



#### Chesapeake StREAM Internship Research Assistant – Assessing the feasibility of assisted macroinvertebrate colonization in achieving ecological uplift in restored streams in the Chesapeake Bay Region

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**

The Pennsylvania State University (PSU) (<u>https://www.psu.edu/</u>) is recruiting a C-StREAM intern for late May through mid-August (12 weeks) to assist with a new project funded by the Chesapeake Bay Trust Pooled Monitoring Initiative's Restoration Research Program. The intern would work with faculty at Penn State (Dr. Daniel Allen and Dr. Jon Sweetman) in the Department of Ecosystem Science and Management to support research examining whether active reintroduction of benthic invertebrates can improve stream restoration success.

As most US waterways are biologically impaired, stream restoration projects have been viewed as an important mitigation method that can restore biodiversity in degraded streams. However, these projects are commonly unsuccessful in producing the desired ecological uplift, which is commonly assessed using benthic macroinvertebrate bioassessments.

We are interested in learning more about how assisted macroinvertebrate colonization is a viable method to achieve ecological uplift following stream restorations in the Chesapeake Bay Drainage and the mid-Atlantic region. This intern will contribute to this project and will have the intellectual freedom to develop and conduct independent research that complements the overall goals of the project. This work is important because if the cause is a lack of colonizing species that are unable to naturally arrive at the restored stream, one compelling hypothesis is that assisted macroinvertebrate colonization could produce the increases in biodiversity that are desired after stream restorations. We will be conducting a field experiment that tests this hypothesis at streams in the Chesapeake Bay Drainage. We will transplant macroinvertebrates to

restored stream sites and compare any changes in macroinvertebrate diversity to control restored stream sites that do not receive transplants.

This intern will be working with faculty and graduate students at Penn State University along with collaborators at the University of Maryland Center for Environmental Science and project stakeholders at the Chesapeake Bay Trust, Maryland DNR, and Anne Arundel County. The internship would involve a mixture of fieldwork collecting and sampling streams and freshwater invertebrates, and research in the lab, sorting and identifying macroinvertebrates. The intern would have the opportunity to develop an independent research project.

## **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, and science beyond those applied for and allow students to make connections with established environmental management and science professionals.

The research the intern will collaborate on is important, as it has the potential to demonstrate that assisted colonization is a viable method to improve the success of stream restoration approaches in the mid-Atlantic region. The intern would develop research skills including macroinvertebrate identification, statistical analyses, and aquatic field research and presentation skills.

The intern will also have the opportunity to attend the 2024 Society for Freshwater Science Annual Meeting, June 2-6, 2024, in Philadelphia, PA (<u>https://sfsannualmeeting.org/</u>). This will allow the intern to learn about the most cutting-edge freshwater science happening in the Chesapeake Bay and beyond while providing networking opportunities with other freshwater scientists from across the globe.

# Deliverables

- The intern will work with graduate students, faculty, and collaborators.
- Assist with stream sampling.
- Gain experience in benthic macroinvertebrate identification.
- Assist with data entry, quality control, and analyses.
- Opportunity for the intern to develop an independent research project.
- Presentation at SERC (Smithsonian Environmental Research Center) at the conclusion of the internship summarizing the experiences gained and work conducted.

#### **Required Qualifications**

- Interest in environmental science.
- Willingness to engage in physically demanding work, typically taking place outdoors in a range of conditions.
- Motivated self-starter with the ability to work and reason independently.
- Be a college-level student entering sophomore, junior, or senior year of undergraduate study.
- Be a U.S. Citizen and be willing to undergo a security background check.

#### **Work Location and Duration**

We envision that this position will be an in-person position and will be based out of the Department of Ecosystem Science and Management, Penn State University in State College, Pennsylvania. The position will begin in mid-May and conclude in mid-August and will be in place for 12 weeks. We plan on providing interns with access to a computer and email.

#### Compensation

The intern will receive a stipend at the end of each month, for a total of up to \$6,000 for the equivalent of 12 weeks of full-time activities (422 Hours). Funds are available to compensate interns for occasional work-related travel and a one-time \$1000 housing stipend will be available to support housing costs and related needs. If used, this stipend will show up on the intern's first check. 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.

#### **Diversity and Inclusion**

The Chesapeake Research Consortium is 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 is 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**

Applicants are instructed to register with the Chesapeake Jobs online application website: https://chesapeake.org/c-stream/ to apply. You will be instructed to submit a resume detailing your education and work experience and a cover letter that details your interest in this position and describes how your skill set will contribute to the work described above, along with three references. **The deadline for applications is by midnight on January 28, 2024. The deadline for the Reference Form is by midnight February 4, 2024.**