

Waquoit Bay Reserve Foundation Announces Research Internship Opportunity in Collaboration with the Waquoit Bay National Estuarine Research Reserve

Internship Location: Waquoit Bay National Estuarine Research Reserve, 131 Waquoit Highway, Waquoit, MA www.waquoitbayreserve.org

This internship is part of an initiative to help increase the participation of minority and under-represented students in STEM careers. Funding provided by the National Oceanic and Atmospheric Administration

Sponsor: Waquoit Bay Reserve Foundation

Project Title: Assessing the Impact of Burrowing Crabs on Salt Marsh Habitat

Research Project: The primary objective of this internship is to conduct field surveys in a salt marsh to examine burrowing crabs' abundance and influence on salt marsh vegetation and physical factors such as plot elevation. Survey methods will utilize well established methods for assessing the relative abundance of burrowing crabs (e.g. pit traps, burrow counts). Waquoit Bay NERR has conducted periodic assessments of burrowing crab abundance. We hypothesize that the numbers are increasing and potentially having a detrimental effect on salt marsh plants and sediment cohesion in certain portions of the marsh. The ideal product would tie results from a series of crab trap and burrow count monitoring efforts from these periodic surveys to specific elevations and sediment properties in the marsh. In addition to the crab study, the intern will also assist with various aspects of the WBNERR salt marsh monitoring program, including reading Surface Elevation Tables (SET's), and related salt marsh monitoring activities, including obtaining sediment surface elevations in permanent monitoring plots. All activities will be carried out in accordance with social distancing and other public health guidelines.

Benefit to Intern: Students will gain expertise in:

- salt marsh ecology
- invertebrate ecology
- data management
- lab and field techniques

The intern will spend substantial amounts of time maintaining field equipment and, potentially, small cages. They will need to be resilient and creative to successfully implement a field experiment with highly mobile animals under field conditions (soft sediments, tides, inclement weather, etc.). The selected intern will learn to identify common salt marsh plants and invertebrates. Additionally, the intern will learn how to assess sediment properties that are affected most strongly by burrowing activity and will also be trained in using surveying systems to determine marsh surface elevations. Interns may possibly also gain experience educating community members and students about the science concepts involved with the project.

Skills/Training Required: Students should be at least a junior in college, majoring in the natural sciences and in good academic standing. Those that have completed an upper level field oriented biology class are preferred. Familiarity with statistics and data management is highly desirable. Ability to work independently with mostly remote supervision and withstand varying weather and environmental conditions is required to be successful.

Intern Duties/Responsibilities:

- After training and orientation in the field, independently locate permanent salt marsh vegetation monitoring plots to conduct crab burrow counts.
- Obtain relevant physical information to assess the effects of burrowing crabs on sediment cohesion and sediment elevation. Sediment elevation will likely take place using Real Time Kinematic equipment but may involve optical survey methods. The former can be conducted independently after training, the higher precision optical survey requires two people working 10's of meters apart, and thus social distancing is possible at all times.
- Utilizing social distancing protocols, the intern will also assist WBNERR research staff with recording Surface Elevation Table data (SET's), and related salt marsh monitoring activities.
- Using spreadsheets, graphs and basic statistics, analyze data collected, and if time permits, tie to data collected in previous year's assessments.
- Demonstrate burrow counts and other field research methods for the public if education or outreach programs take place at WBNERR during the internship.

Stipend: \$15 - \$17 per hour (depending on experience).

Internship Duration: Flexible - to accommodate student availability and project needs this summer/fall. Final schedule to be determined together by successful applicant and project supervisor. All interested students are encouraged to apply.

Start date: June 2021 is preferred, but there is some flexibility on start date

Guidance: Students will primarily be guided and mentored by Dr. Megan Tyrrell, Research Coordinator at Waquoit Bay Reserve. She has guided many students at undergraduate, graduate, and postdoctoral levels. After a brief period of on-site field training with strict social distancing protocols; the intern will spend most of their time in the salt marsh working alone. Training on data entry and analysis will also be conducted remotely and daily check-ins to facilitate communication between intern and mentor will take place via phone/email.

To Apply: Email WBNERR Research Coordinator Megan Tyrrell- Megan.Tyrrell@state.ma.us with these attachments:

1. Cover letter explaining why you are interested in this internship, and why you feel you are qualified for the position.
2. Resume which includes experience and education.
3. Contact information for two to three professional references.