2020 CHESAPEAKE COMMUNITY RESEARCH SYMPOSIUM

Chesapeake Bay Research and Management: Progress and Future Challenges

A VIRTUAL SYMPOSIUM

JUNE 8-10, 2020

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NOAA NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION U.S. DEPARTMENT OF COMMERCE

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Welcome to the Chesapeake Community Research Symposium 2020

Scope

The theme of the 2020 symposium is **Chesapeake Bay Research and Management: Progress and Future Challenges**. The Scope and Aims of the symposium are as follows:

With the completion of the Chesapeake Bay Program's 2017 mid-point assessment of the EPA's Total Maximum Daily Load (TMDL) regulatory process, it is timely to convene a symposium aimed at examining the observations and models that were used in that assessment and discuss future needs and challenges for the next one in 2025 and beyond. There is a need for higher temporal resolution measurements and higher spatial resolution models. Research should be focused on developing a better mechanistic understanding about and models of physical, biological and chemical processes in the airshed, watershed and estuary. Additionally, more flexible sampling and modeling approaches are also needed for resolving management impacts on water quality and living resources over a wide range of scales.

The TMDL faces several challenges as we enter the third decade of the 21st century:

- What magnitude of additional nutrient reductions, beyond those specified in the 2017 mid-point assessment, will be needed to compensate for impacts of climate change and population growth in 2025 and beyond?
- What is the current status of efforts to account for these impacts and what new observations and models are needed to improve future predictions?
- How will we look beyond the TMDL to restoration of living resources?
- What is the state of the art in our ability to predict how management of nutrient and sediment loads will impact higher trophic levels in the Bay and its watershed?
- What additional observations and models are needed?

By bringing together managers, scientists, and stakeholders for a series of plenary talks, panel discussions, and special sessions, the 2020 Chesapeake Community Research Symposium will highlight recent progress, challenges and prospects for research, monitoring and modeling efforts that are used to guide management and restoration efforts in Chesapeake Bay.

Planning Committee

Bill Ball - Chesapeake Research Consortium
Shirley Chu - Green Fin Studio
Kim De Mutsert - George Mason University
Marjy Friedrichs - Virginia Institute of Marine Science
Tom Gross
Courtney Harris - Virginia Institute of Marine Science
Raleigh Hood - University of Maryland Center for Environmental Science
Dave Jasinski - Green Fin Studio
Li Li - Pennsylvania State University
Gary Shenk - USGS - Chesapeake Bay Program Office
Cecily Steppe - United States Naval Academy
Denice Wardrop - Chesapeake Research Consortium
Y. Joseph Zhang - Virginia Institute of Marine Science

Plenary Speakers

For Love of the Bay

All of us have a story of our relationship with the Bay and our stories can help shape the Bay's future. If that future is to be informed by science, we better get good at telling our stories.

Ike Irby

Dr. Ike Irby is a Policy Advisor for Senator Kamala D. Harris (D-CA). He leads a legislative team that advises the Senator on a broad policy portfolio that includes environment, energy, climate, science, natural disasters, transportation, infrastructure, animal welfare, and Tribal and Native affairs. Ike was previously a 2017 AAAS Science & Technology Policy Fellow, also in office of Senator Harris. Ike earned his Master in Public Policy at William & Mary and his PhD at VIMS under the guidance of Dr. Marjy Friedrichs. His research focused on utilizing coupled hydrodynamic-biogeochemical models of Chesapeake Bay to assess confidence in the impact of nutrient reductions on water quality.

Overview of Chesapeake Bay Restoration Goals and Opportunities for Science (Phillips) & *Plugging into Chesapeake Bay Program Science (Trentacoste)*

The breadth of the Chesapeake Bay Program partnership's restoration and conservation goals results in a wide array of science needs and research questions. These plenaries will introduce the scientific activities identified by the partnership as necessary to make progress toward its goals, provide examples of how the partnership is engaging with science providers on these activities, and offer a spectrum of mutually beneficial options to researchers on how they can collaborate and engage with the partnership.

Scott W. Phillips

Scott has over 3 decades of experience in conducting and directing scientific investigations related to the interdisciplinary studies of ecosystems. He began working on issues related to Chesapeake Bay in 1989 and since 1995 has served as the U. S. Geological Survey Chesapeake Bay Coordinator. A primary role is to provide strategic direction for scientific investigations of over 100 USGS projects that range from assessing the habitat conditions of freshwater fisheries; explaining water-quality conditions and trends, examining risk and vulnerability of coastal habitats, and addressing the effects of land and climate change on watershed conditions. He works with scientists to synthesize major findings and provide ecosystem management implications. The findings are shared with the federal and state partners in Chesapeake Bay Program, so they can make more effective decisions for restoration and protection of the Nation's largest estuary. Scott was selected as the recipient of the 2018 Shoemaker Award for Lifetime Achievement in Communications. The award is presented annually to a USGS scientist who creates excitement and enthusiasm for science among non-scientists by using effective communication skills.

Emily Trentacoste

Emily Trentacoste is an environmental scientist with EPA's Chesapeake Bay Program Office and coordinator of the Chesapeake Bay Program partnership's Scientific, Technical Assessment & Reporting team. Her work focuses on integrating scientific and technical information across the Chesapeake Bay Program partnership to provide technical assistance to state and local partners and on coordinating efforts to assess and address the partnership's science needs. Emily has previously worked as a Biologist and Presidential Management Fellow conducting environmental assessments in EPA's Office of Water and as the National Outreach Coordinator for NOAA Fisheries' Office of Aquaculture. She holds a PhD in Oceanography and MS in Marine Biology from Scripps Institution of Oceanography.

Panel

Oyster fisheries, restoration, and aquaculture in the Chesapeake Bay: critical research and management issues

Moderator

Ryan Carnegie

Ryan Carnegie is a shellfish pathologist and parasitologist, and leader of the Shellfish Pathology Laboratory at the Virginia Institute of Marine Science. He received a PhD from the University of Maine following a B.A. at Rutgers University and an M.A. at VIMS/William & Mary. He conducts wide ranging research, advisory service, and student training in the evolution and ecology of marine diseases, parasite phylogenetics and phylogeography, and practical shellfish health management in aquaculture and fisheries. He has been studying oyster diseases in the Chesapeake Bay region since 2003.

Panelists

Allison Colden

Allison Colden is the Maryland Fisheries Scientist for the Chesapeake Bay Foundation (CBF). She develops the Foundation's fisheries policy initiatives and provides technical expertise to CBF's oyster restoration program. Before joining CBF, Allison managed government relations for Restore America's Estuaries and served as a NOAA Sea Grant Knauss Legislative Fellow. Allison holds a B.S. in Biology with a concentration in Ecological Conservation from the University of Virginia and a Ph.D. in Fisheries Science from the Virginia Institute of Marine Science.

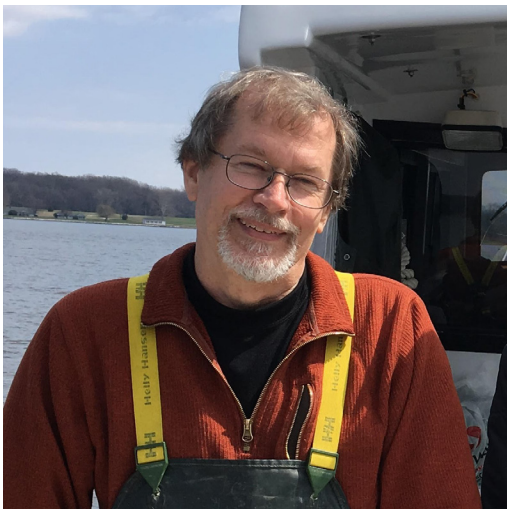
Jeffrey Cornwell

Jeffrey Cornwell is a Research Professor at the UMCES Horn Point Laboratory. His research interests include the biogeochemistry of aquatic sediments, wetlands and oyster reefs, with a more recent emphasis on ecosystem services provided by oyster aquaculture and restoration. His background includes a chemistry B.S. from Hobart College, an oceanography Ph.D. from the University of Alaska, and a marine chemistry post-doc at Texas A&M University. Cambridge, Maryland has been his home since 1986. Current projects include wetland restoration at Poplar Island, nitrogen transformations associated with oysters, and when the coronavirus allows, sediment biogeochemical work in San Francisco Bay.

Karen Hudson

Karen Hudson is the Commercial Shellfish Aquaculture Specialist for the VIMS Marine Advisory Program. Karen provides a singularly focused point of contact for industry, communities and agencies whose actions directly or indirectly impact the conduct and expansion of shellfish aquaculture in Virginia. She is actively involved in fostering the development of applied research projects to address complex shellfish culture problems and provides assistance to commercial and non-commercial molluscan shellfish growers.

Chris Judy



Chris earned a BS degree from the University of Maryland in 1979 majoring in estuarine science and resource management, with a focus on Chesapeake Bay. He continued with graduate studies there also, in the same subject areas. Chris has worked for the MD Department of Natural Resources Shellfish Program since 1986 and had been the Director for about 15 years. His work has involved oyster restoration for both sanctuaries and the public fishery throughout Maryland, and for 8 years he headed the Marylanders Grow Oysters Program, a community based oyster gardening program in 30 tributaries in Maryland.

Juliette L. Smith

Dr. Juliette Smith is an Associate Professor in the Department of Aquatic Health Sciences at the Virginia Institute of Marine Science, William & Mary. Her research group investigates the ecology, chemistry, and ecotoxicology of toxins produced by harmful algal blooms (HABs) in coastal environments. Due to the evolution of her career, she is comfortable crossing disciplines and borrows from concepts rooted in oceanography/limnology, biochemistry, analytical chemistry, toxicology, and ecology. Since joining the Faculty at VIMS in 2014, her research has largely focused in Chesapeake Bay and recent research objectives have moved her into local oyster hatchery facilities, where she works with colleagues to evaluate HAB toxins and other stressors as possible impediments to aquaculture production. A current goal is to build a network of cutting-edge technology, the Imaging FlowCybotot, across the Bay and seaside Eastern shore to provide real-time HAB data as an early warning system for oyster harvesters, hatcheries, and health officials.

Michael Wilberg

Dr. Mike Wilberg is a Professor of fisheries science at the University of Maryland Center for Environmental Science, Chesapeake Biological Laboratory. His main research interest is applying quantitative fisheries approaches to improve management of exploited species. He has conducted a variety of work on stock assessment methods development, management strategy evaluation, and effectiveness of regulations for species throughout North America including eastern oysters, American eel, paddlefish, blue crabs, and yellow perch. Dr. Wilberg was co-lead of the 2018 Maryland Oyster Stock Assessment, lead modeler of the OysterFutures project for the Choptank River complex, and he currently co-leads the Maryland Oyster Consensus process for the Oyster Advisory Commission. He is also active in regional fishery management and serves as the vice chair of the Mid-Atlantic Fishery Management Council's Scientific and Statistical Committee, and he has also worked with the Atlantic States Marine Fisheries Commission, Mississippi Interstate Cooperative Resource Association, Great Lakes Fishery Commission, and International Whaling Commission. Dr. Wilberg teaches a range of courses and workshops on population dynamics, fisheries management, stock assessment methods, statistics, and computer programming for graduate students and fishery professionals.

Panel

Stream restoration in the Chesapeake Bay Watershed - an introduction

Moderator

Andrew Miller

Andrew Miller is a professor in the Department of Geography & Environmental Systems at UMBC, chair of the Chesapeake Bay Program Scientific and Technical Advisory Committee, and an advisor to the Adaptation and Resiliency Working Group of the Maryland Climate Change Commission. His research interests include the hydrology and geomorphology of floods in the urban environment, fate and transport of sediment in the landscape and effectiveness of stream restoration and other approaches to mitigation of the consequences of storm runoff.

Panelists

Solange Filoso

Solange Filoso is an Associate Research Professor at the University of Maryland Center for Environmental Science, Chesapeake Biological Laboratory, where she has been a faculty member since 2008. Her background is in ecosystem ecology and biogeochemistry with a focus on freshwater ecosystems. Her current research seeks to understand the effects of human-accelerated environmental changes such as pollution, land use change and climate change on the functional capacity of streams and wetlands, and whether and how management practices such as ecological restoration can help mitigate such impacts. She has monitored numerous stream restoration projects in the Chesapeake Bay region in the last decade with the objective of quantifying the effects and benefits of stream restoration on water quality and quantity. Results from her research have provided important insights about the effectiveness of stream restoration regarding reduction of pollutant loads to the Bay and about potential ways to maximize the benefits of restoration while minimizing potential unintended effects.

David S. Goerman, Jr.

David S. Goerman, Jr. is a Water Program Specialist at the PA Department of Environmental Protection in the Division of Wetlands, Encroachments and Training, Bureau of Waterways Engineering and Wetlands. He's responsible for providing permitting and technical expertise on a wide range of issues involving waterways, wetlands, floodplains and stormwater management. Recent work has focused on aquatic ecosystem restoration, compensation and resource assessment development. David has worked in the Division since 1993 and has a B.S. Degree in the Biological Sciences from Clarion University, Clarion, PA.

Thomas E. Jordan

Dr. Thomas Jordan is a Senior Scientist at the Smithsonian Environmental Research Center (SERC). He received a BS in Biology from Bucknell University, Pennsylvania; and a PhD in Biology from Boston University, Massachusetts. His research is on the transport and transformation of the nitrogen and phosphorus in ecosystems. Human alterations of the global cycles of these essential plant nutrients have led to their overabundance in aquatic ecosystems and detrimental impacts on coastal waters worldwide. Since starting at SERC in 1980, Jordan has studied the sources of nutrient releases from watersheds, the uptake of nutrients by wetlands and riparian forests, and the fates and effects of nutrients in estuaries, especially in Chesapeake Bay and its watershed.

Scott Lowe

Mr. Lowe is Director, Environmental Services at McCormick Taylor, with over 25 years of experience in all aspects of environmental design and permitting services, including designing complex compensatory mitigation and Total Maximum Daily Load (TMDL) projects for DOT's and municipalities throughout the Mid-Atlantic. He has recently helped to develop TMDL crediting procedures and restoration design guidance for stream restoration and outfall restoration projects for WIP projects in the Chesapeake Bay.

Theresa Thompson

Dr. Theresa "Tess" Thompson is an associate professor in Biological Systems Engineering at Virginia Tech and a Turner Fellow of Engineering. Dr. Thompson has degrees in agricultural, civil, and biological systems engineering and has worked as an engineer in state government and private consulting, and as a consultant to US AID. Her research in watershed management focuses on stream and wetland restoration, urban stream systems, and streambank erosion. arestoration and is a frequent invited speaker on streambank erosion and low impact development. A former president of the American Ecological Engineering Society, she currently serves as vice-chair of the River Restoration Committee of ASCE-EWRI and on the advisory board for the International Ecological Engineering Society.

Schedule

The Chesapeake Community Research Symposium 2020 will take place on from June 8-10, 2020.

Please see our website for an up-to-date, detailed schedule for ChesCRS20 including plenary speakers, panel discussions, and sessions.