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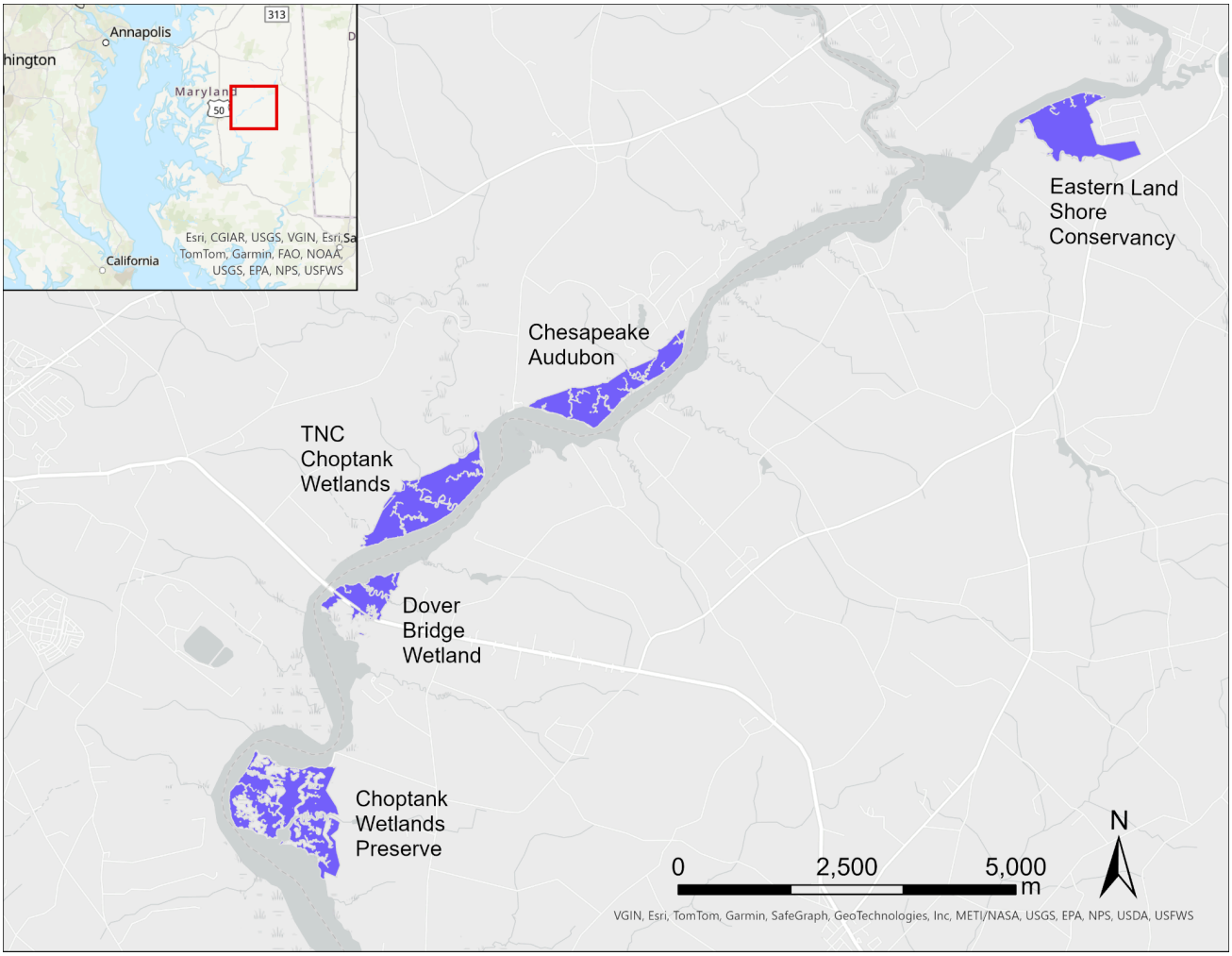
Advancing Marsh Adaptation Projects in the Choptank River through Management Assessments and Landscape Change Visualization Products is a capstone project being completed by a team of four Master's students from the University of Michigan School for Environment and Sustainability, under the guidance of NOAA Chesapeake Bay Office and Envision the Choptank. Through GIS analysis, literature review, and interviews with wetlands professionals, the team plans to identify historical changes to the marshes, current ecological and social conditions, knowledge gaps, and next steps. Deliverables will include a Coastal Wetland Management Assessment for the Choptank River and a Public Mapper of the Choptank River, documenting historical and projected future changes to tidal marshes.

Reference Marshes:



Eastern Shore Land Conservancy (Google Maps 2025)

Chesapeake Audubon
(Google Maps 2025)

TNC Choptank Wetlands -
King's Creek (Google Maps 2025)

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Dover Bridge Wetland
(NAIP 2021)

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Choptank Wetlands
Preserve (NAIP 2021)

Research Team Bios:

Paul Cirillo has professional and academic expertise in coastal wetland management and experimental research on the best restoration strategies for marsh ecosystems across the Northeast. For purposes of this capstone, Paul is responsible for conducting the literature review on topics including sea level rise/saltwater intrusion and their effects on marsh migration, the role of farmers and agricultural collaboration in marsh management, and financial strategies for marsh restoration. To supplement the literature review, he is also conducting interviews with professionals across multiple fields, including government, non-profits, and academia.

Mia McNinch has professional and academic experience in ecological restoration, with a focus on invasive species management and the preservation of native plant communities. For this capstone, Mia is primarily focusing on the impact and presence of invasive species within the Choptank and potential management approaches to best address site concerns. To further study this topic, Mia is responsible for conducting a literature review and interviewing professionals to incorporate knowledge from the field and within source material.

Ilana Greenspan has expertise working on data-driven projects where spatial analysis was a significant component. For the purposes of this capstone, Ilana is delving into analyses related to tracking historical changes within the reference marshes. Working with datasets such as National Agriculture Imagery Program (NAIP), Legacy Historical Shorelines, Unvegetated Vegetated Ratio (UVVR), and Digital Elevation Models (DEMs), she is focusing her research on changes in marsh extent, elevation, and vegetated fraction.

Bojun Zong has expertise in applying ArcGIS to spatial analysis and data-driven projects. His experience includes working with ArcGIS Pro and ArcGIS Online to develop geospatial visualizations and analyses. He has skills in GIS-based modeling to assess tidal marsh adaptation strategies under different climate scenarios. This background equips him to contribute to the geospatial analyses required for the Chesapeake Bay tidal marsh adaptation project.