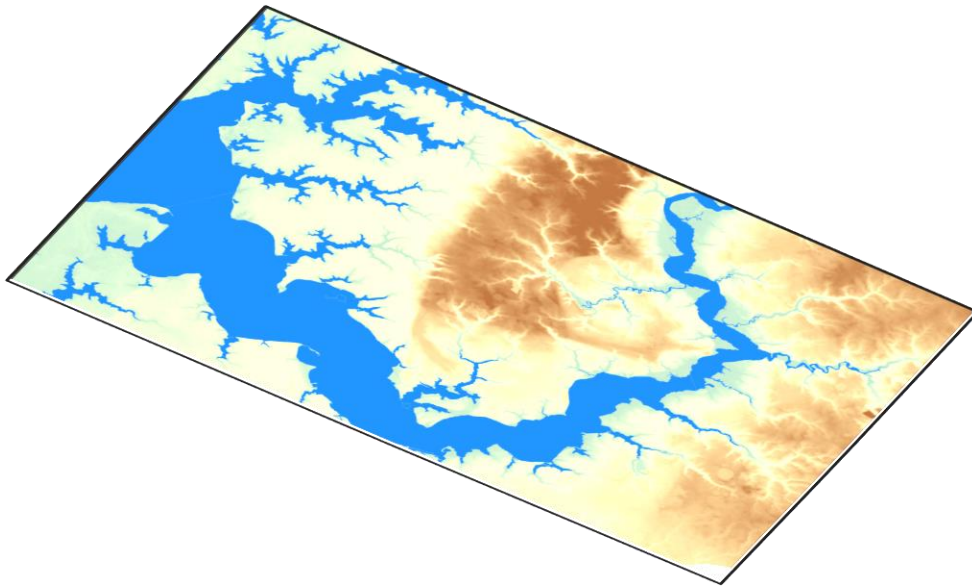


Revisiting Coastal Land-Water Interactions: The Triplet Connection

Steering Committee and Presenter Biographies

Overall Workshop Goals:

Explore advanced understanding of river-estuarine interactions to identify which triplets in impose a disproportionate influence upon Bay health and to predict where, when, and how Bay health will respond to land and water management.



Dates: 23-24 May 2018 (Wednesday - Thursday)
Location: Hood College, Federick MD
Audience: CBP scientists and coastal watershed managers in the Chesapeake Bay Watershed concerned with Bay water quality and habitat goals.

Revisiting Coastal Land-Water Interactions: The Triblet Connection

Workshop Steering Committee



Dr. Kathy Boomer is the lead watershed scientist for The Nature Conservancy's Chesapeake Bay Restoration Project. Her doctoral research at Cornell University focused on hydrology and nutrient biogeochemistry of wetlands. As a research ecologist for the Smithsonian Environmental Research Center, she shifted her focus to watershed modeling and developing applications for high-resolution remote sensing data. Dr. Boomer combines this expertise to develop decision support for water resource management, including mitigating impacts from agriculture and suburban runoff through the strategic restoration of natural wetlands. Email: kboomer@tnc.org.



Dr. Andrew Muller is an oceanographer at the U.S. Naval Academy. Andrew attended Adelphi University in Garden City, Long Island, where he developed an interest in sediment transport processes and eventually moved on to Old Dominion University where he received his M.S and Ph.D. in oceanography. During his time at Old Dominion, Andrew worked on projects that involved biophysical processes and sediment transport on Georges Bank, hydrography of the Chesapeake Bay mouth, kepone cycling in the James River, DDT modeling on the Palos Verde Shelf, California and depositional environments of the Delmarva Peninsula. After graduating with his Ph.D., Andrew was offered an Assistant Professorship at Millersville University, where he received tenure and promotion. During his time at Millersville University, Andrew taught at the Marine Science Consortium (now Greenbackville Field Station), and continued his research on physical processes in Chincoteague Bay, ground-water heterogeneity, and Assateague Island morphodynamics. In 2007, Andrew was offered a position as Professor at the United States Naval Academy in the oceanography department, where his interest is in the physical processes and modelling of triblets, Neural Network and Wavelet Analysis in the Chesapeake Bay and other coastal regions, climate change (extreme weather events), volume of sea-ice, modelling of contaminant transport model for weapons of mass destruction (WMD) (bioterrorism) for DTRA (Defense Threat Reduction Agency), and modelling of radiation for Fukushima. His most current research is using an ADCP to understand the micro-turbulence and stratification over an oyster reef in the Severn River using neural network techniques. Email: amuller@usna.edu



Captain Diana Muller is Executive Director of Maritimas. Diana grew up on the shores of Puget Sound in a small town of Tumwater, Washington. Before it was “in style” her family were organic farmers and sustainable fishermen that lived on what they grew and caught. Her first environmental advocacy act was protesting the catching of the Killer Whales by Sea World; she had her first microscope and chemistry set by age 8 and owned her first boat by age 12. In college, Diana's interest was in metals, pesticides, and nutrients entering Puget Sound and other regions around the world. She majored in chemistry with a focus on environmental chemistry. She worked with local watermen and aquaculturists on eutrophication in Little Skookum Inlet (triblet in Puget Sound) and assisted with publications about nutrient dynamics in triblets. She then went to work for the Applied Marine Research Lab at Old Dominion University as a field-lab technician, working her way up the ladder in different labs and positions (environmental, petroleum, food, microbiology, instrumentations, etc.). She spent several years as a QA/QC officer at Lancaster Labs overseeing several departments and writing environmental and pharmaceutical QAPPs. She then moved on to Director of Science at South River Federation to write, implement, and create the “gold-standard” citizen science program in Maryland for the Chesapeake Bay Program. Most recently, she became the Executive Director of Maritimas, a science-based organization for research, education, and advocate for all coastal regions. Diana has peer-review publications and presentations about triblet research and estuarine dynamics. Overall Diana has thirty years of experience in environmental monitoring, lab analysis, research, education, quality assurance, and advocacy. Her current focus is modeling triblet processes, their interaction with climate change (weather extremes), contaminants of emerging concern, and social-cultural interactions with the environment, environmental education, and environmental policy. Email: captdianalynn@gmail.com

Revisiting Coastal Land-Water Interactions: The Triblet Connection Workshop Steering Committee



Dr. Kevin Sellner recently joined the CCWS as a Senior Scholar, expanding the Center's involvement in regional water quality and harmful algal blooms. He arrived following retirement from his position as Executive Director of the Chesapeake Research Consortium where he sought to encourage multi-institution, multi-discipline research for the six-member institutions as well as act as the liaison between the science and management communities to embed the most recent scientific results into regional science-based management of the Chesapeake Bay and its watershed. Kevin's focus area is harmful algae and cyanobacteria, most recently toxic cyanobacteria in fresh and tidal-fresh areas of the Chesapeake and its tributaries, lakes, ponds, and rivers. In the past, he has studied dinoflagellate and cyanobacteria blooms off Peru, in the Baltic, and most often Chesapeake Bay and its tributaries. Email: sellnerk@si.edu



Dr. Walter Boynton is currently emeritus Professor at the University of Maryland Center for Environmental Science (UMCES), Chesapeake Biological Laboratory in Solomons, Maryland. He has been a member of the faculty at the Chesapeake Biological Laboratory since 1975. Boynton is an estuarine ecologist and has conducted research in the Chesapeake Bay as well the Baltic Sea and Mexican coastal waters. His research interests range from nutrient enrichment of estuarine and coastal waters and the effects this has on water quality, sea grasses and estuarine food webs to issues related to estuarine fish communities. Dr. Boynton has also been active in developing reviews of estuarine processes that are of particular utility to environmental managers. Boynton has served in many professional leadership and advisory roles. He was a member of the team that designed and implemented the Chesapeake Bay Monitoring Program, was treasurer and later President of the Estuarine Research Federation, a member of the Patuxent River Commission, received the UMCES President's award for Excellence in Science Application, shared, with Michael Kemp, the Odum Award for Lifetime Achievement from the Coastal and Estuarine Research Federation and more recently received the Mathias Medal, the Ruth Patrick Award and the Carl Weber Award. Email: boynton@umces.edu



Dr. Marjy Friedrichs is a Research Associate Professor at the Virginia Institute of Marine Science of the College of William & Mary. Her interdisciplinary research interests focus on how physical processes affect biogeochemical properties in estuarine and coastal systems. She uses coupled hydrodynamic-biogeochemical models together with analyses of in-situ and satellite data to better understand how and why carbon and nitrogen cycling varies among diverse marine environments. Much of her current research investigates how human impacts, such as changes in global climate, atmospheric deposition, urbanization and land use affect carbon, biogeochemical and ecosystem dynamics in these systems. Friedrichs' current modeling projects involve forecasting hypoxia in the Chesapeake Bay (www.vims.edu/hypoxia) and inorganic carbon cycling (acidification). Another focus of her research involves the assessment of the relative skill of multiple models currently being used by the scientific community and techniques for optimally combining data and models including data assimilation and parameter optimization. Email: marjy@vims.edu



Dr. Drew Ferrier is a professor in the biology department at Hood College. He also directs a semester-long program in coastal studies. Professor Ferrier's teaching and research interests center on the ecology of aquatic systems - both freshwater and marine. He and his students are currently investigating such diverse topics as the invasion ecology of freshwater crayfish, coral physiology, ultraviolet stress in cnidarians, and the feeding ecology of cownose rays in the Chesapeake Bay. Email: dferrier@hood.edu



Ms. Rachel Dixon is STAC Coordinator at the Chesapeake Research Consortium. She joined STAC in November, 2014 after graduating from the University of Delaware with a M.S. in Marine Studies where she researched estuarine fish behavior in response to hypoxia. Prior to coming to the Chesapeake, Rachel received her B.S. in Marine Biology from UNC Wilmington and grew up all along the East coast. Currently, she is also an adjunct faculty in the Biology department at Washington College, and plans to one day pursue a PhD in marine science. Email: dixonr@chesapeake.org

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Contributor Biographies (in order of presentation):



Dr. Peter Goodwin (Professor and President of the University of Maryland Center for Environmental Science) is an expert in ecosystem restoration, ecohydraulics, and enhancement of river, wetland and estuarine systems. He has participated in the river restoration, coastal wetland sustainability, flood control, and sediment management projects around the world, including Chile and Guatemala, and estuarine and tidal wetland restoration projects on the East, Gulf, and West Coasts of the United States, from Delaware Bay to California. He is recognized internationally for his research with important contributions in the field of modeling flows, sediment transport, and river channel evolution, and has served as a scientific advisor for several government agencies related to river and wetland management issues, including chairing the Louisiana Coastal Area Science Board. Additional research interests include modeling physical processes in natural and disturbed aquatic systems, quantifying benefits of restoration activities, and integrating models of physical processes and biological responses. Email: pgoodwin@umces.edu



Dr. Michael Mallin is an estuarine researcher at the University of North Carolina, Wilmington. His current research interests include the causes and effects of eutrophication, the sources and impacts of urban pollution, land use and how it affects water quality, techniques on mitigating urban pollution, and environmental management issues. He serves as the Research Coordinator for the Lower Cape Fear River Program and the Wilmington Watersheds Program. In his research, he collaborates with biologists, chemists, engineers and land use planners. His publications include studies on factors influencing bacterial contamination of coastal and inland waters, pollution from industrial scale swine and poultry farms, the nutrient and plankton ecology of the coastal ocean, the effects of weather on ecosystems, nutrient sensitivity of streams, rivers, and estuaries, and the environmental quality of urban and rural watersheds. Email: mallinm@uncw.edu



Dr. Denise Sanger is a research ecologist at the Marine Resources Research Institute, College of Charleston. Her research interests include estuarine ecology and ecotoxicology; impacts of coastal development on estuarine environments; stormwater runoff. Current and planned research projects: impacts of development on tidal creek ecosystems including water quality, sediment contamination, biological quality, and human health and well-being; forecasting the impacts of coastal development on tidal creeks through modeling of stormwater runoff and in situ studies; facilitating the integration of information between the scientific community and both regulatory agencies and the general public. Email: sangerd@dnr.sc.gov



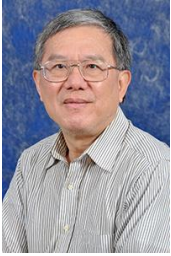
Dr. Larry Sanford serves as Interim Vice President for Education at UMCES and is also a Professor at UMCES Horn Point Laboratory. He maintains an active research program in fine sediment transport processes, coastal and estuarine physical oceanography, waves, and turbulence, with a special interest in interactions between fluid flow and estuarine ecology. Larry has served on the Chesapeake Bay Program Scientific and Technical Advisory Committee, the Bay Program Modeling Subcommittee and Sediment Workgroup, and various other Chesapeake Bay advisory committees. He also serves on the Steering Committee of the International Conference on Cohesive Sediment Transport Processes. Email: lsanford@umces.edu



Dr. Lora Harris is an estuarine ecologist at UMCES who applies field and modeling approaches to address important questions regarding nutrient dynamics, primary production and ecosystem structure and function in a range of estuarine ecosystems. She is especially interested in how climate and management actions interact to affect water quality characteristics in estuaries and lagoons. Some of her most recent work involves collaboration with engineers to understand the restoration trajectories of hypoxic estuaries, and the contribution of wastewater to estuarine receiving waters. Dr. Harris works closely with state and regional agencies in both a research and advisory capacity. She is committed to efforts that increase diversity in the geosciences as a founding principal investigator of Centro Tortuga, an institutional collaboration based in Puerto Rico that is focused on exposing first year undergraduates to the marine sciences. Email: harris@umces.edu

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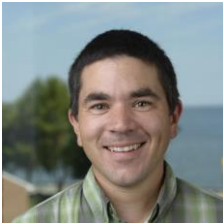
Contributor Biographies (continued, in order of presentation):



Dr. Harry Wang is a Professor of Marine Science at the Virginia Institute of Marine Sciences. His research focuses on coastal and estuarine physical processes and the consequence of their transport properties; in particular, the transports driven by wind, wave, tide, density and affected by the Coriolis force and turbulent mixing. My recent works emphasize the use of numerical computational methods to simulate the current, water level, salinity, temperature as well as their coupled environmental conditions such as water quality, sediment and larval transport. Email: wang@vims.edu



Dr. Tom Jordan is a Senior Scientist at the Smithsonian Environmental Research Center (SERC). His research is on the transport and transformation of the nitrogen and phosphorus in ecosystems. Since starting at SERC in 1980, he 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. Email: jordanth@si.edu.



Dr. Jeremy Testa is an Assistant Professor at the UMCES Chesapeake Biological Laboratory. His interests reside within the field of coastal marine ecology, with an emphasis on the processes of eutrophication, nutrient cycling, and dissolved oxygen dynamics. Jeremy's research group is especially interested in the interactions between biological, chemical, and physical processes in coastal ecosystems. They use a combination of experimental efforts, historical data analysis, and coupled biogeochemical-hydrodynamic modeling studies to examine these aspects of estuarine and coastal aquatic science. Email: jtesta@umces.edu



Dr. Raymond Najjar is a Professor of Oceanography in the Department of Meteorology and Atmospheric Science at The Pennsylvania State University, where he has been on the faculty since 1993. He earned his Ph.D. in Atmospheric and Oceanic Sciences at Princeton University and was a post-doctoral fellow at the National Center for Atmospheric Research until 1993. At Penn State, he has taught numerous courses in oceanography and atmospheric science. Dr. Najjar has conducted research on a variety of topics in hydrology, oceanography, and climate science, with current focal areas of research being carbon cycling in coastal waters and the impacts of climate change on estuaries. He has co-authored more than 60 peer-reviewed studies with support from a variety of federal and state agencies. Email: rgn1@psu.edu



Dr. Donna Bilkovic is a wetlands ecologist and associate professor at the Center for Coastal Resource Management, at the Virginia Institute of Marine Sciences. Her research focuses on the effects of coastal development, including shoreline hardening and riparian land use conversion, on nearshore habitats and fish and invertebrate communities. Her work has led to substantive changes in how shorelines are managed. In Chesapeake Bay, for example, to inform recommendations (and ultimately legislation) to limit the use of hardening for shoreline protection. Donna also co-managed a derelict fishing gear removal program that strove to link research, management and commercial interests (watermen) to address marine debris in Virginia. Email: donnab@vims.edu

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Contributor Biographies (continued, based on order of presentation):



Dr. Jeffrey Cornwell is a geochemist and oceanographer at UMCES' Horn Point Laboratory at University of Maryland Center for Environmental Science. His research interests include sediment biogeochemistry; specifically, nutrient, metal, and sulfur cycling in estuaries and coastal wetlands. Recently, he received a 2018 USM Regents' Faculty Award for Excellence in Public Service and recognized for decades of dedication to community service and his balanced leadership on some of the most challenging scientific questions related to Chesapeake Bay. Email: cornwell@umces.edu



Dr. Vicki Blazer is a research fish biologist with the United States Geological Survey, at the Leetown Science Center. Her expertise and interests include cancer research and endocrinology, including biological effects associated with contaminants and sources of endocrine disruptors on fish populations across the Chesapeake Bay watershed. In 2010, Dr. Blazer received the American Fisheries Society 2010 Publications Award for her article investigating the mortality of fish in the Potomac River basin. Contact: vblazer@usgs.gov.



Dr. Margaret Mulholland is professor of ocean, earth, and atmospheric sciences at Old Dominion University. Her research interests include marine and estuarine nitrogen and carbon cycling, dinitrogen fixation, global change, harmful algal blooms, and cycling of dissolved organic matter. Currently, Dr. Mulholland serves as a member of the Continental Margins Task Team (IMBER/LOICZ), and Secretary for the Biological Oceanography Section at AGU. Email: mmulholl@odu.edu



Dr. Elizabeth Van Dolah is a newly-defended doctoral student at the University of Maryland studying environmental anthropology. After several years of working with Chesapeake environmental management programs, Elizabeth decided to pursue graduate studies in anthropology as a means to contribute to broadening understandings of the human dimensions of environmental issues. She is particularly interested in applied research that sits at the boundaries of interdisciplinary work and enhances community-based environmental management in coastal regions. Her research to date has focused on investigating the underlying socio-cultural and socio-political drivers and processes that affect community response to harmful algal blooms mitigation in the Chesapeake Bay region. For her doctoral research, she is interested in exploring the political ecology of 'place' construction, and understanding the implications of place-making processes on socio-ecological resilience. Email: vandolah@terpmail.umd.edu



Dr. Lisa Wainger is a research professor of environmental economics at the University of Maryland Center for Environmental Science. She has over 20 years of experience in integrating ecological and economic analysis tools to evaluate costs, benefits and risks of environmental policies. She frequently collaborates to develop interdisciplinary models to project ecological and economic outcomes of management actions and test incentives for achieving social goals. Her expertise emphasizes the implications of spatial variability of combined human and biophysical drivers on system outcomes. She has applied integrated modeling to the measurement of ecosystem service benefits, nutrient (water quality) trading, wetland mitigation policy, land use policy, and cost-effective multi-objective policy design. She is recent past chair of the Scientific and Technical Advisory Committee to the US EPA Chesapeake Bay Program and is a frequent economics advisor to government agencies (including the White House Council on Environmental Quality, National Academies of Science), non-governmental organizations, and private businesses. Email: wainger@umces.edu



Lewis Linker is the Chesapeake Bay Program Modeling Coordinator, and works with colleagues throughout the Chesapeake Bay Program (CBP) to develop linked models of the airshed, watershed, estuary, and living resources of the Chesapeake. The linked models of the Chesapeake have provided the basis for the nutrient and sediment reductions in the historic 2010 Chesapeake TMDL and its 2017 Midpoint Assessment. The nutrient and sediment allocations Chesapeake TMDL will reduce Chesapeake nutrient and sediment loads by about a half and one third, respectively, from the high point of nutrient and sediment loading in the mid-1980's. Lew received his Masters from the Johns Hopkins Whiting School of Engineering. His professional interest is in the expansion and refinement of current watershed, airshed, and estuarine models of the Chesapeake, and in improving the capabilities and utility of linked water quality and living resource models generally for CBP environmental management. Lew has authored more than 130 reports, book chapters, papers, and invited presentations. He and his team have received more than sixteen major awards including an EPA Gold Medal and three Bronze Medals, two major EPA awards for scientific achievement, two Smithsonian Awards in information technology excellence, and the Horner Award from the American Society of Civil Engineers. Lew and his wife Julie live in Annapolis, Maryland and have two boys and four grandchildren. Email: llinker@chesapeakebay.net