DAVIDSON FELLOWSHIP

Margaret A. Davidson Graduate Fellowship Newsletter

This newsletter features highlights of Margaret A. Davidson Graduate Fellows conducting research at the national estuarine research reserves.

Meet the Fellows

Learn more about our current cohort of 2024 to 2026 Davidson Fellows hosted by reserves in the Mid-Atlantic and Great Lakes regions of the United States.

Charlotte Henderson, University of North Carolina Wilmington and Chesapeake Bay Virginia Reserve

Project title: Evaluating Eelgrass Resiliency and Restoration Potential to Enhance Adaptive Management Techniques in a Warming Climate

Project summary: By paying careful attention to how we can effectively and efficiently increase resilience in seagrass restoration efforts against rising ocean temperatures, such as via the adaptive flowering and genomics-based methodology proposed by Charlotte, we may yet save not only a rapidly declining marine ecosystem, but an underwater paradise.

Who, or what, inspired you to pursue this fellowship, and why? A variety of people and things inspired me to pursue the Davidson Fellowship. First, of course, is my love for seagrass, which forms beautiful but underrated and understudied foundational habitats. My advisor had also been a part of a similar fellowship during the course of her Ph.D. and retains access to her data and some samples, providing me with a very unique opportunity to compare traits critical to seagrass resilience across nearly two decades.

Allyson “Ally” Kido, University of Maryland and Chesapeake Bay Maryland Reserve

Project title: Understanding the Relationship Between Land Use and Submerged Aquatic Vegetation Ecosystem Services

Project summary: This work will increase our understanding of the way human land use may be impacting submerged aquatic vegetation populations within the reserve, and therefore, the benefits we get from these populations.

Who, or what, inspired you to pursue this fellowship, and why? I was inspired to pursue this fellowship because I believe that the way to solve the environmental problems of our time will come through collaborative science. Through my master's research, I worked with an interdisciplinary team that consisted of researchers outside of the traditional academia setting. This was especially useful to get feedback on how my research could be applied in a management setting. I'm excited to work with the Chesapeake Bay Maryland Reserve staff to guide my Ph.D. research questions and goals of the project. I hope that this research can help with the management of the reserve and also contribute to improving the health of the Chesapeake Bay environments.

Faith Echiejile, Drexel University and Delaware Reserve

Project title: Assessing Carbon Sequestration in Delaware Salt Marshes: A Comparative Analysis of SET Data with Historical LiDAR, Sediment Core Analysis, and Eddy Covariance

Project summary: Are our marshes maintaining elevation and keeping up with rising sea levels while functioning as carbon sinks or sources? Faith's research uses diverse data sets to comprehensively assess elevation changes and carbon sequestration in Delaware salt marshes. Her research will determine whether Delaware salt marshes are resilient to rising sea levels and capable of maintaining elevation.

Who, or what, inspired you to pursue this fellowship, and why? My decision to pursue the Margaret A. Davidson Fellowship was significantly inspired by my advisor, Dr. Elizabeth Watson. Dr. Watson's passion for coastal science has been incredibly motivating. She encouraged me to apply for this fellowship, recognizing the alignment between the fellowship goals and my research interests in marsh resilience and carbon sequestration. Dr. Watson's mentorship has profoundly shaped my academic journey, and her unwavering support and belief in my potential gave me the confidence to seek out opportunities like the Margaret A. Davidson Fellowship.

Chase Wunder, Rutgers University and Jacques Cousteau Reserve

Project title: Examining the Estuary to Ocean Connections of Summer Flounder

Project summary: Chase's research will provide an understanding of the drivers of summer flounder seasonal habitat use in the Jacques Cousteau Reserve, which will help predict potential population shifts driven by warming oceans or impending offshore wind power infrastructure development.

Who, or what, inspired you to pursue this fellowship, and why? I was inspired to pursue this fellowship due to my graduate research interests that focus on summer flounder migration in the Great Bay/Mullica River estuary in the Jacques Cousteau National Estuarine Research Reserve. Additionally I was motivated by the professional development opportunities and networking opportunities that the Davidson Fellowship provides.

Taylor Breton, University of Maryland and Hudson River Reserve

Project title: Restoration of Submersed Aquatic Vegetation in the Hudson River: Genetic Diversity and Genotypic Identity

Project summary: Taylor's research uncovers how restoring Vallisneria americana revitalizes biodiversity in the Hudson River, ensuring a thriving habitat for generations to come.

Who, or what, inspired you to pursue this fellowship, and why? My advisor, Katia, inspired me to pursue this fellowship, as she had submitted a proposal to work with the Hudson River Reserve on a Vallisneria americana restoration project. I was extremely interested in the project and she mentioned the Davidson Fellowship program and encouraged me to apply.

Michael "Mike" Back, Kent State University and Old Woman Creek Reserve

Project title: The Role of Hydrologic Connection and Seasonality on Sediment Nutrient Dynamics in a Coastal Freshwater Wetland

Project summary: Michael's research will contribute to our understanding of sediment-driven nutrient cycling in hydrologically dynamic Great Lakes coastal ecosystems.

Who, or what, inspired you to pursue this fellowship, and why? I started my Ph.D. working with a group of researchers monitoring newly restored wetlands across the state of Ohio. I saw the interactions between scientists, land managers, and agency staff at each of these wetlands and became interested in the connection between the different groups. Specifically, how researchers can help guide management decisions, while also acknowledging and working on the actions that have to be taken to keep the wetland functioning for whichever ecosystem service is a priority for the managing group. Thanks in part to my advisor, I also have a deep appreciation for the biogeochemistry occurring in the depths of wetland sediment, and some of the most interesting biogeochemistry is occurring in coastal interfaces. The Davidson Fellowship sounded like the perfect opportunity to uncover some of the unseen processes within wetland sediment, and directly share the processes with management agencies that can develop strategies to keep the system functioning.

Augustus "Gus" Pendleton, Cornell University and Lake Superior Reserve

Project title: High-Resolution Genomics to Reveal Cyanobacterial "Spawning Grounds" in Lake Superior National Estuarine Research Reserve

Project summary: Gus will investigate what conditions favor the growth and transport of cyanobacteria between the St. Louis River estuary and Lake Superior over summer using DNA sequencing (metagenomics).

Who, or what, inspired you to pursue this fellowship, and why? We are slowly learning about how microbial communities develop in lakes, we know even less about them in rivers, and almost nothing about microbial communities in freshwater estuaries. As someone who is interested in the spatial determinants of microbial community structure, the Lake Superior Reserve is such an exciting and dynamic environment to study how microbial populations are distributed over nutrient gradients.

About the Program

This fellowship program honors the legacy of Margaret A. Davidson, a visionary and pioneer in the world of coastal resource management. The Margaret A. Davidson Graduate Fellowship emphasizes professional development, mentoring, and innovation, and offers students admitted to or enrolled in a master's or doctoral program the opportunity to conduct research within one of the 30 national estuarine research reserves. For more information and to see a list of the full 2024 to 2026 cohort, visit *coast.noaa.gov/nerrs/research/davidson-fellowship.html*.

Program Timeline

The call for applications is closed for the 2024 to 2026 fellowship cohort.
August 1, 2024 – Start date for the 2024 to 2026 cohort.
The next call for applications is expected to open in summer 2025.