

'Hail to the queen': Saving the Caribbean queen conch

January 7 2021



Thousands of empty conch shells line the shores of the Caribbean. Credit: Megan Davis

With an estimated lifespan between 25 to 40 years, the queen conch (*Strombus gigas*) is a prized delicacy long harvested for food and is revered for its beautiful shell. Second only to the spiny lobster, it is one of the most important benthic fisheries in the Caribbean region.

Unfortunately, the species faces a challenge of survival: how to endure and thrive, as populations are in a steady state of decline from overfishing, habitat degradation and hurricane damage. In some places, the conch populations have dwindled so low that the remaining conch cannot find breeding partners. This dire situation is urgent in ecological and economic terms.

To preserve this most significant molluscan fishery in the Caribbean, a scientist from Florida Atlantic University's Harbor Branch Oceanographic Institute has dedicated more than four decades of research into the science and art of growing [queen conch](#). Her latest contribution—an 80-page, step-by-step user manual that provides complete illustrations and photos of how to culture [queen conch](#). The "Queen Conch Aquaculture: Hatchery and Nursery Phases User Manual," was recently published in the National Shellfisheries Association's *Journal of Shellfish Research*.

The manual is a deliverable of the Puerto Rico Saltonstall-Kennedy National Oceanic and Atmospheric Administration (NOAA) Fisheries grant, which is a two-year collaboration and project with Conservación Conciencia, the Naguabo Commercial Fishing Association and fishers in Puerto Rico.

"I wrote this edition for the Puerto Rican fishers of the Naguabo Fishing Association who are learning to operate the Naguabo Queen Conch Hatchery and Nursery," said Megan Davis, Ph.D., author and a research professor of aquaculture and stock enhancement, FAU's Harbor Branch, who collaborated with Victoria Cassar, a science communicator who designed the manual. "However, the majority of the information

presented in this new manual can be applied to other queen conch hatchery and nursery projects to produce conch for sustainable seafood, conservation and restoration."



Megan Davis, Ph.D., shows queen conch at various developmental stages in The Bahamas. Credit: H. Forrest Thomas

Last year, Davis teamed up with Conservación ConCiencia in Puerto Rico to assist with stock enhancement fisheries of the queen conch. The goal: to produce up to 2,000 queen conch juveniles in a fishers-operated aquaculture facility for release into conch juvenile habitats. The

Saltonstall-Kennedy NOAA-funded project includes aiding sustainable fisheries practices through aquaculture. The team is working with the fishery communities, utilizing the commercial Fishing Association's working waterfront for conch aquaculture infrastructure, helping provide diversified incomes for the fishery communities, promoting aquaculture practices, and ensuring the conch population is available for future fishing and food security through aquaculture and restoration.

"Aquaculture, along with conservation of breeding populations and fishery management, are ways to help ensure longevity of the species," said Davis. "Our queen conch aquaculture project in Puerto Rico will serve as a model to ensure that conch populations are available for future fishing and to aid food security for Puerto Rico and elsewhere in the Caribbean region."

With requests for queen conch mariculture know-how coming from many communities throughout the Caribbean including The Bahamas, Puerto Rico, Curacao, Antigua, and Turks and Caicos Islands, and with the recent release of this manual, Davis and partners are expanding their Caribbean-wide queen conch conservation, education and restorative mariculture program.

Desired outcomes include establishing protected areas where conch breeding populations can spawn egg masses for future populations; raising queen conch for education, conservation, restoration and sustainable seafood through the establishment of in-classroom, research, pilot-scale or commercial size hatcheries; and locating protected habitats to release hatchery-reared juvenile conch to help repopulate seagrass beds to rebuild conch stocks.

"Forty years of queen conch mariculture research and pilot-scale to commercial application conducted by Dr. Davis holds promise as a way of addressing this critical situation with the queen conch through

community-based solutions," said James Sullivan, Ph.D., executive director of FAU's Harbor Branch. "There are no other mariculture labs with the knowledge and capacity that she brings to the table to tackle the plight of the queen conch."

This new, in-depth manual will be used to support the eLearning platform that includes place-based experiential activities and workshops that can be accessed by anyone, which is featured in FAU Harbor Branch's crowd funding initiative, Save the Queen of the Sea.

More information: Megan Davis et al, Queen Conch Aquaculture: Hatchery and Nursery Phases, *Journal of Shellfish Research* (2021). [DOI: 10.2983/035.039.0319](https://doi.org/10.2983/035.039.0319)

Provided by Florida Atlantic University

Citation: 'Hail to the queen': Saving the Caribbean queen conch (2021, January 7) retrieved 3 May 2024 from <https://phys.org/news/2021-01-hail-queen-caribbean-conch.html>

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