

NYSG partnership is helping hard clam growers who operate under harsh environmental conditions

Progress to Improve NY's Hard Clam Resiliency

The hard clam, *Mercenaria mercenaria*, is the second most economically valuable bivalve species being farmed from Massachusetts to Florida. Hatchery production of high-quality seed that tolerate harsh biological and environmental conditions would help to expand and maintain this industry. Problems facing growers along the Atlantic coast include disease pathogens, harmful algae, prolonged heat wave, low salinity, icing, and pests. Collectively, these parameters result in significant mortality and economic loss that reduce growers' profit. Access to selectively bred hard clam is a possible solution to bring relief to growers.

In 2022, New York Sea Grant (NYSG) continued its leadership under the Sea Grant Hard Clam Selective Breeding Collaborative (Hub) conducting genetic research to identify clam strains tolerant to these problematic conditions. Since publishing the clam genome characterizing the species' genetic diversity in 2021, researchers submitted nine populations ranging from Maine to Florida for genome re-sequencing. Two strains believed to resist Quahog Parasite Unknown (QPX) disease and heat stress were deployed in Massachusetts and New York field experiments to measure tolerance. Additionally, a student completed 10 weeks of science writing training with NYSG's Community Engagement Internships (CEI) funding. The intern participated in a field trip at the Cornell Cooperative Extension of Suffolk County Hatchery, designed a public relations brochure and technical glossary, and created the script being used to produce the Hub's first video.

Sea Grant Hard Clam Selective Breeding Collaborative research is assisting growers whose crop experiences QPX disease and heat stress mortalities. This effort will ultimately breed clams to tolerate harsh conditions.



Breeding QPX- and heat stress-tolerant clam strains at the Cornell Cooperative Extension Suffolk County Hatchery, summer 2022. Photo: Jade Wu/Stony Brook University

Sea Grant Hard Clam Selective Breeding Collaborative
<https://www.hardclamhub.org>

Partners:

- National Sea Grant College Program (NY, NJ, MA, Woods Hole, VA, FL)
- CCE Suffolk County Hatchery • Stony Brook University SoMAS Marine Animal Disease Laboratory
- Rutgers University Haskell Shellfish Laboratory • Virginia Institute of Marine Science
- University of Florida • Sorbonne University Roscoff Marine Station
- **Funding:** National Sea Grant Office

The Sea Grant Focus Area for this project is Sustainable New York Fisheries, Aquaculture & Seafood Businesses.

New York Sea Grant is a joint program of Cornell University, the State University of New York, and NOAA.
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