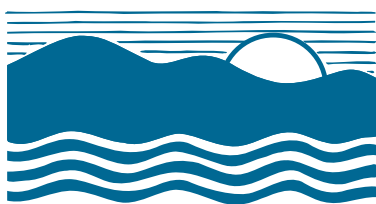# FY 2023
CAPITAL BUDGET TESTIMONY

Senate Budget and Taxation Committee
Capital Budget Subcommittee
Chair: Craig Zucker; Vice Chair: Cory McCray
March 15, 2022

House Appropriations Committee
Capital Budget Subcommittee
Chair: Ben Barnes; Vice Chair: Mark Chang
March 16, 2022

Testimony by Dr. Peter Goodwin, President

University of Maryland
CENTER FOR ENVIRONMENTAL SCIENCE

Introduction

I am pleased to present for the General Assembly's consideration the FY 2023 Capital Budget request for the University System of Maryland Center for Environmental Science. First, I want to express appreciation for the General Assembly's steadfast support for significant facility improvements at our laboratories across the state. This has brought great returns to Maryland, not just in the external research funding we have been able to attract and the quality of our student experience, but, more importantly, in the knowledge that has been generated pertinent to the effective protection and restoration of the Chesapeake Bay and its watershed.

UMCES has a rich tradition of research and innovation that has supported the citizens and agencies of the State of Maryland since its founding nearly 100 years ago. As trusted scientific advisors, our faculty provide unbiased research to inform public policy on pressing environmental issues, both in Maryland and around the world. We have always been distinguished by our ability and willingness to engage policymakers and support science-based decision-making by managers. In a very real sense, this is part of our institutional DNA.
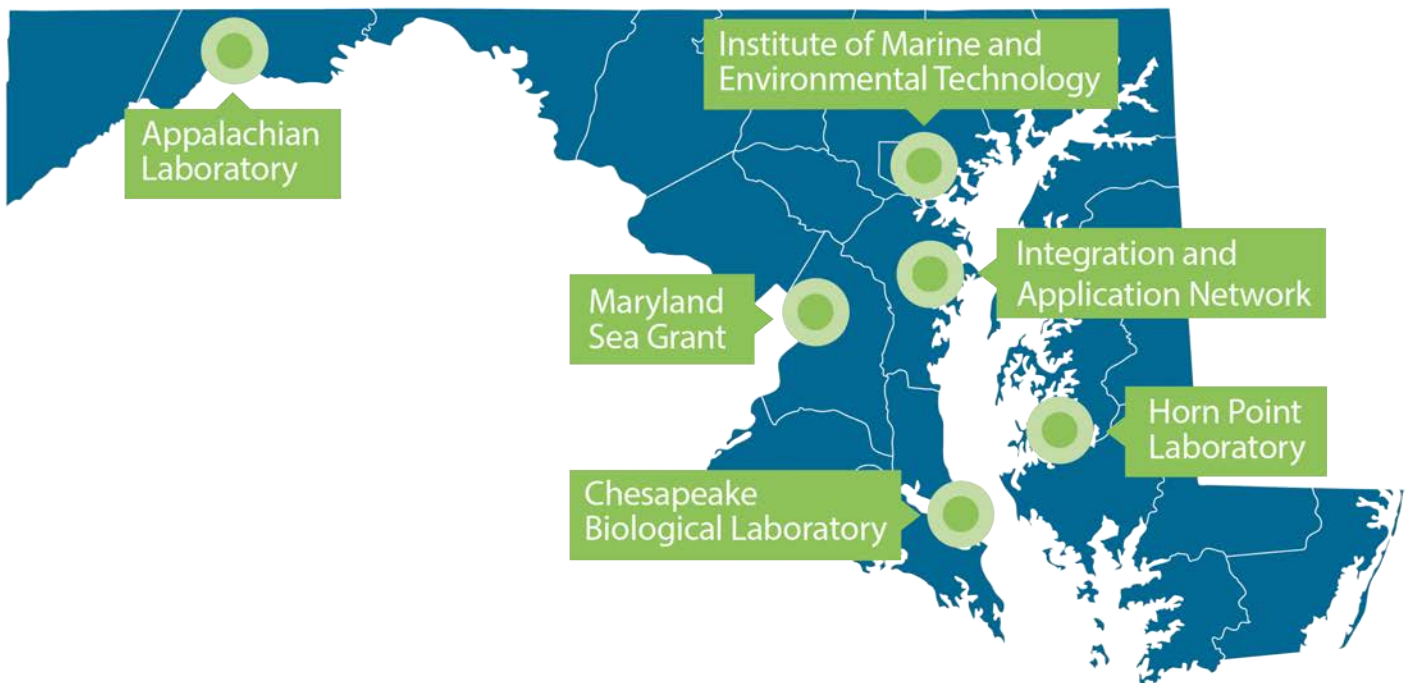
"The University of Maryland Center for Environmental Science shall conduct a comprehensive program to develop and apply predictive ecology for Maryland to the improvement and preservation of the physical environment, through a program of research, public service, and education."

COMAR, Natural Resources Article Section 3-403

Chesapeake Analytics Collaborative Building *A collaboratory*

In order to alleviate a critical shortage of collaborative, learning, and library space, as well as modern infrastructure to support Information Technology, we are in the planning phase of a cost-effective building at the Chesapeake Biological Laboratory.

Approaches to scientific research and natural resource management are being transformed by the massive volumes of data, the sophistication of models, and the complexity of questions being asked of resource managers. This challenge has been recognized by the National Science Foundation:

> "Convergence research is a means of solving vexing research problems, in particular, complex problems focusing on societal needs. It entails integrating knowledge, methods, and expertise from different disciplines and forming novel frameworks to catalyze scientific discovery and innovation."[1]

This scientific discovery is being accelerated by collaboration across multiple disciplines through the principles of Team Science.[2] Effective implementation of convergent research requires a totally new approach to the design of the physical space required and is not easily accomplished by retrofitting existing facilities. These innovation spaces have been pioneered in areas such as Silicon Valley and the Wisconsin Institutes for Discovery.[3]
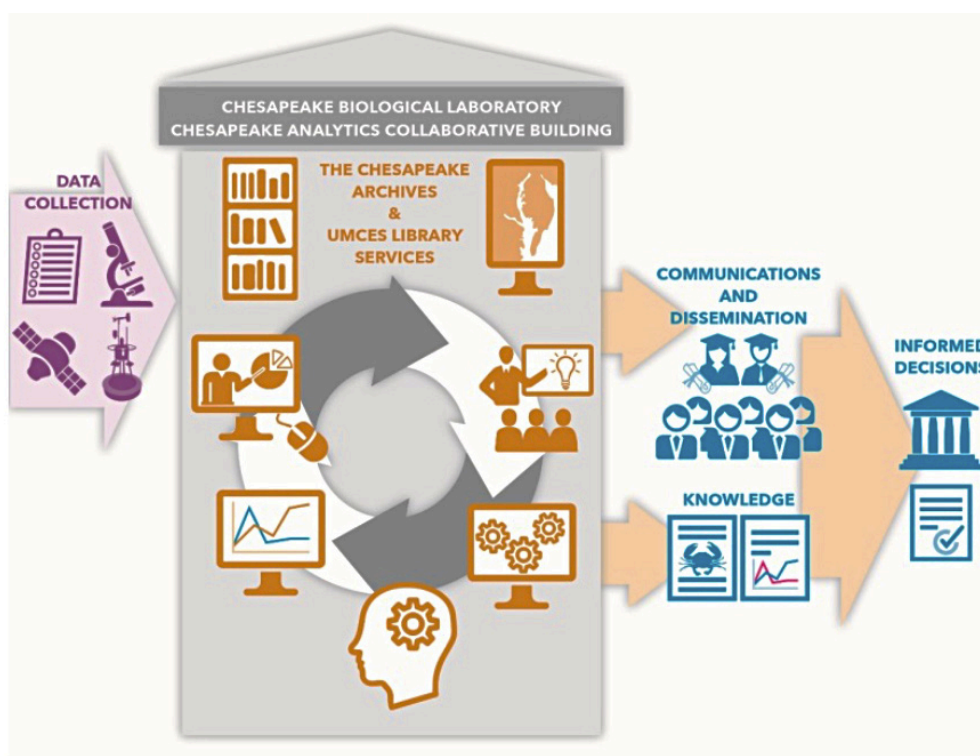
The collaboration laboratory/building, **a collaboratory**, will be designed to empower the discovery, interpretation, and communication of meaningful patterns in data and information to support the restoration of Chesapeake Bay and similar ecosystems around the world.

[1] https://www.nsf.gov/od/oia/convergence/index.jsp
[2] http://sites.nationalacademies.org/DBASSE/BBCSS/CurrentProjects/ DBASSE_080231
[3] https://discovery.wisc.edu

Chesapeake Analytics Collaborative Building

The collaboratory will also enable training of our students in emerging technologies related to data mining, synthesis of environmental knowledge, and the use of technology to communicate complex scientific information to diverse audiences.

Features of the collaboratory will include:

- **Flexible and adaptable spaces** to focus on specific problems. It is envisioned that space will be dedicated to specific issues for discrete periods of time. It will allow clusters of scientists, engineers, and students, as well as experts from agencies, universities, non-profit organizations, the private sector, and other stakeholders, to interact and guide progress toward the questions posed by state and federal leadership.

- **Large-scale visualization and virtualization capabilities** to collectively explore large data sets, model simulations, and develop predictions of alternative futures under various management interventions.

- **Data mining, biostatistics, data synthesis, and interpretation** powered through access to national super computers, other computational cores, and knowledge archives.

- **Scientific interpretation and communication** at all levels, including scientists, engineers, policymakers, managers, stakeholders, the public and K-12 outreach.

DLS recommendation

We are very pleased that the Regents and the Administration are supporting this request for approval of $9,389,000 in general obligation bond funding to continue design and begin construction of the Chesapeake Analytics Collaborative Building. We also appreciate that approval of the preauthorization of $6,400,000 in general obligation bond funding to complete construction of the Chesapeake Analytics Collaborative Building.

I appreciate the positive recommendation of the Department of Legislative Services for this project and respectfully request the General Assembly's inclusion of the Chesapeake Analytics Collaborative Building in the FY2023 Capital Appropriation.