

Developing the Chesapeake Global Collaboratory: Results from a framing workshop

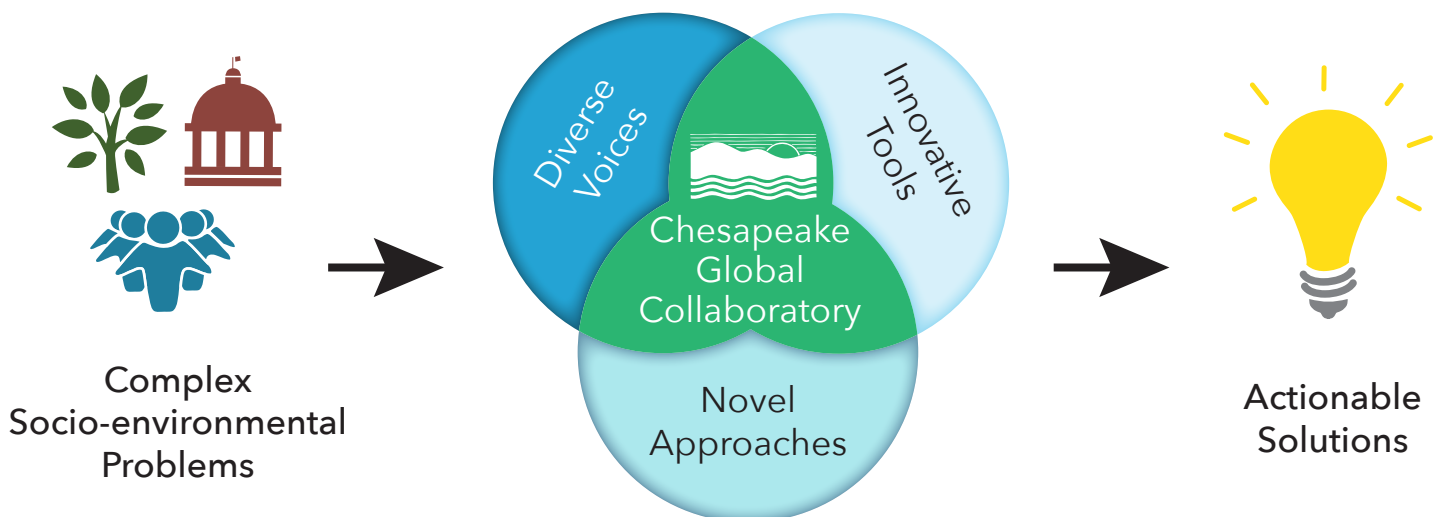
The University of Maryland Center for Environmental Science (UMCES) is launching the Chesapeake Global Collaboratory to develop solutions to the urgent environmental challenges facing the region, nation, and planet. UMCES has been at the forefront of research to support environmental management of the Chesapeake Bay for nearly a century; thus, the Collaboratory will have a Chesapeake focus. But UMCES has expanded its reach nationally and globally, thus the juxtaposition of a regional and global name in the title. The term "Collaboratory" reflects a unique research environment that we are creating at UMCES, with strong links to external partners.



In June 2023, a small group of UMCES faculty and practitioners from state agencies, non-governmental organizations, and businesses gathered at the Chesapeake Biological Laboratory to begin planning a summit to launch the Chesapeake Global Collaboratory later in 2023.

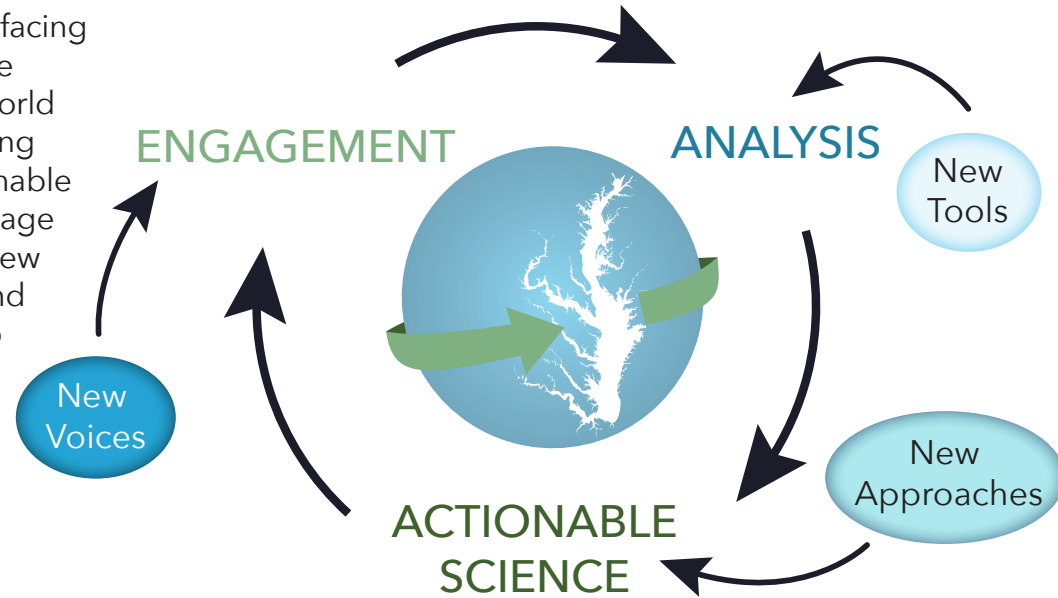
Pioneering an innovative approach for collaborative solutions

Our thesis is that actionable solutions to complex socio-environmental problems require bringing **new voices, new tools,** and **new approaches** together to create rapid transformative change. Rather than a "Think Tank," we need a "Think and Do Tank."



Urgent problems require rapid responses

The urgency of problems facing Maryland, the Chesapeake Bay, the nation, and the world requires a new way of doing science. To develop actionable solutions, we need to engage new, diverse voices, use new powerful analysis tools, and create new approaches to designing research so that we ask the right questions, at the right time, in the right way.



UMCES is at the forefront of collaborative science

- UMCES was founded in 1925 expressly to do science to support wise environmental decision making.
- UMCES fosters strong engagement with stakeholders from local communities, management and regulatory agencies, conservation groups, and practitioners to co-design relevant research that achieves positive outcomes.
- From its inception, UMCES has provided assessments, practical advice, and factual information about Chesapeake Bay restoration and has expanded to national and global efforts.
- We urgently need to scale up these activities to match the accelerating challenges posed by climate change, population pressures, and biodiversity loss. The Chesapeake Global Collaboratory will enable rapid acceleration.
- The Chesapeake Global Collaboratory is being launched to enable rapid transformative approaches to build the capacity of science to deliver actionable solutions to complex socio-environmental problems locally, nationally, and globally.

New Approaches, New Voices, New Tools

Solving difficult problems will require changes in the way we do research and who we conduct research with in the future. Thus, we need to foster new voices in the research enterprise, build new tools, and pioneer new approaches to tackle these problems.

New Approaches

The scale of issues requires new approaches to problem solving among environmental, physical, chemical, ecological, economic, computer/data, and social sciences. Engaging with stakeholders throughout the process will be needed to address the complexity of issues and relationships inherent in socio-environmental problems.

New Voices

Stronger outcomes are produced when diverse viewpoints are included in the design and conduct of research and science application. To ensure that outcomes are equitably distributed and relevant to local needs, participants need to be deeply engaged from the conception of the project.

New Tools

Productive collaborative partnerships with stakeholders require new tools for data access, management, and visualization. Advances in artificial intelligence and machine learning have revolutionized environmental science. The Chesapeake Global Collaboratory will apply new tools in the context of stakeholder engagement and in a way that distributes the benefits throughout the UMCES research enterprise.

Example Projects and Topics

Building Oyster Resilience

An influx of federal funds has catalyzed research into the iconic Chesapeake Bay oyster populations. Research on the impacts of oyster sanctuaries and aquaculture on oysters, crabs, and finfish will be developed with watermen, resource managers, and researchers over the next three years. The insights gained from this collaborative research can be used to aid declining oyster fisheries across the globe.

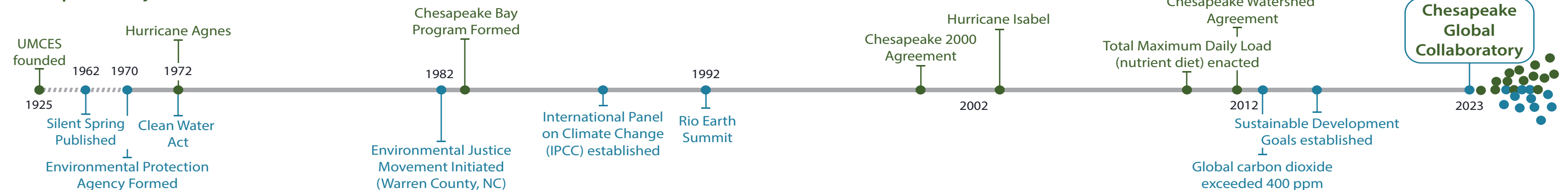
Sequencing DNA to Protect Biodiversity

Recent advances have made sequencing the genetic structure of organisms more practical, like the recent sequencing of the genome for the blue crab. Expanding this sequencing and using genetic fingerprints (e.g., eDNA) can provide researchers with novel insights into the structure and function of entire ecosystems, developing a new predictive capacity that can improve environmental stewardship.

Developing Climate Resilience

Climate change is fundamentally altering the natural world, and its impacts are already being felt across the planet. Developing climate resilience requires not only understanding climate impacts and the consequences of various interventions, but must include conversations among diverse stakeholders. Projects like the Sustainable Agriculture Matrix engage new voices and tools that can help create a more resilient future.

Chesapeake Bay Events National and International Events



Next Steps

- UMCES faculty have several ongoing projects and pending proposals that fit within the Chesapeake Global Collaboratory structure that will serve as initial activities.
- UMCES leadership and faculty will take an active role in soliciting support, including both financial and human resources, to further the Collaboratory.
- A business plan for the Chesapeake Global Collaboratory is in development to provide the administrative and financial support for the effort.
- An environmental summit will take place over a two-day period to engage a wide diversity of partners.

Chesapeake Global Collaboratory Summit

September 28–29th, 2023

Additional information to follow



Participants in Framing Workshop

Tsvetan Bachvaroff (UMCES), Mark Bryer (The Nature Conservancy), George Chmael II (Council Fire), Lois Colaprete (UMCES), Bill Dennison (UMCES), Suzanne Dorsey (Maryland Dept. of Environment), Andrew Elmore (UMCES), Matt Fitzpatrick (UMCES), Charles Glass (Maryland Environmental Service), Peter Goodwin (UMCES), Dave Goshorn (Maryland Dept. Natural Resources), Lora Harris (UMCES), Matt Houser (The Nature Conservancy & UMCES), Vandana Janeja (Univ. Maryland Baltimore County), Heath Kelsey (UMCES), Tom Miller (UMCES), Mark Monaco (NOAA), Fredricka Moser (Maryland Sea Grant), Kristin Saunders (UMCES @ Chesapeake Bay Program), Natalie Snider (Environmental Defense Fund), Lisa Wainger (UMCES), Xin Zhang (UMCES).



Acknowledgments

We appreciate the willingness of workshop participants to contribute to this effort to frame the Chesapeake Global Collaboratory. Faculty across UMCES and many additional collaborators will be integral to the work of the Collaboratory. These workshop participants were representative of the larger whole.

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