

Atlantic Ribbed Mussel Survey

19th Street Gowanus Dredgers Canoe Club Dock & Shoreline

Survey Date: September 18th, 2022



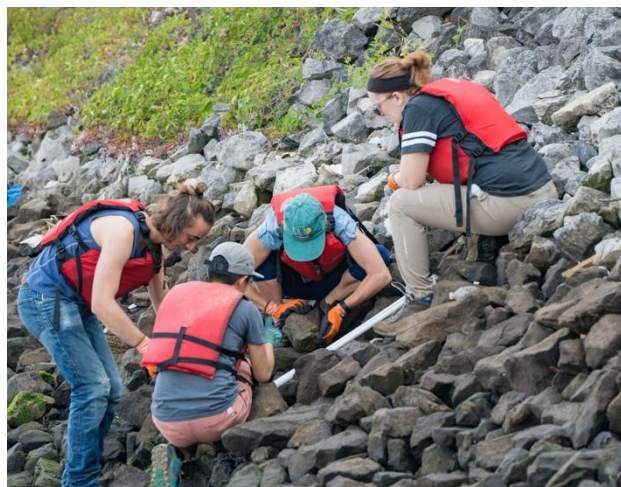
Introduction

The Atlantic Ribbed Mussel (*Geukensia demissa*) is a resilient and ecologically significant bivalve species that inhabits salt marsh habitats along the Eastern coast of North America. These mussels thrive in intertidal zones, attaching themselves to hard surfaces such as rocks, pilings, and other substrates. One of the most noteworthy roles of Atlantic Ribbed Mussels is their ability to filter water. As filter feeders, they actively extract suspended particles from the water column, including organic matter, algae and even contaminants such as heavy metals. The Gowanus Dredgers discovered wild-set mussels along the shoreline of the 19th Street Bunker Launch site. The Gowanus Canal is one of the many places in New York to suffer from Combined Sewer Overflow (or CSO), where rainfall can overwhelm the city's sewer system, leading to the release of untreated wastewater into water bodies. Atlantic Ribbed Mussels can contribute to CSO mitigation by filtering and removing contaminants from the water.

On September 18th, 2022, The Gowanus Dredgers Canoe Club organized a volunteer survey of the shoreline at the 19th Street Bunker Dock, located at the mouth of the Gowanus Bay. The primary goal of the survey was to estimate how many Atlantic Ribbed Mussels (*Geukensia demissa*) are living in the estimated 650 feet of intertidal rip-rap shoreline.



Quadrat surveying of the shoreline



Survey volunteers on the shoreline

Survey Site Plan

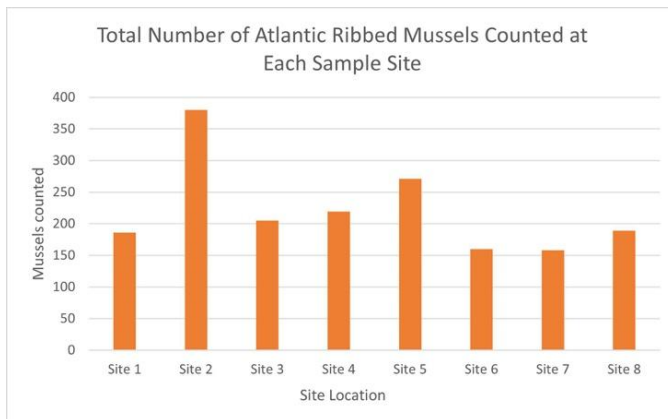
The sampling technique used was a quadrat sampling method, a 1 foot wide by 3 foot wide PVC template placed on eight randomly selected distinct sampling points along the intertidal zone of the shoreline. This method is best used to estimate population abundance of a species. Mussels were counted within the 1x3 sample frame until about 8 inches under the exposed rocks. Each sampling group had at least two participants, one counting the mussels on a clicker and the other volunteer(s) removing rocks and observing attached Atlantic Ribbed Mussels. There was a note taker on shore who received the total counts of the mussels and observations of each survey site. To the best of the volunteer(s) ability, each mussel was counted as one. Spat smaller than 10mm were not counted.

Sample Site Details

Sampling was done at eight distinct sampling sites, located along the shoreline, from directly next to the Dredger's dock to the far side of the shore, next to the Department of Sanitation barges.



Results



Total Number of Mussels Counted = 1768

Calculations

If we factor in the average size of the intertidal zone in a sample site, we measured 15.84 cubic feet. From this calculation, we determined that there are likely 111.6 Atlantic Ribbed Mussels per cubic foot. With a measured shoreline of 650 feet by 5 cubic feet, we calculate that there are an estimated 362,700 Atlantic Ribbed Mussels in our entire shoreline.

Estimated number of Atlantic Ribbed Mussels on the 19th Street shoreline = 362,700

Summary

The Atlantic Ribbed Mussel survey conducted along the shoreline at 19th Street highlights the species's abundance in the current environment of the Gowanus canal. Further sampling studies are necessary to understand how deep the habitat for ribbed mussels goes within the rocky habitat as well as changes in seasonal distribution of ribbed mussels. Since the Gowanus Canal is an EPA Superfund site, it is imperative to understand what ecosystem services are already in place along the shore to help bolster remediation. Preserving existing habitat is essential to maintaining the integrity of the shoreline ecosystem. In this context, any new construction, including the installation of new bulkheads and other developments, should be carefully planned to avoid the destruction of the mussel habitat, which could be detrimental to entire ecosystems within New York Harbor.

