C-StREAM Summer 2025 Fellowship Summaries

Tributary Basin Summary
Hosted by the Chesapeake Bay Program, Annapolis, MD
The Fellow in this position will support the Chesapeake Bay Program's Integrated Trends Analysis Team (ITAT) which aims to combine the efforts of Chesapeake Bay Program analysts with those of investigators in governmental, academic, and non-profit organizations to identify potential research synergies and collaborations that will enhance our understanding of spatial and temporal patterns in water quality. The Chesapeake Bay Program and its partners compiled tributary basin summaries for 12 major tributaries or tributary groups in the Chesapeake Bay Watershed. These documents summarize the following in one place: 1) how nontidal and tidal water quality changes over time; 2) how factors that drive those changes change over time; and 3) the current state of the science on connecting change in aquatic conditions to its drivers. The Fellow will develop a new Tributary Basin Summary StoryMap using a previously developed template that is updated concurrently with ITAT's Tributary Basin Summary reports.

Tracking Federally Protected Lands Through Time
Hosted by the Chesapeake Bay Program, Annapolis, MD
Tracking land protection in the Chesapeake Bay watershed is crucial for understanding successes and challenges associated with many Chesapeake Bay Program goals and outcomes. However, we have been unable to describe trends in the protection of vital habitats and resources due to the lack of a "time stamp" associated with individual land conservation activities. The Fellow will (1) do research and analysis on records of federally protected lands to identify when land became protected which may include going through physical documents such as deeds and property records at different locations around the watershed, (2) work with Federal partners to improve the historic and ongoing changes of attributes to Federally protected lands, (3) create maps to show trends in federally protected lands and (4) develop communication tools on best practices to share with the Chesapeake Bay Program partnership.

Innovating Data Visualization Workflows
Hosted by the Chesapeake Bay Program, Annapolis, MD
The Fellow in this position will support to the Geospatial Science and Applications Team (GSAT) to help streamline and innovate our data visualization workflows. The student will explore common visualization tasks, such as creating maps, graphs, and tables for presentations, publications, and fact sheets, which often require significant time and effort. The project will focus on automating these processes to save resources, improve consistency, and enhance quality. Tasks may include developing user-friendly tools or prototypes that produce visuals such as static maps, summary tables, or interactive layers. This project offers an exciting opportunity to blend geospatial data, automation, and user-centered design.

Environmental Literacy: Climate Curriculum Analysis and Public Access Development
Hosted by the NOAA Chesapeake Bay Office, Annapolis, MD or Oxford, MD
The Fellow in this position will support the NOAA Chesapeake Bay Office's Environmental Literacy and Partnerships branch (EL&P). The EL&P branch, in part, encourages and supports K-12 education in the development and implementation of comprehensive environmental literacy programs by supporting regional environmental literacy policy initiatives, education resource development, grantmaking, and professional learning programming. The selected Fellow will support two aspects of NCBO environmental literacy work: the development of a public facing portal for high-quality interdisciplinary climate change education curriculum and support of in-person and virtual professional development programming.

Summer Field Technician
Hosted by the NOAA Chesapeake Bay Office, Annapolis, MD or Oxford, MD
The Fellow in this position will assist with the NOAA Chesapeake Bay Office's (NCBO) field-based science and observation efforts. NCBO collects, processes, and delivers observations data in support of research, management, and protection of Bay habitats vital to maintaining healthy fish stocks. The Fellow will support Poplar Island restoration fish community monitoring, oyster restoration post construction bathymetric surveying, and Chesapeake Bay Interpretive Buoy System operations and maintenance.

Elemental Analysis for Sediment Sourcing and Tracking
Hosted by the USGS MD-DE-DC Water Science Center, Catonsville, MD
The Geomorphology Team at the USGS MD-DE-DC Water Science Center has recently acquired a portable XRF (X-Ray Fluorescence) analyzer to supplement the needs of our Sediment Lab. XRF analyzers are able to measure a wide array of elemental signatures within sediment samples, a process necessary for sediment source tracking via sediment fingerprinting models. This fellowship would allow for a student to take the lead on innovative work (with the support of our team of geomorphologists, geologists, and GIS experts with cumulative decades of experience in sediment sourcing and tracking) and investigate one or several issues surrounding XRF analyzers prior to our adoption of the technique.

Restoration Science
Hosted by the Center for Ecosystem Recovery, Millersville, MD
The Fellow will have an opportunity to develop and research a question regarding a recently completed stream-wetland restoration in the Jabez Branch Watershed, a cold-water brook trout stream in Millersville, Maryland located in Anne Arundel County. The Fellow's work will address a pertinent question related to the efficacy and outcomes of ecological restoration associated with restoring Maryland's only wild brook stream in the Coastal Plain. Projects and work may include fieldwork outdoors, laboratory work, data synthesizing and processing, and modeling. In addition to completing their research project, the Fellow will also have opportunities to participate in regular nonprofit operations, such as site visits to document restoration projects and monitoring data collection.

Investigating the cHAB Microseira wollei in the Tidal Freshwater Potomac

Hosted by the Potomac Environmental Research and Education Center at George Mason University

The Fellow will assist in on-going studies of the cHAB (cyanobacterial Harmful Algal Bloom) organism *Microseira wollei* which has become prominent in tidal freshwater areas of the Chesapeake Bay and Potomac River. The fellow will help with fieldwork sampling areas of suspected *M. wollei* growth and helping map its development in the tidal Occoquan River. By assisting ongoing researchers and graduate students, the fellow will get training in field sampling, microscopy, chlorophyll and phycocyanin lab procedures, and ELISA approaches to measuring toxins. In addition to helping the existing team, the Fellow will be assigned a specific component of the research which they will be responsible for investigating with the techniques learned. A successful fellow should be able to present a poster on their work at a conference like AERS in the fall or spring.