

Assessing changes in coastal ecosystem engineers and associated communities in Narragansett Bay

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Project Location:

University of Rhode Island-Kingston

Project Description:

Habitat-forming seaweeds, such as rockweeds (Order Fucales) and kelps (Order Laminariales), are ecosystem engineers that form dynamic habitats in cool-water regions and support complex food webs. Rockweeds, such as *Fucus* spp. and *Ascophyllum nodosum*, are dominant, temperate seaweeds in the intertidal and shallow subtidal of rocky shorelines, while kelps form complex habitats in the subtidal. Changes in the distribution or abundance of habitat-forming seaweeds can have dramatic consequences for the associated food webs and ecosystem health. Here, we propose to assess the current health of economically and ecologically important habitats in Narragansett Bay by surveying the fish, invertebrate, and seaweed communities through a combination of traditional methods (e.g. random quadrat sampling) and a novel video transect method at sites dominated by rockweed or kelp and for which we have historical records. SCUBA surveys will be conducted at 24 different sites throughout Narragansett Bay in order to characterize the current status of these habitats. We will identify collected seaweed and invertebrate specimens in the laboratory and prepare samples for stable isotope analysis. Analysis of the video transects will also be conducted in the lab. By comparing the current communities with historical data collections, we can identify large-scale changes in these habitats. In order to determine potential changes in these communities in the face of local and global anthropogenic stressors, we must assess changes that have already occurred.

This project involves both field & lab/computer work

Required/preferred skills for student applicant:

We are looking for students that can assist in field work, sample identification, and video transect analysis. Open water SCUBA or AAUS research diving certification with a minimum of 10 open water dives in southern New England is highly preferred. Required skills for this project include an ability to work carefully and independently, comfort in working outside in inclement weather, ability to work with microscopes (primarily dissecting) for long periods of time, a flexible work schedule as some weekend work may be required, and a familiarity with Microsoft Excel. It is preferred, but not required, that the student has experience in identifying marine macroalgae (seaweed) and/or invertebrates.

Student transportation needed for project?

No