

Ecology and evolution of cyanobacteria and viruses in Narragansett Bay

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Project Location:

Roger Williams University

Project Description:

Viruses are one of the most abundant entities in the ocean. Interactions between viruses and their hosts can influence the morality, composition, and evolution of host communities; yet the long-term dynamics of viral-host interactions in marine communities are not well understood. This research project focuses on cyanophages, viruses that infect and subsequently kill *Synechococcus* species. *Synechococcus* are unicellular photosynthetic cyanobacteria that are important contributors to primary productivity in coastal marine ecosystems. In this study, we will be examining the abundance and diversity of cyanophages and *Synechococcus* spp. in Narragansett Bay. We will isolate cyanophages from diverse locations in the Bay, analyze how they interact with their hosts, and determine their genotypes using conserved marker genes. In addition, we will investigate the types of genes that may be involved in *Synechococcus*-cyanophage interactions. The overall goal of this project is to understand both the long-term genomic dynamics of viral-host interactions and how environmental conditions, such as increasing water temperatures and nutrient levels, might influence these interactions. This study will provide baseline data about the ecology and evolution of viral – host interactions in Narragansett Bay that could be used to assess future impacts of climate change on viral and cyanobacterial communities in the Bay.

*This project involves **both field & lab/computer work***

Required/preferred skills for student applicant:

Completion of a Genetics Course with Lab.
Experience with PCR, DNA isolation and sequence analysis.

Student transportation needed for project?

Yes