

ENVIRONMENTAL INSIGHTS

NEWS FROM THE UNIVERSITY OF MARYLAND CENTER FOR ENVIRONMENTAL SCIENCE

SCIENCE IN THE TIME OF COVID-19:

While UMCES researchers have limited their research this year to what can be done while respecting social distancing and State guidelines, they have still been able produce important and accomplished research, as seen in these highlights.

A message from President Goodwin: UMCES' commitment to diversity, equity, and inclusion



These disturbing times challenge us to reflect on our values to ensure that there is no place for any form of racism or discrimination in our institution and to reaffirm our commitment to ensuring diversity of all kinds within all facets of our enterprise.

During the development of the UMCES Strategic Initiatives, the most pervasive issue in the institutional deliberations focused on the lack of diversity in the Earth and Ocean Sciences. The face of the U.S. workforce must reflect the face of America to ensure a talented workforce is available and continues economic growth which sustains global leadership. UMCES garners international recognition for our research and our alumni's influence on the environment. We also take pride in our understanding of how our research serves society. This is bolstered by our commitment to contribute to break down structural racism and oppose all forms of bigotry.

UMCES is committed to cultivating inclusivity, equity, and diversity in a supportive environment. We are committed to be an exemplar of environmental science professionals reflecting the face of the communities served by its work. Societal relevance of scientific research improves when supported by a diverse workforce.



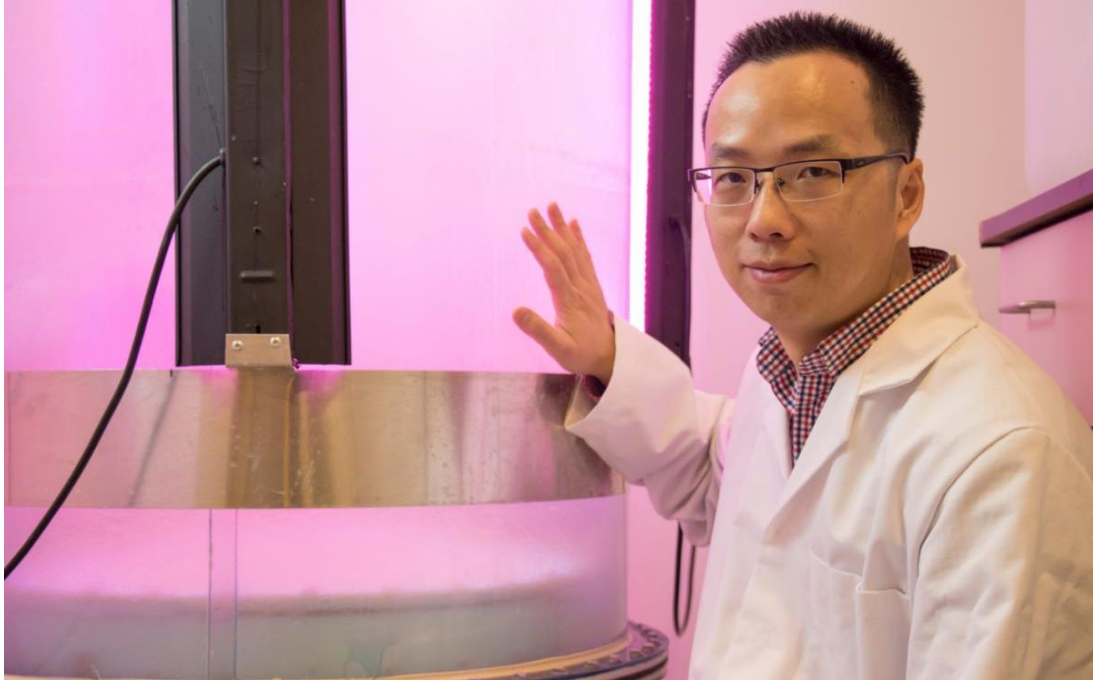
Underwater grasses help offset acidification in the Chesapeake Bay

Scientists have discovered that the recent comeback of underwater grasses in Chesapeake Bay not only removes nutrient pollution and provides habitat for baby crabs and rockfish, but may also offset the growing problem of acidification as climate change impacts the nation's largest estuary.

Ocean acidification is a phenomenon driven by the increasing levels of carbon dioxide in the atmosphere because of the burning of fossil fuels and other human-driven activities. When ocean and estuarine waters absorb this additional carbon dioxide from the atmosphere, the waters can become more acidic. Shellfish build their shells out of a compound in the water known as calcium carbonate, and scientists have found there will be less of those building blocks available as ocean carbon dioxide levels rise.

"Just like people take TUMS to neutralize the acids that cause heartburn, SAV beds send carbonate minerals to the lower Bay to neutralize acids there," said study author Jeremy Testa.

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Innovative research that uses algae to trap greenhouse gas emissions receives national award from Dept of Energy

UMCES researchers were selected to receive \$3M award from U.S. Department of Energy to develop a scalable carbon-negative bioreactor system to capture carbon dioxide, a greenhouse gas that contributes to global warming, from power plant flue gases. The project is one of 11 projects selected nationally to receive approximately \$17 million in federal funding for the development projects that sequester carbon dioxide

"We built on our strength in using a microalgae-based system to reduce carbon dioxide emissions on an industrial scale while producing valuable products such as biofuels and carotenoids, phytonutrients that can be used as nutritional supplements," said Yantao Li.

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Slightly smaller-than-average dead zone predicted for the Chesapeake Bay

Researchers from the Chesapeake Bay Program, the University of Maryland Center for Environmental Science, University of Michigan and U.S. Geological Survey anticipate a slightly smaller than average Chesapeake Bay "dead zone" this year, due to reduced rainfall and less nutrient-rich runoff flowing into the Bay from the watershed this spring.

"These forecasts continue to help scientists understand what controls long-term changes in oxygen conditions in Chesapeake Bay, improving our ability to predict them and to identify actions to mitigate them," said Jeremy Testa.

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Maryland offshore wind farm could become stop-over region for migrating striped bass and Atlantic sturgeon

For the endangered Atlantic sturgeon and the commercially important striped bass, the Delaware-Maryland-Virginia coastal shelf serves as an important spring and fall migratory route. Scientists using acoustic telemetry to understand the critical migratory periods in the lives of these fish species suggest that the development of wind farms in this area may alter the migratory behavior of these fish as new wind turbines in this otherwise featureless region could create habitat around which fish linger.

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Research team receives \$10M to transform shellfish farming with smart technology

UMCES scientist Matt Gray and a group of researchers and institutions throughout the U.S. received a \$10M grant from the U.S. Department of Agriculture to bring advanced technology to the domestic shellfish aquaculture industry.

"We believe oyster crops could be better managed and tracked with underwater vehicles equipped with sensors that also have environmental sensing capabilities," said Matt Gray. "This might sound far-fetched until one learns about how terrestrial farmers can track crop growth and harvest crops while they are far from the field using satellites and computer-controlled tractors."

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Next Generation: Anna Windle on using drones to monitor water quality in the Chesapeake Bay

"My research focuses on satellite and drone remote sensing in the coastal waters of Chesapeake Bay to help better understand water quality. Traditional water-monitoring programs often lack the monitoring frequency and spatial resolution needed to capture changes in water quality. By integrating remote sensing imagery with high spectral, spatial, and temporal resolution, scientists and managers can monitor critical marine and coastal ecosystems more consistently and accurately."

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Bay 101 virtual seminar series: Science of the Chesapeake for non-scientists

Every Wednesday, July 8-August 5, at 5 p.m., Horn Point Laboratory researchers will share a free, online seminar series about the science of the Chesapeake Bay. The 30-minute programs will shed light on the mysteries of the Chesapeake and highlight programs working to improve the health of the Bay and its aquatic life.

July 8: Chesapeake Bay's currents and winds for sailors and water enthusiasts with Bill Boicourt

July 15: News on living shorelines to protect our waterfronts with Cindy Palinkas

July 22: Bolstering the Maryland oyster aquaculture industry with Shannon Hood

July 29: Modeling: What it is and how it helps predict the future of the Chesapeake Bay with Kenny Rose

August 5: Chesapeake Bay underwater grasses with Lorie Staver

MORE

UMCES IN THE NEWS

100 cities were summer is starting earlier(MSN)

Got Chesapeake Bay acid? New study finds seagrasses may bring relief (Capital Gazette)

Deepwater Horizon: What we learned from worst oil spill ever (Christian Science Monitor)

DOE funds 2 carbon utilization projects focused on algae (Biomass magazine)

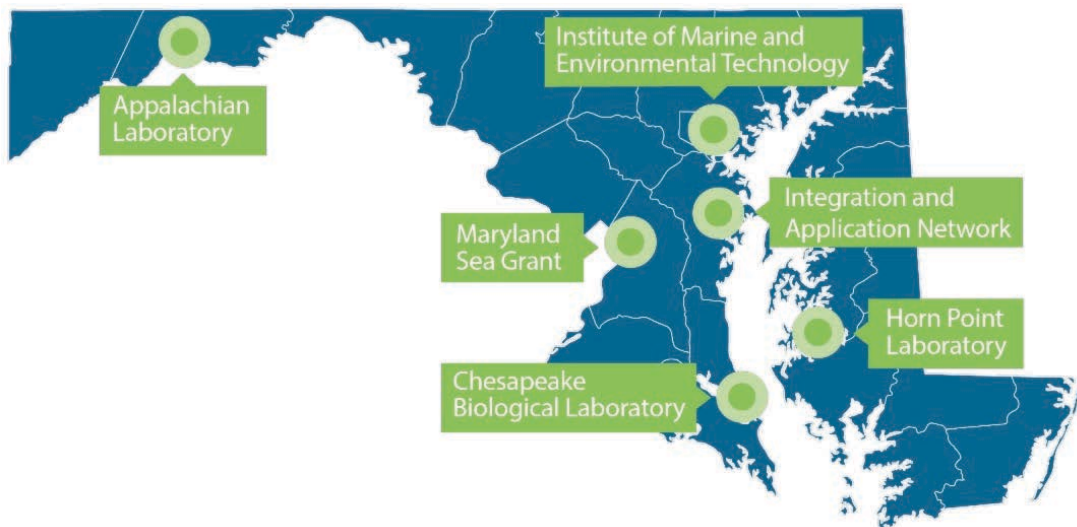
Maryland's wild oyster harvest doubles from last year (Bay Journal)

Forecast: Chesapeake Bay to have a smaller 'dead zone' this year (Maryland Matters)

Seeding the Nanticoke: Wild celery introduction hopes to improve river's declining health (Salisbury Daily Times)

Good news for shellfish: Aquatic grasses fight acid in Chesapeake Bay, study finds (WTOP)

Be a sailor scientist With DolphinWatch (Spinsheet)



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