

FY 2023 OPERATING BUDGET TESTIMONY

House Appropriations Committee Education and Economic Development Subcommittee Delegate Ben Barnes, Chair February 3, 2022

Senate Budget and Taxation Committee Education, Business, and Administration Subcommittee Senator Nancy King, Chair February 4, 2022

Testimony by Dr. Peter Goodwin, President University of Maryland Center for Environmental Science



Introduction

To the Chair and members of the Subcommittee, thank you for allowing me to appear at this hearing in support of the Operating Budget request for the **University of Maryland Center for Environmental Science** (UMCES).

Approving the Governor's budget will send an important message that Maryland values higher education. In UMCES' case, it highlights our important efforts in workforce development, innovation, and knowledge transfer in the environmental sciences, particularly associated with the Chesapeake Bay restoration efforts.

UMCES has a unique role in the University System of Maryland and the State of Maryland to advance knowledge and innovation to solve the big environmental challenges facing Maryland and the world.

We have been at the forefront of environmental stewardship for nearly 100 years and remain focused on working on environmental solutions with multiple stakeholders to meet the unprecedented challenges of the 21st century. We continue to track the health of the Chesapeake Bay through the monitoring of dead zones, underwater grasses, and striped bass and the release of our annual report card to promote accountability in the Bay restoration effort.

As awareness and urgency of the climate crisis has grown, so has our role in helping Maryland identify, develop, and employ measures to reduce greenhouse gas emissions and vulnerability to climate impacts, from leading the development of sea-level rise projections to the most recent coastal adaptation report card.

UMCES is committed to producing the next generation of environmental scientists that are not only prepared to meet the world's environmental challenges but also reflect the demographic and socio-economic diversity of the population of Maryland and the United States.

The following highlights are a few of our long-term commitments on behalf of Maryland.



Impacts of Climate Change

It is the mission of the University of Maryland Center for Environmental Science to assist Maryland's agencies in detecting and predicting environmental changes. Looking ahead, we are motivated by the 26th U.N. Climate Change Conference of the Parties (COP26) and Maryland's commitment to greenhouse gas reductions to focus even more strongly on supporting understanding climate change impacts and how to adapt, locally and globally.

Coastal Resilience

We brought together coastal resilience experts from around the world to understand the impacts of a changing coastal environment and the dangers coastal communities face. This is part of a **National Science Foundation effort** led by UMCES scientists to synthesize insights from existing coastal resiliency projects around the country and to propose bold new strategies to protect coastal communities and infrastructure.

Sea-Level Rise

UMCES continues to lead the scientific assembly of regular **sea-level rise projections for Maryland**. The effects of accelerated sea-level rise are already apparent, including shoreline erosion, deterioration of tidal wetlands, salt water intrusion of low-lying farm fields, and sunny day flooding of urban areas like Annapolis and Baltimore City. If emissions continue to grow into the second half of the 21st century, the likely range of sea-level rise experienced in Maryland will be 2 to 4 feet over this century, with severe consequences for infrastructure, erosion, and agriculture in coastal areas.

Coastal Adaptation

With more than 3,000 miles of shoreline and the majority of the state's population living and working along the coast, Maryland's coastal communities face particular risk to the impacts of a changing climate. Coastal adaptation refers to the actions taken to improve the ability of a community or ecosystem to respond to and withstand climate change impacts. UMCES released the first-ofits-kind **Maryland Coastal Adaptation Report Card** for Maryland's coastal counties in January 2022.

Wind Energy

Although wind power is an important source of renewable energy, there are some concerns about the environmental impacts of **wind turbines**. UMCES scientists have been developing a baseline knowledge about the distribution and abundance of bats, birds, and marine species and their habitats to understand and mitigate against environmental impacts. For example, an ocean buoy launched this summer provides daily reports of whales detected off Maryland's Atlantic coast.



MISSION:

The University of Maryland Center for Environmental Science has a unique statutory mandate to conduct a comprehensive scientific program and apply predictive ecology for the improvement and preservation of Maryland's physical environment. This mission is accomplished through research, education, and public service.

Chesapeake Bay Science

A trusted scientific advisor to state and national leaders, our scientists provide unbiased research to inform public policy and support the science behind environmental initiatives in Maryland, including a healthy bay, abundant fisheries, and clean water. We continue to track the health of the Chesapeake Bay through monitoring of dead zones, ocean acidification, underwater grasses, and striped bass and release an annual **report card** to promote accountability in the Bay restoration effort.

Oysters

Oysters are an important component of the living ecosystem of the Chesapeake Bay and its tributaries. They help protect shorelines from erosion and are important on both an ecological and an economic level. As one of the largest on the East Coast, UMCES' Horn Point Oyster Hatchery produces a variety of oyster larvae for use in oyster research, oyster restoration, and educational projects. Over the past decade, spawning oysters here have resulted in the deployment of a billion oyster spat per year, with a goal of two billion, to the waters of the Chesapeake in the hopes of slowing oyster decline and restoring the health of the Bay.

Plastic Pollution

A new NOAA-funded project will track how plastics move through the Choptank River watershed on its way to the ocean, laying the foundation for **plastic research** in the Chesapeake Bay. All of the data will be made available to stakeholders and policymakers so science-based decision making can be applied to coastal wetland systems, locally and globally.

Blue Crabs

Maryland scientists published the first full reference **genome sequence** for the blue crab. This means that for the first time we have a complete picture of all of the DNA that makes up Maryland's favorite crustacean. This information is important to science research and will contribute to a healthy crab fishery.

Dolphins

Since the Chesapeake Dolphin-

Watch project launched three years ago, nearly 8,000 Marylanders have registered for the mobile app and more than 2,000 bottlenose dolphin sightings have been officially confirmed by UMCES scientists. Their abundance indicates increasing health of Chesapeake Bay.

Ocean Acidification

Our scientists are partners in understanding the impact of a warming climate on ocean acidification, an increasing threat to the Chesapeake and Atlantic coastal bays that can alter water chemistry making it more difficult for oysters to grow and impacting species that rely on oyster beds, such as striped bass.









Graduate Education, Diversity, and Inclusion

The University of Maryland Center for Environmental Science is committed to training the next generation of environmental scientists who are not only prepared the meet the world's environmental challenges but also reflect the demographic and socio-economic diversity of Maryland and the nation.



Leaders of Tomorrow

As Maryland's graduate university for the environment, UMCES trains the **next generation of environmental scientists**, business leaders, policymakers, natural resource managers, and educators. We continue to have an unprecedented number of students go on to prestigious **Knauss Fellowships** with federal agencies each year.

Continuing Education

Building on UMCES' renowned graduate environmental education program and long history in applying science to decision-making, we launched our first **professional certificate program** in Environmental Management for Sustainability to help others make an impact around the world.

Diversity, Equity, and Inclusion

UMCES is committed to making environmental sciences more diverse, equitable, and inclusive, and established the Diversity, Equity and Inclusion Collaborative (DEIC) that provides a forum for a community of practice to affect institutional changes.

We are working to diversify the marine sciences as a key partner in the **NOAA Living Marine Resources Cooperative Science Center** at the Institute of Marine and Environmental Technology that trains the next generation of marine scientists from underrepresented communities across the country.

UMCES is also leading the Puerto Rico hub of the SEAS Islands Alliance that supports efforts to engage underrepresented island students in marine and environmental sciences.

We provide the scientific foundation behind the state-wide effort to track and communicate progress in the Bay's heath and restoration and support the **Chesapeake Bay Program's** commitment to diversity, equity, inclusion, and justice to advance environmental and public health protection for all. Last year, **UMCES** incorporated indicators to support people of color and underrepresented communities and is leading graduate students within the University System of Maryland to develop an environmental justice index.



The University of Maryland Center for Environmental Science (UMCES) concurs with the DLS recommendations and requests APPROVAL of the Governor's FY2023 budget for the University System of Maryland and UMCES as submitted.