



Chesapeake StREAM Internship

Impacts of Sea Level Rise and Climate Change on Chesapeake Shallow Aquifer

The Chesapeake-Student Recruitment, Early Advisement, and Mentoring program ([C-StREAM](#)) is a collaboratively funded effort that develops and trains a diverse population of future leaders in environmental research, restoration, and protection by engaging them over multiple years in mentored engagement experiences. The program focuses on recruiting future leaders from populations historically excluded from the environmental field and currently under-represented in environmental research and management professions.

Project Description

Old Dominion University (ODU) (<https://www.odu.edu/>) is a Carnegie Research 1 Institution of Higher Education (very high research). ODU is accredited by the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) to award baccalaureate, master's, education specialist, and doctoral degrees. ODU began its tradition of excellence when it was founded in 1930 by the College of William and Mary, the second oldest university in the United States. Established as an extension of William and Mary in Williamsburg, Virginia, and Virginia Polytechnic Institute in Blacksburg, Virginia, Old Dominion began educating teachers and engineers. The two-year school rapidly evolved into a four-year institution and was granted independence in 1962 as Old Dominion College.

In Chesapeake coastal municipalities, such as Norfolk and Virginia Beach, the unconfined aquifer relates to saltwater intrusion likely induced by sea level rise, groundwater withdrawal, and land subsidence. As the sea level rises, the elevation of the upper surface of the unconfined aquifer (i.e., water table) may be changed. The water table is pertinent to green infrastructure solutions of retention and/or infiltration as well as underground infrastructure (e.g., septic systems and utility lines). This intern will provide a deliverable such as including a map showing water table contours for Norfolk as impacted by sea level rise and climate change.

This project will understand how shallow groundwater levels would respond to sea level rise and precipitation alteration resulting from climate change in the long run. In this regard, an integrated surface water-groundwater model will be developed by considering interrelations among the atmosphere, land surface, vadose zone, shallow aquifer, and the mid-Atlantic ocean, and applied to predict impacts of future climates and sea levels on the shallow groundwater levels beneath City of Norfolk, Virginia at a continuous time step for a centurial or longer period.

Opportunities

This internship will provide a unique opportunity to contribute to large-scale, long-term natural resource management and policy development critical to understanding new ways to improve Chesapeake Bay water quality and manage Chesapeake Bay living resources most effectively and efficiently across the 64,000 square mile Chesapeake Bay watershed. The C-StREAM student will gain experience in natural resource management, restoration science, and environmental policy. In addition, this internship experience will provide insights into careers in natural resource management, policy development, and science beyond those applied for and allow students to make connections with established environmental management and science professionals.

Responsibilities and Deliverables

- Collect and analyze data on climate, sea level, and groundwater.
- Set up an integrated surface water-groundwater simulation model.
- Use the model to predict long-term fluctuations of the water table as impacted by sea level rise and climate change.
- Develop a map showing water table contours.
- Presentation at the C-StREAM end-of-summer student symposium.

Requirements

- Interest in environmental science, communication, Geographic Information Systems/mapping applications, and/or community engagement.
- Basic experience is desired but not required.
- Motivated self-starter with the ability to work and reason independently.
- Must be a college-level student entering sophomore, junior, or senior year of undergraduate study. Students are also eligible to participate during the immediate summer following their graduation if they are pursuing graduate studies in the fall.
- Must be a U.S. Citizen and willing to undergo a security background check.

Work Location and Duration

This position will be in person with options for remote work as needed. This in-person and virtual opportunity will be based ODU campus in Norfolk, VA. The internship is scheduled to begin on May 22, 2024, and end Friday, August 9, 2024. These are our preferred dates, but the dates can be adjusted to accommodate a student's school schedule if required. We plan on providing interns with access to an EPA computer, email, and phone services if this internship is offered in person. If the internship is virtual, interns will need to have access to suitable internet, computer, and communication resources.

Compensation

The intern will be reimbursed at the end of each month (June, July, and August), for a total of up to \$6,000 (\$500/week) for the equivalent of 12 weeks (480 hours) of full-time activities.

Candidates should expect to follow a normal weekday work schedule (roughly 9-5, M-F) with occasional variations for possible fieldwork or other activities. No benefits are provided. We help arrange local housing if the position is an in-person opportunity. A one-time housing and transportation allowance of \$1,000 is available to each intern to assist with living and transportation expenses. Funds are also available to compensate interns for occasional work-related travel and professional development activities.

Diversity and Inclusion

The Chesapeake Research Consortium and EPA Chesapeake Bay Program are committed to supporting a diverse and inclusive science-oriented workforce. Our internship program endeavors to recruit from a diverse, qualified group of potential applicants to secure a high-performing workforce drawn from all segments of American society. CRC and CBP are strongly supportive of broadening the participation of historically Black colleges and universities, Hispanic serving institutions, Tribal colleges and universities, and institutions that work in underserved areas. We highly encourage applications from students at any of the above institutions as well as students that identify as Black, Indigenous, person of color, or 1st generation college student.

Application Instructions

Application instructions required materials, and the C-StREAM application portal can be found on the C-StREAM website (<http://chesapeake.org/c-stream/>).

The deadline for applications is by midnight on January 28, 2024. The deadline for the Reference Form is by midnight February 4, 2024.