



BLUE CARBON IN OUR BACKYARD

Research and Management of Carbon in Wetlands to Advance Coastal Restoration, Resilience and Climate Action

September 10, 2019

SPEAKER BIOS

Keynote Speaker - Ariana Sutton-Grier, Ph.D. is currently a Visiting Associate Research Professor at the University of Maryland, College Park. Dr. Sutton-Grier is an ecosystem ecologist with expertise in wetland ecology and restoration, biodiversity, biogeochemistry, climate change, and ecosystem services. She holds Honors Bachelor degrees from Oregon State University in Environmental Science and International Studies and a doctoral degree from Duke University in Ecology. Her research interests include the relationships between nature/biodiversity and human health, coastal blue carbon, and natural and nature-based coastal resilience strategies. A former Smithsonian Fellow and AAAS Science and Technology Policy Fellow, Dr. Sutton-Grier also was selected as an Early Career Fellow by the Ecological Society of America in 2015, one of her papers won the ESA 2016 “Innovations in Sustainability Science” award, and she was selected as the 2019 Young Investigator by the Sigma Xi Scientific Honors Society. She gets especially excited about seeking and discovering innovative opportunities to combine science and policy to solve environmental problems and promote ecosystem conservation. Dr. Sutton-Grier has authored over 40 publications in many environmental and policy journals and her research has been featured in several news stories, as well as a children’s science TV show. See more at her website: suttongrier.org

Omar I. Abdul-Aziz, Ph.D., Associate Professor, Civil & Environmental Engineering (CEE), West Virginia University (WVU) at Morgantown

Dr. Abdul-Aziz obtained a Ph.D. from the University of Minnesota, Twin Cities (2008), an M.S. from the University of Waterloo, Canada (2004), and a B.S. from Bangladesh University of Engineering and Technology (BUET), Dhaka (2002), all in Civil Engineering. He previously worked as a tenure-track Assistant Professor of CEE at the Florida International University, Miami during 2011-15. He also worked as a Research Scientist with the U.S. Geological Survey (2010-11) and as a Research Associate at the University of Washington, Seattle (2008-2009). Dr. Abdul-Aziz conducts highly interdisciplinary research in ecological, environmental, and water resources, engineering — incorporating topics related to the coupled human-natural systems and sustainability from at-site to global scales. Current research includes mechanistic data analytics, scaling, and robust, and user-friendly modeling to predict (I) greenhouse gas fluxes and carbon storage in coastal/terrestrial ecosystems and natural gas fields; (II) stream water quality and ecosystem health; and (III) large-scale urban/coastal flooding under various regimes of extreme rainfall, sea level and land uses. His research has been funded by NSF, NOAA, DOE, and the State of Florida. He received NSF CAREER AWARD in 2015 to investigate similitude and scaling laws, organizing principles, and robust predictions of stream water quality and ecosystem health. He has been the modeling PI of Bringing Wetlands to Market projects since the inception in 2011.

Ashley Bulseco, Ph.D. is a Postdoctoral Scientist at the Marine Biological Laboratory in Woods Hole, MA. Dr. Bulseco earned her Ph.D. in Ecology, Evolution, and Marine Biology from Northeastern University, studying the response of salt marsh sediment decomposition and microbial communities to nutrient enrichment. As a microbial ecologist and biogeochemist, her research broadly focuses on how human-driven disturbances affect microbes in coastal and estuarine systems, and how that translates to changes in ecosystem function. Ashley earned her M.S. in Marine Science and Technology from the University of Massachusetts Boston, and her B.S. in Marine Science from the University of Hawaii at Hilo. She is currently a post-doctoral scientist working at the Marine Biological Laboratory and Woods Hole Oceanographic Institution in Woods Hole, MA.

Phil Colarusso, Ph.D. has been working as a marine biologist and diver for EPA for 30+ years. He has worked on a wide variety of coastal and ocean issues, including impact assessment of power plant operations on fish populations, dredging to benthic habitats and of excess nitrogen on seagrass. From 2012 to 2016, he was one of six US representatives on the Commission of Environmental Cooperation's Blue Carbon Steering Committee. His area of expertise is seagrass ecology/physiology. His current research focuses on carbon sequestration by seagrasses, seagrass restoration and the impact of invasive species on seagrasses. He got a MS in Environmental Science from University of Massachusetts in Boston and a PhD from Northeastern University in Marine Biology.

Meagan Gonnee, Ph.D. My research lies at the interface of land and sea and is used to build new tools to address coastal hazards. This dynamic region is experiencing rapid change, through rising seas and temperatures, with added pressures from historical land management strategies that altered key ecosystem functions. I combine historical ecosystem information, gleaned from analysis of wetland peat, with modern environmental drivers to constrain future ecosystem responses. In the BWM project, I have led the sediment coring and analysis portion of the project. I have been involved in multiple NOAA NERRS Collaborative projects which thrive through engaging land managers and the public in coastal science.

James Holmquist, Ph.D. I am a wetlands ecologist focused on the carbon cycle and resiliency issues. My projects tend to involve large spatial scales and so my skills include GIS, remote sensing, data syntheses and coding. I also love community building and facilitating collaborations. My research goals are to examine the drivers and interactions affecting carbon cycling in wetlands to determine how resilient they are to climate change and to account for ecosystem service changes associated with their loss and restoration.

I earned my Ph.D. from University of California, where my work dealt with long-term carbon storage in Canadian peatlands, which are currently subject to increased growing season length and intensity. My two postdoctoral appointments at UCLA and at Smithsonian Environmental Research Center (SERC) dealt with different, but interconnected, aspects of coastal soil dynamics, wetlands' ability to form new soil mass and maintain an adaptive resiliency to sea-level rise, and the fact that soil formation makes them an effective carbon sink. During my postdoctoral work, I transitioned from a focus on site-specific studies and paleoenvironmental methods towards building synthetic datasets and connecting them to landscape scale phenomena using remotely sensed data, advanced statistics, and modeling. Now at the Smithsonian Environmental Research Center, I manage the Coastal Carbon Research Coordination Network, an NSF Funded project dedicated to accelerating the pace of discovery in coastal wetland carbon science by providing our community with access to data, analysis tools, and synthesis opportunities. Project highlights from 2018 include issuing guidance for new coastal soil carbon synthesis, development of a mapping interface for accessing over 3,000 soil cores from around the world, and the assembling of and progress made by our Soils Working Group.

Hong-Hanh Chu manages the implementation of the Global Warming Solutions Act (GWSA) for the Massachusetts Executive Office of Energy and Environmental Affairs. Her work includes coordinating with state agencies to develop, implement, and evaluate the Commonwealth's clean energy and climate plans in compliance with the GWSA. Ms. Chu received a Master of Science degree from the State University of New York, College of Environmental Science and Forestry and a Bachelor degree from Smith College.

Chris Kinkade, Ph.D. is the Research Lead for the NOAA National Estuarine Research Reserve System (NERRS) where he coordinates efforts of the twenty nine Reserves which make up the NERRS.

Kevin Kroeger, Ph. D. is lead of the Biogeochemical Processes group at the USGS Woods Hole Coastal & Marine Science Center. He has studied coastal ecosystems since 1990, with focus on a range of topics including carbon and greenhouse gas cycling and fluxes in coastal wetlands, and fluxes and biogeochemistry of nitrogen in groundwater discharge to estuaries and wetlands. Within the Bringing Wetlands to Market project, he is a member of the science team, and his roles have included field research on carbon and greenhouse gas cycling in managed wetlands, and connecting research results to management and policy.

Serena Moseman-Valtierra, Ph.D. is a scientist at the University of Rhode Island. She specializes in salt marsh ecology and biogeochemistry and works to discern ways that human impacts (such as nutrient loading, sedimentation, and biological invasion) have altered nitrogen cycling in coastal wetlands.

Joan Muller, Education Coordinator at Waquoit Bay National Estuarine Research Reserve, is responsible for overseeing education programs at the Reserve for teachers, students, visitors, and community members focusing on estuaries, watersheds, and stewardship, to help these audiences to understand the meaning and significance of the research being done at the Reserve. With experience as a teacher from preschool through college levels, as well as an interpretive park ranger and environmental educator at a variety of organizations and settings, she is able to create and share curriculum with a variety of audiences. She was the primary investigator on the project that created the Bringing Wetlands to Market: STEM Curriculum Linking Wetlands and Sea Level Rise and is a certified teacher and also has a Masters in Environmental Science with a concentration in education and communications from the SUNY College of Environmental Science and Forestry in Syracuse, NY.

Anna Murphy is a postdoctoral researcher at Northeastern University's Marine Science Center and a Senior Scientist at INSPIRE Environmental. Annie received her doctorate at the College of William and Mary, Virginia Institute of Marine Science. Her dissertation explored the interactions between bivalve aquaculture and the environment, with a focus on benthic biogeochemical cycles. Her research revealed important information about the controls on denitrification and DNRA within clam aquaculture agroecosystems in shallow tributaries of the Chesapeake Bay as well as the Sacca di Goro in the northeast of Italy. As a postdoc she continues to investigate nitrogen and carbon cycling, with a focus on characterizing the microbial communities associated with these critical and complex biogeochemical cycles. Using controlled lab experiments, she couples biogeochemical rate measurements with high throughput sequencing of the microbial communities of salt marsh sediments to understand how nutrient enrichment alters carbon dynamics. As a scientist at INSPIRE Environmental she contributes to work seeking to understand how anthropogenic stressors (e.g. changes in organic matter load) may alter sediment biogeochemistry and ecosystem function.

James Rassman is the Stewardship Coordinator at the Waquoit Bay National Estuarine Research Reserve located in Falmouth and Mashpee MA. Mr. Rassman works on long term monitoring and research in and around Waquoit Bay, coastal, riparian, and upland restoration, and land management and acquisition projects. He holds a Masters in Natural Resource Management and a BS in Forestry. Before coming to the Reserve, he had previously worked for the EPA on riparian stream bank stabilization and restoration, the US Forest Service, Colorado State University, and several State agencies on the development and implementation and monitoring of best management practices to protect water quality. He has a particular interest in the management and ecology of coastal Pine Barrens and grasslands and lives on the Cape.

Tonna-Marie Rogers is the Director at the Waquoit Bay National Estuarine and Project Coordinator and Collaboration Lead for the BWM Project. She leads activities to ensure that potential end-users of the science are fully integrated into the research project plan and that project outputs are targeted to meet information needs of coastal decision-makers and potential end users. Tonna-Marie has twenty years of experience working at the nexus of science, coastal management and policy. She is trained as a coastal scientist and stakeholder engagement specialist and has significant expertise in designing training and technical assistance for decision-makers on issues such as blue carbon, water quality, coastal resilience, climate change, habitat restoration, disaster risk reduction, among others. Tonna-Marie is also a seasoned project manager and has led/ contributed to many research and environmental projects including several funded by the NERRS Science Collaborative which use a collaborative research model with end users.

Scott Settelmyer is the Managing Director and Co-Founder, TerraCarbon LLC, a leading advisory company that helps develop and sell carbon offsets to fund forest and wetland conservation. He advises clients on carbon project feasibility, development, and financing strategies. Together with the TerraCarbon team, Scott has supported the development and financing of more than 30 forest and wetland conservation projects in the U.S. and abroad since 2006.

Scott is currently engaged in blue carbon feasibility assessments for proposed projects in Massachusetts, New Jersey, Delaware, Louisiana, Florida, and Kenya. He is a member of the U.S. Blue Carbon National Working Group and has been a frequent presenter at blue carbon workshops for coastal and marine managers around the country. Prior to founding TerraCarbon, Scott was CFO of the Chicago Climate Exchange. He has also held senior finance roles for ALLTEL Corporation (a Fortune 250 company) and at Arthur Andersen in Chicago and London.

Stephanie Simpson is the Coastal Wetlands Program Manager at The Nature Conservancy. Stephanie previously served as the manager for the Restore America Estuaries Blue Carbon Program, where she worked with local and national partners to increase recognition of tidal ecosystems for the role they have in climate adaptation and mitigation.

Tim Smith has 18 years of experience in coastal wetland restoration. Currently restoration ecologist at Cape Cod National Seashore, he also worked for local governments in New York City and Boston and for the Commonwealth of Massachusetts. He earned a M.S. in environmental science from Antioch New England Graduate School. He served as the primary end user representative for the Herring River Project partners on the BWM team.

Dr. Jianwu (Jim) Tang is an Associate Scientist at the Marine Biological Laboratory in Woods Hole, focusing on carbon and nutrient cycles in coastal and other ecosystems. He developed new technologies to monitor carbon fluxes between coastal ecosystems, the ocean, and the atmosphere, and to evaluate how coastal conservation and restoration help carbon storage, which can be quantified as a carbon sink used for carbon trading. He obtained his Ph.D. from University of California at Berkeley in 2003. He has published over 90 peer-reviewed papers with over 5000 citations.

Robert Vincent, Ph.D. is Assistant Director and coastal ecologist for MIT Sea Grant. His work focuses on ecosystem response to biophysical feedbacks. He is currently working on carbon cycling in coastal wetlands; coastal habitat restoration; fisheries telemetry tracking, habitat requirements, and food webs; and technology development in support of fisheries and aquaculture. Robert received his Ph.D. in estuarine ecology from the University of New Hampshire.