. “But we had a dispensation from the government, because our boat was considered an extension of the home, so people were ringing us and having us go collect their data for them.”

Today, Pile estimates that Great Barrier Reef Safaris’ revenue is 25% educational snorkeling safaris, “which are no different from teaching undergraduate and Ph.D. students,” 25% transport services and 50% monitoring the Great Barrier Reef as part of the Tourism Reef Protection Initiative.

REFLECTIONS ON A DIVERSE CAREER

Pile offers simple, powerful advice to future marine scientists: “Always choose the path of least resistance, because if you’re beating your head against a brick wall, you’re not meant to be there. Be open to change. Figure out what you like, take those things with you and leave behind the things that you don’t like.”

From firefighter to international traveler, graduate student to global researcher and university administrator to community-based conservationist, Pile continues to embody the unique, unexpected places to which a Batten School & VIMS education can lead.

ANSWERING YOUR QUESTIONS ABOUT THE BLUE CRAB POPULATION STATUS

ROM LIPCIUS, VIMS COORDINATOR OF THE BLUE CRAB WINTER DREDGE SURVEY, ADDRESSES RECENT POPULATION CHANGES

The annual Blue Crab Winter Dredge Survey, a joint initiative between the Batten School & VIMS and the Maryland Department of Natural Resources (DNR), has been conducted continuously since 1990 to assess the health of the blue crab population in the Chesapeake Bay. This fishery-independent survey samples 1,500 sites across the Bay from December through March, allowing researchers to estimate the total blue crab population, juvenile recruitment and spawning-age females.

The 2025 survey estimated the total blue crab population at 238 million, a decline from 317 million in 2024 and the second-lowest total on record. Juvenile crab abundance dropped to its third-lowest level since the survey began, marking the sixth consecutive year of below-average juvenile recruitment. And although female abundance remains above the critical threshold of 72.5 million, which can trigger a management response, its current estimate of 108 million falls short of the target level of 196 million.

A comprehensive blue crab stock assessment, expected in spring 2026, will help clarify long-term trends and guide management actions. In the meantime, the 2025 results have generated public concern about the population's future sustainability. To provide further context, Rom Lipcius, who coordinates VIMS' participation in the survey, recently sat down for a Q&A concerning the survey results and blue crab population fluctuations.

Q: How would you interpret the drop in overall blue crab abundance from 2024 to 2025?

A: The drop in abundance is because of the continuing low numbers for juveniles, which can fluctuate. In years we have high numbers, quite often it's because the juveniles have gone up. But the females are consistent, and that's the main thing. To manage

the population and provide resilience, we need a consistently strong female spawning stock. So, what makes me feel optimistic is that the females – the spawning stock abundance of crabs older than one year – have remained relatively consistent. What worries me is that the juveniles haven't responded, and so we're trying to figure that out right now.

Q: What are the possible explanations for six straight years of low juvenile recruitment?

A: Crab larvae need full ocean salinity to mature, so female crabs migrate down to the Bay mouth every year to hatch their larvae, which then spend about a month maturing before coming back into the Bay. It may be possible that, over the last few years, something has changed oceanographically so that fewer juveniles are making it back into the Bay. This could be due to storm events or even changing oceanic circulation and currents. Another possibility is increased predation, due to increases in natural predators like the red drum or invasive species like the blue catfish, who love to eat juvenile crabs.

Q: What does the level of spawning-age females tell us about future stock potential?

A: The fact that female numbers remain consistent is reassuring. However, that doesn't mean we can now relax regulations. We are dependent on the current juveniles to grow into adult, spawning females. In fact, it's particularly important because approximately 80 to 90% of the adult spawning stock is comprised of first-year spawners. That's why



> An egg-bearing female blue crab found near Oyster, VA. Photo by Alex Schneider.

the Chesapeake Bay Stock Assessment Committee recommends caution. Yes, we're doing something right to get consistent spawning, but we need to pay attention to the juveniles.

Q: How important is it for jurisdictions like Maryland and Virginia to maintain coordinated management based on survey results?

A: It's absolutely essential, because it's a Bay-wide population. The crab's life-cycle takes place throughout the whole Bay. One jurisdiction going rogue could collapse the entire population. So, to guide management, we co-investigate with the Maryland DNR, Virginia Marine Resources Commission, Potomac River Fisheries Commission, University of Maryland's Chesapeake Biological Laboratory, Morgan State University's Patuxent Environmental & Aquatic Research Laboratory and Smithsonian Environmental Research Center – those partnerships are crucial.

Q: What else should people know about the Blue Crab Winter Dredge Survey?

A: The survey serves many other activities that are critical for understanding blue crabs, such as studying the effects of environmental change, testing alternative methods for determining crab age and investigating mortality and changing timeframes of reproduction. The survey has many more research benefits than just identifying population abundance each year.



>Professor Rom Lipcius.

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GET INVOLVED AT THE BATTEN SCHOOL & VIMS

Throughout the year, the Batten School & VIMS host a variety of on-campus events that are open to the public, including family friendly Discovery Labs, adult oriented After Hours lectures and special presentations by distinguished guests. We also frequently have exhibit booths at public fairs and festivals in the Coastal Virginia area and throughout the commonwealth.

Visit vims.edu/newsandevents or scan the QR code on the right to explore upcoming events and make your plans to connect with the Batten School & VIMS.



> Associate Director of Outreach & Engagement Kristin Sharpe shows a fish to young visitors. Photo by Victoria Nutt.



2024 SEA LEVEL "REPORT CARDS" MAP FUTURES OF U.S. COASTAL COMMUNITIES

The Batten School & VIMS have released their 2024 U.S. sea level "report cards," providing updated analyses of sea level trends and projections for 36 coastal communities. Encompassing 55 years of historical data, the report cards aid planning and adaptation efforts by analyzing rates of sea level rise and acceleration at each locality and forecasting 2050 water levels.

Overall, most locations continue a trend of accelerating sea level rise and projections have remained mostly uniform since reporting began in 2018, with a few notable exceptions.

"One interesting new trend is the acceleration occurring in southeastern states such as South Carolina and Georgia," said Molly Mitchell, assistant professor at the Batten School & VIMS. "We continue to see the fastest

rates of sea level rise in Gulf states like Texas and Louisiana, but many of the East Coast stations are accelerating quite quickly, likely due to patterns of water distribution related to glacial melt from the Greenland ice sheet."

Mitchell noted most West Coast localities have been fairly stable, despite past predictions their sea levels would increase rapidly. "This has led to some questions about why," she said.



>Shoreline Studies Program Director Scott Hardaway standing on a small marsh island. Photo by Claire Rae.

While most sea level projections are based on an understanding of average global sea level rise, sea levels do not rise uniformly across the world. Factors such as geological uplift, land subsidence, ocean currents and other processes all impact regional sea level trends.

The reports group localities into East Coast, Gulf Coast, West Coast and Alaskan Coast

regions. Each report card shows values for monthly sea level averages along with high- and low-water levels caused by storms and other transient events, as well as a decadal signal showing the influence of longer-term climate patterns such as El Niño. Observed rates of acceleration are factored into future projections and are displayed in comparison to a linear trendline that does not account for acceleration.

"Many people who live near the coast want to know what they can reasonably expect over the next few decades, giving them time to make actionable plans and decisions," said Mitchell. "Compared to other predictions based on satellite data and global computer models, our reports are created using observed tide gauge data from the past 55 years and reflect the exact experience at the location of the gauge. The annual release of the report cards allows coastal regions to examine if past trends are changing and alter their planning accordingly."