



Chesapeake Bay
Restoration, Resilience,
and Reflection: Progress
and Future Challenges

2022 Chesapeake Community Research Symposium

June 6-8, 2022

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Welcome to the Chesapeake Community Research Symposium 2022

Scope

The theme of the 2022 symposium is **Chesapeake Bay Restoration, Resilience, and Reflection: Progress and Future Challenges**. The Scope and Aims of the symposium are as follows:

Significant progress has been made toward restoring Chesapeake Bay water quality and living resources. This progress includes the achievement of the 2025 goals for nitrogen and phosphorus pollutant load reductions collectively from hundreds of Chesapeake Bay watershed municipal and industrial wastewater treatment facilities a decade early. In addition, trends in recent years suggest that the summertime anoxic volume (i.e., dead zone) is decreasing and submerged aquatic vegetation has shown signs of recovering. However, restoration efforts face significant challenges as we enter the third decade of the 21st century. Perhaps the most daunting future challenge is maintaining progress in the face of a changing natural and human environment. Globally influenced changes in regional weather patterns and sea level rise are affecting temperature, watershed dynamics, groundwater processes, estuarine hydrodynamics, biogeochemistry, and ecology. In addition, increasing human population in the watershed continue to influence stressors that will interact with the effects of climate change and sea level rise. Moreover, there is a pressing need to consider the effects that changing environmental conditions have on higher trophic levels and ecosystem services which, until recently have received considerably less attention than submerged aquatic vegetation and benthic filter feeders.

By bringing together managers, scientists, and stakeholders for a series of plenary talks, panel discussions, and special sessions, the 2022 Chesapeake Community Research Symposium will not only highlight the progress that has been made toward restoring the Chesapeake Bay and enhancing coastal community resilience, but will also address future challenges to maintaining this progress in the face of our changing human and natural environment.

Planning Committee

Bill Ball - Chesapeake Research Consortium

Marjy Friedrichs - Virginia Institute of Marine Science **Raleigh**

Hood - University of Maryland Center for Environmental Science

Kattie Iwanski - Green Fin Studio

Dave Jasinski - Green Fin Studio

Jeni Keisman - U.S. Geological Survey

Kim De Mutsert - University of Southern Mississippi

Randy Rowel - Chesapeake Research Consortium

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

30 Year of Reporting on the Chesapeake Bay

Karl Blankenship

Karl Blankenship has been writing about the Chesapeake Bay since 1990. He is the founding editor of the Bay Journal and served as its editor for 30 years. He has won numerous awards for his work, including the 2001 Excellence in Journalism Award from the Renewable Natural Resources Foundation and a Lifetime Achievement Award from the Chesapeake Bay Foundation. He is currently Editor-at-Large with the Bay Journal, focusing on producing in-depth reports on issues. Before the Bay Journal, he was a reporter at the Harrisburg (PA) Patriot-News, and the Saginaw (MI) News. He is a graduate of Michigan State University with a degree in journalism.



One Scientist's View of the Future of Chesapeake Bay Restoration

Dr. Jeremy Testa

Jeremy Testa is an Associate Professor at the UMCES Chesapeake Biological Laboratory in Solomons, Maryland. Jeremy is a coastal systems ecologist whose research has an emphasis on the processes of eutrophication, nutrient cycling, and coastal hypoxia and acidification. Jeremy has been working in the Bay region for 15 years, applying a combination of experimental approaches, historical data analysis, and coupled biogeochemical-hydrodynamic modeling studies to address numerous water-quality-related topics. Jeremy has applied his research in numerous ways, including participation in the seasonal Bay hypoxia forecasts, the Maryland Ocean Acidification Action Plan, and supporting county- and state-level water-quality management with targeted research and monitoring.



Chesapeake Progress and Challenges: Bridging Science and Politics

Delegate Sara Love

Sara Love was elected to the Maryland House of Delegates in November 2018. She serves on the Environment & Transportation Committee, and two of its subcommittees, Transportation & Motor Vehicles and Land Use & Ethics. For the last two years she has chaired the Montgomery County House Delegation Land Use, Transportation and Public Safety Committee. In 2019 Sara was appointed to the Chesapeake Bay Commission and in 2022 became the Vice Chair of the Maryland Delegation.

Prior to her election to the Maryland House, Sara was the Public Policy Director for the ACLU of Maryland, where she led their policy and legislative work. During that time, she worked on many issues including reproductive rights, racial justice, public funding for public schools, policing reform, criminal justice reform, saner drug policies, technology and privacy, the First Amendment, open government, and voting rights. Before working for the ACLU, Sara served as the General Counsel and Legal Director of NARAL Pro-Choice America where she worked on federal reproductive rights policy and led a staff to support affiliates across the country working on state policy. She also spent several years out of the workforce, raising her two children. Sara graduated from Princeton University and Northwestern University School of Law.



Panel

Identifying Critical Uncertainties: Comprehensive Evaluation of System Response (CESR) Report

Moderator

Denice Wardrop

Denice Heller Wardrop was one of the first Systems Engineers to graduate from the University of Virginia, which she followed with an MS in Environmental Sciences from the same institution. She practiced as a consulting environmental engineer for over a decade before moving to State College PA, embracing football as well as basketball, and finishing a PhD in Ecology at Penn State. In addition to her role as Executive Director of the Chesapeake Research Consortium, she is a Research Professor of Geography at Penn State University. Her discovery areas are the functioning of wetlands of all kinds and general issues in landscape ecology, and she works a great deal on how human activities impact the ability of natural systems to provide ecosystem services. She serves on science committees that advise both the Chesapeake Bay and Everglades restoration efforts, and passionately supports humans and aquatic systems finding ways to bring out the best in each other.



Panelists

Bill Dennison

Dr. Bill Dennison is a Professor of Marine Science and Vice President for Science Applications at the University of Maryland Center for Environmental Science (UMCES). Dr. Dennison's primary mission within UMCES is to coordinate the Integration and Application Network. The University of Maryland Center for Environmental Science is one of two research and service institutions in the 12-institution University System of Maryland. UMCES is comprised of three laboratories distributed across the watershed of Chesapeake Bay within Maryland: Appalachian Laboratory in Frostburg, Chesapeake Biological Laboratory on the western shore of Chesapeake Bay in Solomons and Horn Point Laboratory on the eastern shore of Chesapeake Bay near Cambridge as well as Maryland Sea Grant College in College Park, Maryland. UMCES also operates an Annapolis Liaison Office. Bill Dennison rejoined UMCES in 2002 following a ten year stint at the University of Queensland in Brisbane, Australia. He originally started at UMCES (then the Center for Environmental and Estuarine Science) in 1987 as a Postdoctorate/Research Assistant Professor based at Horn Point Laboratory. In Australia, Bill developed an active Marine Botany group at the University of Queensland with strong links to the Healthy Waterways Campaign for Moreton Bay. Bill obtained his academic training from Western Michigan University (B.A., Biology & Environmental Science), the University of Alaska (M.S., Biological Oceanography), The University of Chicago (Ph.D., Biology), and State University of New York at Stony Brook (Postdoc, Coastal Marine Scholar).



Identifying Critical Uncertainties: Comprehensive Evaluation of System Response (CESR) Report

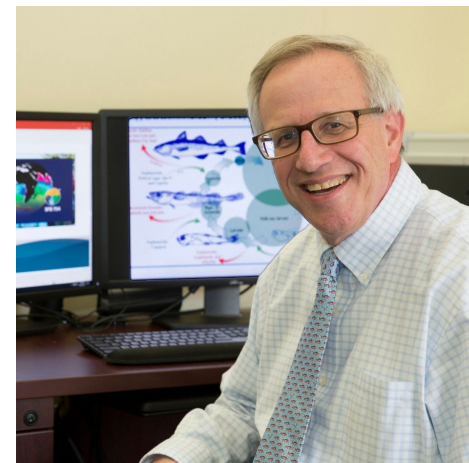
Zach Easton

Dr. Easton is a professor in the department of Biological Systems Engineering at Virginia Tech. His research groups core programs focus on synergies between soil & water resources, environmental change, biophysics, and sustainable agricultural systems. They do this using high level computational approaches, remote and in situ sensing, physical studies, and systems level analysis. The research group is interdisciplinary with backgrounds in hydrology, biology, atmospheric science, computer science, and engineering and their collaborators work in fields from animal science to agricultural economics to robotics and autonomous vehicles.



Kenneth Rose

Kenneth Rose is the France-Merrick Professor in Sustainable Ecosystem Restoration at Horn Point Laboratory (University of Maryland Center for Environmental Science). He received his MS and PhD in Fisheries from the University of Washington, and was a research staff member at Oak Ridge National Lab and Professor and Associate Dean at Louisiana State University before coming to UMCES. Dr. Rose's research uses mathematical and simulation modeling to predict population and food web responses to environmental factors, habitat, harvesting, and multiple stressors (including deoxygenation, climate change, and ocean acidification). He has worked in lakes, rivers, estuaries, coastal shelf, and open ocean systems. Dr. Rose has served on many advisory and science review committees, including for the National Academy of Sciences and Army Corps of Engineers, biological opinions, environmental impact statements, and planning and assessing coastal restoration. Dr. Rose has published over 200 scientific papers, served as editor for multiple journals, is a fellow of the American Association for the Advancement of Science, and received the lifetime achievement award from the American Fisheries Society. Dr. Rose is presently an at-large member of the Chesapeake Bay Scientific and Technical Advisory Committee.



Identifying Critical Uncertainties: Comprehensive Evaluation of System Response (CESR) Report

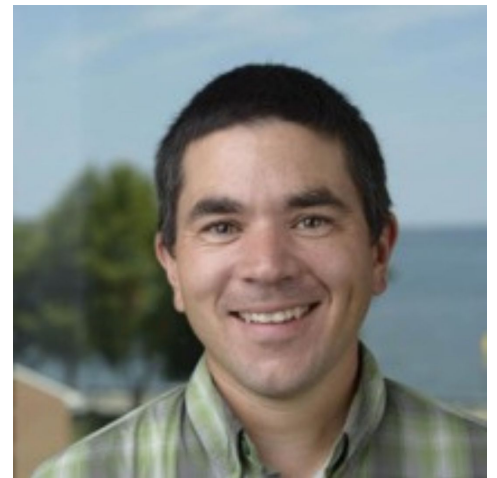
Kurt Stephenson

Kurt Stephenson is a professor in the Department of Agricultural and Applied Economics at Virginia Tech where he teaches environmental and natural resources economics. His research interests include market-based environmental policy and water resource economics and policy. Kurt currently serves on a number of governmental advisory committees and recently concluded 8 years of service on the Chesapeake Bay Program's Scientific and Technical Advisory Committee.



Jeremy Testa

Jeremy Testa is an Associate Professor at the UMCES Chesapeake Biological Laboratory in Solomons, Maryland. Jeremy is a coastal systems ecologist whose research has an emphasis on the processes of eutrophication, nutrient cycling, and coastal hypoxia and acidification. Jeremy has been working in the Bay region for 15 years, applying a combination of experimental approaches, historical data analysis, and coupled biogeochemical-hydrodynamic modeling studies to address numerous water-quality-related topics. Jeremy has applied his research in numerous ways, including participation in the seasonal Bay hypoxia forecasts, the Maryland Ocean Acidification Action Plan, and supporting county- and state-level water-quality management with targeted research and monitoring.



Panel

The State of Diversity in Chesapeake Bay Restoration Efforts: A Panel Discussion on the Need for More Diversity in the Environmental Movement and How to Facilitate Positive Outcomes

Moderator

Randy K. Rowel Jr.

Randy Rowel, CRC's C-StREAM Program Coordinator, earned degrees in social science, environmental sciences, and global sustainability, and has over 10 years of experience in teaching, and higher education across areas of instruction (undergraduate advisement and global travel courses and graduate resident in India) and research, over 10 years in DEIJ (including state-level organizations) and over 15 years in upper administration. He specializes in facilitating discussions, strategic planning, and professional developments around DEIJ in environmental and executive natural resource management.

He served as Maryland Department of Natural Resources first ever Diversity and Inclusion Director, responsible for developing strategy, creating infrastructure, and programming, and introducing assessment methods like the Bilingual Assessment Tool, a program to provide workers with compensation for using multilingual skills on the job. Mr. Rowel has a record of coordinating funding activities for environmental projects as well as publishing in capacity building for solving our environmental challenges in communities of color. He also is owner of a grant and proposal writing firm, RR & Associates, where environment and community meet. He also is the Chair of the Environmental Commission for the City of Annapolis, the first African American person to ever hold that position.



The State of Diversity in Chesapeake Bay Restoration Efforts: A Panel Discussion on the Need for More Diversity in the Environmental Movement and How to Facilitate Positive Outcomes

Panelists

Richard W. Allen

Richard W. Allen is the Director of Equal Opportunity and Americans with Disabilities Act Coordinator at the Maryland Department of Natural Resources (MD DNR). Allen has worked in this capacity for the past 19.5 years as the Director of the MD DNR Office of Fair Practices, administering the Equal Opportunity, ADA, Workforce and Cultural Diversity, Workplace Mediation Services, EO and Title VI-Civil Rights Training and Staff development of employees, and supervision of a Multi-Cultural Coordinator and a Diversity and Inclusion Coordinator within the office.



Prior to MD DNR Allen worked as the Chief of Equal Employment Opportunity and Affirmative Action at the Maryland Aviation Administration-BWI Marshall Airport and an Equal Employment Opportunity Officer at the Maryland Transit Administration (MTA) of MDOT. Richard has 24.5 years of work experience within Maryland state government units.

Prior to the Maryland State government, Allen served as the Executive Director of Suburban Maryland Fair Housing Inc., for 5 years in Montgomery County, MD, and as the Fair Housing Specialist of the Lancaster City-County Human Relations Commission in Pennsylvania for 3 years. Richard has approximately 33 years of fair housing, equal employment opportunity, the ADA and Reasonable Accommodations, and Title VI-Environmental Justice/LEP work experience.

Allen is a 1975 graduate of Howard University in Washington, D.C. with a Bachelor's degree in Political Science.

Finally, Richard is a past First Vice-President of the Maryland State Chapter of the Southern Christian Leadership Conference (SCLC); a current member of the Executive Board at Large of the Montgomery County, MD NAACP Branch #7022; serving on the Housing and Labor and Industry Committees, more recently was appointed by County Executive Mark Erlich as a Member of the Montgomery County Committee Against Ethnic Hate; and serves on the Board of Directors at Large of the United Black Fund, Inc. of Washington, D.C. Region.

The State of Diversity in Chesapeake Bay Restoration Efforts: A Panel Discussion on the Need for More Diversity in the Environmental Movement and How to Facilitate Positive Outcomes

Kelly Clark

Dr. Clark is a Science Administrator, with experience in both program management and science policy. He is the founding Director of the Morgan State University's Patuxent Environmental and Aquatic Research Laboratory (PEARL).

He is the first African-American to hold the position of Director at an ocean sciences laboratory. As director, Dr. Clark worked with regional and national decision makers and resource managers to take sound actions on issues related to Maryland's coastal and estuarine natural resources. His expertise and insights are often sought after at the State and Federal level. At the National level he has been appointed to the Ocean Research Advisory Panel, to provide independent advice and guidance to the Cabinet-level National Ocean Council. He has served on the policy committee and Chaired the Education Committees of the National Association of Marine Laboratories.



At the state level His present appointments included the Patuxent River Commission, where he is past Chair; and the Maryland Oyster Advisory Commission, which provides direction to the Maryland Department of Natural Resources. Through membership in such regional organizations as the Maryland Sea Grant Institutional Council and the Jug Bay Science Advisory Committee, Dr. Clark worked to ensure that science and scientists remain a relevant, present and useful part of our social framework. Dr. Clark is a strong and persistent advocate for in increasing diversity in the marine sciences.

At past positions as Program Manager for the Smithsonian Louis Stokes Alliance for Minority Participation, member of Human Relations Committee of the American Institute at Biological Sciences and Chair of the National Association of Marine Laboratories Education Committee he continually works to identify ways to increase participation by underrepresented groups. Dr. Clark received his PhD in Marine Ecology in 2001 from the University of Maryland Marine Estuarine and Environmental Sciences Program. His research interests continue to be focused on predator-prey interactions and anthropogenic effects in the nearshore zone of estuaries. He is second of nine children and has been the other half of America's Couple for 29 years and counting.

The State of Diversity in Chesapeake Bay Restoration Efforts: A Panel Discussion on the Need for More Diversity in the Environmental Movement and How to Facilitate Positive Outcomes

Kimberley Mitchell-James

Kimberley Mitchell-James is an Air Force veteran and specialist in operational resilience, efficiency, sustainability, and environmental and social governance (ESG) with 10+years' experience internationally. Effective and strategic leadership in logistical planning and execution in the defense, travel, hospitality and apparel industries via multi-dimensional teams towards social, environmental and financial deliverables. Master's in environmental science from Johns Hopkins University.



Dr. Randolph Rowel

Dr. Randy Rowel is an Associate Professor in Morgan State University's (MSU) School of Community Health and Policy and Chair of the Behavioral Health Sciences Department. Randy brings to the Board 40 years of public health practice, much of which took place in Anne Arundel County. Other areas of expertise include partnership development and evaluation, Community-Based Participatory Research, practice instructor for graduate level internships, qualitative research and diversity and inclusion-related training. Randy currently serves on the Anne Arundel Medical Center board of trustees and Co-Chair of the Health Equity and Anti-Racism Taskforce (HEART). Anne Arundel County, where Dr. Rowel was born and raised, served as his training ground for public health. Here Dr. Rowel was a community organizer and founder of two non-profit organizations that addressed substance abuse prevention in public housing communities. Dr. Rowel delivered numerous cultural diversity training events to federal, state, and local agencies, one of which included training the entire Annapolis Police Department. He received his undergraduate degree at Morgan State University and his masters and doctoral degrees from the University of Utah and the University of Maryland College Park, respectively.



At Morgan State University, Dr. Rowel is also the Director of the Why Culture Matters Disaster Studies Project, an effort that engages students and faculty to inform public health professionals and faith- and community-based organizations about the needs of vulnerable populations during natural and technological disasters. In this capacity he utilized the arts as a community engagement strategy for numerous initiatives and served as an investigator for the Department of Homeland Security (DHS) funded National Center for the Study of Preparedness and Catastrophic Event Response (PACER) at Johns Hopkins University. Dr. Rowel and his research team conducted studies that examined the relationship between daily crisis (community stressors) and preparedness behaviors and developed curriculum entitled the Role of Pastors in Disasters: Training Pastors to be Agents of Safety. During this period, he served on National Academy of Science committees to advance disaster research.

The State of Diversity in Chesapeake Bay Restoration efforts: A panel Discussion on the Need for More Diversity in the Environmental Movement and How to Facilitate Positive Outcomes

While at Morgan, Dr. Rowel became increasingly involved with health care systems by engaging students and faculty in service-learning projects to improve health outcomes among low-income populations. He also served on MedStar Health's Community Needs Assessment Taskforce and more recently Anne Arundel Health Systems' Health Equity Taskforce. Dr. Rowel resides in Annapolis with his wife DeShirle and is a proud father of 4 children and 8 grandchildren.

Darius A. Stanton II

Darius A. Stanton II is professor, entrepreneur and chemical review manager at the US Environmental Protection Agency. Studying environmental science and political science in undergrad, Darius completed his Bachelors of Science at Claflin University in Orangeburg, South Carolina. Following Claflin University, Darius obtained a Masters in Environmental Management from Duke University's Nicholas School of the Environment where he focused on global climate change and community-based environmental management. After graduate school Darius started his career at the Chesapeake Research Consortium (CRC), working as an environmental management staffer at the EPA's Chesapeake Bay Program office. At the CRC, Darius lead the environmental justice and diversity workgroup initiatives. Before leaving the CRC, Darius spearheaded the creation of the Chesapeake Student Recruitment, Early Advisement, and Mentoring (C-StREAM) internship program. Darius currently works at EPA headquarters under the Office of Chemical Safety and Pollution Prevention and Prince George's Community College as an Adjunct Professor.




Carmera Thomas

Carmera Thomas is the Director of Urban Conservation Initiatives at The Conservation Fund. She manages the Parks with Purpose program focusing on equitable park development and green infrastructure through a community-centered approach. Carmera works with residents, community-based groups and partner organizations to restore urban green spaces to reduce stormwater impacts and ensure safe, resilient and healthy communities. Before joining The Conservation Fund, Carmera was the Baltimore Program Manager at the Chesapeake Bay Foundation. Carmera earned her B.S. in Biology from North Carolina Wesleyan College. She serves as the Vice Chair of the


Board for Anne Arundel County Watershed Stewards Academy, a board member of Waterfront Partnership of Baltimore, Inc., and is a member of the Anne Arundel County Citizen Environmental Commission.



Schedule



The Chesapeake Community Research Symposium 2022 will take place on from June 6-8, 2022 .



June 6th Schedule

	Room 1	Room 2	Room 3	Room 4
9:00:00 AM	Introduction			
9:15:00 AM				
10:00:00 AM	Plenary Talk - Karl Blankenship: Bay Journal			
10:15:00 AM				
11:00:00 PM	Plenary Talk - Dr. Jeremy Testa: UMCES Chesapeake Biological Laboratory			
11:15:00 PM				
12:00:00 PM	Plenary Talk - Senator Sarah Elfreth: Maryland Senate			
12:15:00 PM	Lunch			
	Session 2: Water-quality patterns and trends in the Chesapeake Bay and its watershed	Session 10: The Challenge and Promise of Scale: Hi-Res Data, Monitoring, Modeling, and Statistical Analyses for Next Generation Management Models	Session 6: Application of molecular biology, genomics, and metagenomics to understand biological processes and ecological interactions in the Chesapeake Bay	Session 5: The roles of physical transport in estuarine biogeochemical processes and the bay resilience and restoration
1:00:00 PM	Christopher Mason: Nitrogen, phosphorus, and suspended-sediment loads and trends measured at the Chesapeake Bay River Input Monitoring stations: Water years 1985-2020	Gary Shenk: Planning for Next Generation Models and Analysis Tools for the Chesapeake Bay TMDL.	Louis Plough : Advancing monitoring of zooplankton communities in the Chesapeake Bay with metabarcoding: progress and comparisons with morphological-based identification	Pierre St-Laurent : Variability of the estuarine circulation inside tidal tributaries of the Chesapeake Bay
1:20:00 PM	James Webber: Evaluating Water-Quality Drivers in Streams of Fairfax County, Virginia	Peter Claggett: One-meter Resolution Land Use/Cover for the Chesapeake Bay Watershed	Qubin Qin: A deterministic model for understanding nonlinear viral dynamics in	Jilian Xiong: Vertical Transport Timescale of Surface-Produced Particulate Material in the Chesapeake Bay
1:40:00 PM	Sujata Poudel: Phenology and Water Quality Impacts of an invasive Water Chestnut (<i>Trapa bispinosa</i> Roxb. var <i>innumai</i> Nakano) in Northern Virginia, USA and evaluation of Early Detection/Rapid Response (EDRR) practices in its control	Sarah McDonald : Mapping One-Meter Resolution Land Use Change	Feng Chen: The complexity of estuarine viroplankton community unveiled by viral metagenomics	Jian Shen : Importance of transport timescales for understanding nutrient transport and hypoxia
2:00:00 PM	Whitney Lisenbee: Modeling Land Use and Climate Change Scenarios to Manage Water Quality in Integrated Agricultural-Urban Landscapes	Labeeb Ahmed: Mapping Stream and Floodplain Geomorphic Characteristics with Floodplain and Channel Evaluation Tool (FACET)	Sairah Malkin : Seasonal and spatial patterns in sedimentary microbial communities in Chesapeake Bay	Qubin Qin : Using timescales and a simplified model to understand how physical transport and environmental factors control phytoplankton dynamics in Chesapeake Bay
2:20:00 PM	Gourab Saha: Quantifying the Water Quality Benefits of Implementing Manureshed Concept-based Manure Management in the Susquehanna River Basin	Marina Metes: Locating and characterizing headwater streams using lidar-derived topographic metrics	Meng Xia : How Sediments from Chesapeake Bay Dredging Placement Sites moving?	Nicole Cai: Impacts of sea-level rise on the material exchange between tidal marshes and the estuary
2:40:00 PM	Paniz Mohammadpour: How do policy and land management decisions impact nitrogen loss from the food production chain in the Chesapeake Bay Watershed?	David Saavedra: Development of scalable, hyper-resolution, geomorphic hydrography products and their management implications across the Chesapeake Bay watershed	Jinjun Kan : Planktonic microbiomes in the Chesapeake Bay: Can we predict their population structure?	Elka Porter: Effect of tidal resuspension with oyster biodeposits on nutrient and oxygen dynamics
3:00:00 PM	Shuyu Chang: Chesapeake legacies: The importance of legacy nitrogen to improving Chesapeake Bay water quality	Michael Evans: Mapping the Chesapeake with AI	Jacob Cram : Quantitative measurements of taxon-specific microbial abundances along latitudinal and particle-size gradients in the Chesapeake Bay	Stefenie Shenoy : Modeling the influence of on-bottom oyster aquaculture on farm hydrodynamics and biogeochemical cycling
3:20:00 PM	Break			

June 6th Schedule Con't

3:20:00 PM	Break			
	Session 2 Continued	Session 10 Continued	Session 11: Tributary-scale processes	Session 13: Evolving Breadth within the Environmental Workforce
3:40:00 PM	Qian Zhang: Nutrient limitation of phytoplankton in three tidal tributaries of Chesapeake Bay: A machine learning approach for detecting ecosystem recovery following nutrient reductions	Nancy Roth: Implementing Healthy Watersheds Assessment for Maryland Tier II Waters	Alex Davies : Drivers and Trends in Water Level Anomalies and Coastal Flooding in Annapolis, MD	Melissa Fagan : Focusing on DEI at CRC through the Environmental Management Career Development Program and the Scientific and Technical Advisory Committee
4:00:00 PM	Rebecca Murphy: Nutrient Improvements in Chesapeake Bay: Direct Effect of Load Reductions and Implications for Coastal Management	Gopal Bhatt: Development of a fine-scale spatially distributed Phase 7 Chesapeake Bay watershed model	Lili Velasquez: The Oktober Flut: Coastal flooding, response, and lessons learned from an extreme high-water event in Annapolis, MD	Randy Rowel : Focusing on the future of CRC's Chesapeake Student Recruitment, Early Advisement, and Mentoring (C-StREAM) program and its vision.
4:20:00 PM	Marjorie Friedrichs: Nitrogen reductions have decreased hypoxia in the Chesapeake Bay: Evidence from empirical and numerical modeling	Isabella Bertani : Towards the development of a parsimonious Bayesian model to explore drivers of spatial variability in nutrient loads in the Chesapeake Bay watershed	Yifan Zhu : Cyanate Dynamics under Algal Blooms and Sediment Resuspension Events in a Shallow Micro-tidal Estuary in the Lower Chesapeake Bay	Carmera Thomas : The Role of Mentorship and How Important it is that People of Color Feel Welcome
4:40:00 PM	Elgin Perry: Baytrends Cluster analysis Methods	Abolfazl Ansari : High-Resolution Flood Modeling at regional scale in Susquehanna River Basin	Andrew Muller: Spatial Heterogeneity of CDOM, Optical Brighteners, and Oils in Mesohaline Tidal Creeks using Self-Organizing Maps	Paulinus Chigbu : Workforce Diversity in the Marine and Fisheries Sciences: Creating Access and Ensuring Success through the NOAA Living Marine Resources Cooperative Science Center
5:00:00 PM	Breck Sullivan:CBP Tributary Summaries: Communication tool on water quality changes to inform management decisions	Mahdad Talebpour : Sensitivity of high-resolution urban WRF model to the initialization starting point and urban land cover parameterization	Keaghan Muller : Is upland stream restoration working to improve water quality in tidal creek tributaries of the Lower Western Shore, MD	Rosemary Jagus : Development of summer undergraduate research experiences and graduate training for historically under-represented students in marine and environmental sciences
5:30:00 PM	Poster Session, Reception, Gardian Awards			
7:00:00 PM				

June 7th Schedule

	Room 1	Room 2	Room 3	Room 4
9:00:00 AM	Panel Discussion - Identifying Critical Uncertainties: Comprehensive Evaluation of System Response (CESR) Report			
10:00:00 AM	Panel Discussion - The State of Diversity in Chesapeake Bay Restoration efforts: A panel Discussion on the Need for More Diversity in the Environmental Movement and How to Facilitate Positive Outcomes			
10:30:00 AM	Lunch			
11:00:00 AM				
12:00:00 PM				
	Session 2: Water-quality patterns and trends in the Chesapeake Bay and its watershed	Session 10: The Challenge and Promise of Scale: Hi-Res Data, Monitoring, Modeling, and Statistical Analyses for Next Generation Management Models	Session 1: Community Science for Community Research	Session 15: General
1:00:00 PM	Dong Liang: A spatiotemporal synthesis of high-resolution monitoring data with applications to aquaculture	Low Linker: Next Generation Multi-Scale Models of the Chesapeake Watershed and Estuary – Exploring Future Challenges of Climate Change and Growth	Monaca Noble : How to turn a long-term survey into a citizen science program.	Rui Jin: Translating an open-ocean biogeochemistry code with cryptic sulfur cycling to Chesapeake Bay requires considering the impacts of burial, DON, and optics
1:20:00 PM	Shelly Tomlinson: An Evaluation of an Improved Coastal Chlorophyll-A Algorithm for Chesapeake Bay to Support Operational Monitoring and Assessment	Joseph Zhang: Development of Phase 7 Estuarine Model for CBP	Patrick Neale: Chesapeake Bay Water Quality: Fidelity of Citizen Science Methods to Standard Measurements	Henry Legett: Predicting thermal habitat for river herring in Chesapeake Bay watersheds using spatial stream network models
1:40:00 PM	Jessie Turner: Long-term Trends in Chesapeake Bay Remote Sensing Reflectance: Implications for Water Clarity	Zhengui Wang: Development of the next-generation Water Quality Model SCHISM-ICM	Min-Sun Lee: Chesapeake Bay Water Quality: Satellite Remote Sensing Applications using Citizen Scientists' Data	Karina Nunez: Development of the Shoreline Management Model to Assess Site Suitability of Living Shorelines and Emphasize Best Shoreline Management Practices
2:00:00 PM	Shannon McDonnell: A Detailed Optical Analysis of Chromophoric Dissolved Organic Matter in the Chesapeake	Nicole Cai: Development of a Next-Generation Tributary Model in the tidal James River	Alfonso Tapia: Spatial and temporal characterization of nutrient inputs due to tidal flooding.	Zach Clifton
2:20:00 PM	Anna Windle: Optical classification of water quality in the Chesapeake Bay	Linlin Cui : A dynamic web application to visualize Main Bay Model outputs	Derek Loftis : Real-Time Validation of an Operational Flood Forecast Model using an Active Remote Sensing Network and Citizen Science	Allison Tracy: Chesapeake Bay Oyster Habitat Depends on the Environment and Management
2:40:00 PM	Cosette Larash: Chesapeake Water Watch: Smart phones and satellites used in developing new ways to assess water quality in Chesapeake Bay	Richard Tian : Simulation of shallow water high-frequency dynamics of water quality in the Corsica River, Chesapeake Bay	James Neilan: Using Telepresence to Further Marine Science Monitoring and Education	Raika Gawde: Evaluating the relationship between abundance of the Eastern oyster (<i>Crassostrea virginica</i>) and water quality metrics using a coupled hydrodynamic-biogeochemical model
3:00:00 PM		Aaron Bever: Effects of the resolution of model inputs on real-time environmental forecasting	David Parrish : Chesapeake Monitoring Cooperative's Chesapeake Data Explorer: A Platform to Centralize, Manage, and Communicate Community Science Monitoring	Matt Robinson: Addressing Plastic Pollution in the Chesapeake Bay and its Watershed
3:20:00 PM			Julie Vastine : Integrated monitoring: the role of community volunteers in filling data gaps and assessing tributary health	Olivia Devereux: Tracking Projects Toward the Chesapeake Bay Outcomes

June 7th Schedule Con't

3:40:00 PM	Break			
	Session 7: Strategic Science and Research Framework: Expanding science capacity through academic institutions	Session 3: Assessing the multiple stressors affecting fish health within the Chesapeake Bay watershed	Workshop: Getting Buying-In: Utilizing Effective Communications to Nurture Trust and Confidence in Non-Point Source Modeling for a Wary Public	Session 8: New Advances in Toxic Contaminant Science for the Chesapeake Bay
4:00:00 PM	Breck Sullivan : Overview of Strategic Science and Research Framework and Database – One-stop-shop for CBP science needs	Vicki Blazer: Fish Health Indices: Advantages, Disadvantages and Challenges		Lee Blaney : Use of geospatial and co-occurrence analyses to identify sources of antibiotics, hormones, and UV filters in the Chesapeake Bay
4:20:00 PM	Andrew Miller: Providing scientific and technical advice through STAC Workshops	Josiah Jensen: A Comparison of Two Fish Health Indices Applied to Freshwater Species of the Chesapeake Watershed		Lee Blaney : Photodegradation of antibiotics in the presence of dissolved organic matter from poultry litter
4:40:00 PM	Jeremy Testa: Direct and indirect application of research to address evolving Chesapeake Bay Program science needs	Megan Schall: Investigating Spatiotemporal Variability in Visual Health Assessments for Adult Smallmouth Bass		Tom Ihde: Spatial Estimation of Contaminant Burden to Seafood Using a Biogeochemical Modeling Approach
5:00:00 PM	Tamra Mendelson: Broadening Participation in Environmental Problem-Solving	Mark Matsche: Is the Health Assessment Index (HAI) a useful tool for wild fish populations?		Ke He: Anion-exchange membranes for passive sampling of per- and polyfluoroalkyl substances
5:20:00 PM	Alexander Gunnerson : Building Capacity in the Strategic Science and Research Framework through the Environmental Management Career Development Program	Geoffrey Smith : Patterns in melanistic lesions in Smallmouth Bass in the Susquehanna River Basin, Pennsylvania		Michelle Lorah : Biogeochemical Conditions and Microbial Populations Linked to Biodegradation of Per- and Polyfluoroalkyl Substances in Soil and Sediment
5:40:00 PM	Julie Reichert-Nguyen: Connecting undergraduate internship programs with climate resilience science needs in Chesapeake Bay to elevate career pathways and advance progress in climate change research.	Heather Walsh :An Integrative Approach to Long-term Monitoring of Smallmouth Bass Reproductive Health in the Potomac River, Maryland		
5:30:00 PM				
7:00:00 PM	Poster Session, Reception			

June 8th Schedule

	Room 1	Room 2	Room 3	Room 4
	Session 12: Consequences of climate change and associated extreme events in the Chesapeake Bay	Session 9: Humans and the Environment	Session 14: Environmental stressors impeding restoration in the Chesapeake Bay	Session 4: Leveraging a Comparative Approach in the Baltic Sea and Chesapeake Bay to Inform Restoration
9:00:00 AM	Piero Mazzini & Cassia Pianca: Marine Heatwaves in the Chesapeake Bay	D.G. Webster: Precursors to governance in the Chesapeake River Basin	Kendall Wnuk: Spatial and Temporal Analysis of Algal Bloom Occurrence in the Chesapeake and Delaware Bays using Historical Landsat Data	Jacob Carstensen: Integrating science and marine management – a Danish historical perspective
9:20:00 AM	Nathan Shunk: Impact of Marine Heatwaves on Subsurface Hydrography and Dissolved Oxygen in the Chesapeake Bay	Patrick Bitterman: Patterns of Best Management Practices and Local Contextual Factors Across the Chesapeake Bay Watershed	Michael Echevarria: A simple assessment of temperature and salinity on the interannual variability Margalefidinium polykrikoides blooms in the lower James River	Jesper Andersen: The HEAT is on: a story on the development and application of the HELCOM Eutrophication Assessment Tool
9:40:00 AM	Amita Mehta: Assessing Impact of Extreme Rain Events on the Chesapeake Bay Water Quality Using Remote Sensing	Labeeb Ahmed: Chesapeake Bay Land Change Model (CBLCM): A Stochastic Land Use Change Model	Eduardo Pere-Vega: The effect of temperature and light on the growth dynamics of the harmful dinoflagellate Margalefidinium polykrikoides	Donald Boesch: Outcomes, obstacles and opportunities in reducing agricultural nutrient loads for the Baltic Sea and Chesapeake Bay
10:00:00 AM	Colin Hawes: The Direct Effect of Warming Dominates Future Increases in Chesapeake Bay Hypoxia	David Abler: Linking Models of Environmental and Human Systems in the Thriving Ag Project	Eileen Hofmann: Understanding Controls on Margalef Didinium polykrikoides Blooms in the Lower Chesapeake Bay	Elin Almroth-Rosell: Model study of sea-based restoration in the Baltic Sea with forced vertical water exchange
10:20:00 AM	Kyle Hinson: Watershed Climate Scenario Uncertainty and Implications for Chesapeake Bay Hypoxia	Scott Knoche: A Travel Cost Recreation Demand Model Examining the Economic Benefits of Acid Mine Drainage Remediation to Maryland Trout Anglers	Jilian Xiong: Biophysical interactions control the progression of harmful algal blooms: a novel Lagrangian particle tracking model with algae dynamics and behaviors	Bo Gustafsson: Eutrophication management of the Baltic Sea – success in avoiding disaster?
10:40:00 AM	Andrew Ross: Anthropogenic influences on the extreme river discharge of 2018-2019	Tan Zou: Sustainable Nutrient Management across Systems and Spatial Scales	Margaret Mulholland: Summertime heat waves in the lower Chesapeake Bay and their effects on blooms of Margalefidinium polykrikoides	Kalle Olli: Predictable phytoplankton diversity and functioning along the salinity continua of the Chesapeake Bay and the Baltic Sea - a cross-ecosystem comparison

June 8th Schedule Con't

11:00:00 AM	Break			
11:20:00 AM	Zach Easton: A Systematic Review of Chesapeake Bay Climate Change Impacts and Uncertainty: Watershed Processes, Pollutant Delivery, and BMP Performance	Lara Fowler: Water for Agriculture: Engaging Locally to Frame and Find a Path Forward Together	Kimberly Reece: Impacts of Late Summer Blooms in the Lower Chesapeake Bay	
11:40:00 AM	Jeremy Hanson: Climate Change Impacts and BMP Performance: A Systematic Review and Framework for Chesapeake Bay	Lee Ahern: Protecting the Chesapeake Bay Watershed in Pennsylvania: Media Frames and Stakeholder Perspectives	Barnett Rattner: Harmful Algal Blooms and Implications for Wildlife in the Chesapeake Bay Region	
12:00:00 PM	Allison Reilly: Understanding Climate Change on Interconnected Systems: A Case Study from Colonial National Historic Park	Elizabeth North : Two tests of the Consensus Solutions process with collaborative modeling for management of Maryland's contentious oyster fishery	Morgaie McKibben: Toward hyperspectral, bio-optical identification of phytoplankton groups in the Chesapeake Bay and applications to harmful algal bloom monitoring	
12:20:00 PM	Donald Boesch: Sea-level rise projections demystified		Dante Horemans: Predicting harmful algal blooms in the Chesapeake Bay using empirical habitat models	
12:40:00 PM			Fei Da: Controls on the carbonate system of the York River Estuary	
1:00:00 PM			Catherine Czajka: Impacts of future climate change on Chesapeake Bay carbonate chemistry and oyster growth	