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HARBOR BRANCH

FLORIDA ATLANTIC UNIVERSITY®

Ocean Science for a Better World®

SAVING THE QUEEN OF THE SEA Restoring Caribbean Conch

CONTACT:

AMANDA L. NICKESON

Assistant Vice President for Development
Harbor Branch Oceanographic Institute
412.296.1852
anickeson@fau.edu





ABOUT THE QUEEN CONCH

Prized for its beautiful pink shell and nutritious meat, the queen conch is deeply rooted in the culture and way of life of communities throughout the Caribbean. As one of the most important fisheries in the region, queen conch sustains many local populations and serves as a critical part of their livelihoods. Unfortunately, intensive fishing practices and habitat degradation has led to a significant decline in queen conch populations; a problem that has been escalating for decades. This loss not only impacts the balance of local seagrass ecosystems, but also the people who depend on them.

To offset this decline, the Florida Keys banned all conch fishing in 1985, but a recovery in the population has not yet been seen. The plight of the conch is not a simple problem to address. Harvesting conch, for local consumption or export, is a traditional livelihood for many fishers in the Caribbean and being one of the most popular local delicacies, it serves as a huge draw for tourists. As a result, queen conch populations have been severely overfished, which has left many of the islands deprived of this vital species and the ecosystem services it provides. Bringing a community-based solution to the table that takes into consideration not only the local economies that depend on queen conch harvesting, but also factors in sustainability, is key to helping to ensure the longevity of the fishery and aiding to prevent further ecosystem degradation.

A recent study in The Bahamas indicated that given the current trend, commercial queen conch stocks are likely to be depleted in the next 10 to 15 years.

CREATING COMMUNITY-BASED SOLUTIONS TO RESPONSIBLY FARM SEAFOOD

At Florida Atlantic University Harbor Branch Oceanographic Institute (FAU Harbor Branch), we believe in a future where people can responsibly farm seafood without sacrificing the health and viability of marine ecosystems.

However, time is running out, and we need to grow these programs and accelerate this essential research and training. There has never been a more important time to help conserve and restore key species, like the queen conch, and make lasting changes that will improve the health, economy and future of the Caribbean region.



“To achieve this vision, our scientists collaborate with academia, government, private sector, non-profit institutions and foundations to research and develop innovative solutions to feed the world sustainably and replenish depleted natural fishery stocks,” said FAU Harbor Branch Executive Director Jim Sullivan, Ph.D. “This research is critically important in the Caribbean where communities depend on seafood for their livelihoods.”



INVESTING IN A SOLUTION: MOBILE QUEEN CONCH LABS

The Queen Conch Lab at FAU Harbor Branch has a vision to establish a queen conch farm in every Caribbean nation. This includes both helping to identify and create protected habitats where conch breeding populations can safely spawn, develop and flourish, as well as restore and conserve the species by raising the conch from eggs to small juveniles for release into nursery seagrass habitats.

To do this, we are taking an innovative approach – The Mobile Queen Conch Lab. These mobile labs will act as an important conservation, restoration and educational tool. They will enable aquaculture to take place in the communities that are participating in restoration efforts, enhance the visibility of the program and provide meaningful hands-on experiences to students, fishers and other enthusiastic community members. This initiative will also help to provide a diversified income to the fishing community, promote sound aquaculture practices and ensure the conch population is available for future generations. We can build upon this project using resources already available at FAU Harbor Branch, including queen conch aquaculture manuals, instructional videos, eConch Learning Series, on-site training programs and decades of experience working with queen conch.

The accessibility of a conch lab within a community will support collaboration between scientists and community members as well as allow for more engaging learning opportunities and understanding of the life cycle, ecology and fishery of the species. This concept is already being explored in nations throughout the Caribbean and has led to many valuable strategic partnerships with international organizations, which is instrumental to the success of the Queen Conch Lab at FAU Harbor Branch. With requests for queen conch mariculture know-how coming in daily from all over

the world, the Queen Conch Lab at FAU Harbor Branch maintains its focus on the Caribbean. As a result, our partners in The Bahamas (Great Exuma and Grand Bahama), Puerto Rico, Curaçao, Jamaica, St. Eustatius and others are actively engaging in conch activities.

This program aims to help Caribbean nations establish key locations for protected adult conch populations to supply the eggs needed for aquaculture labs and seed stocks, as well as release thousands of aquaculture-reared juvenile conch. These two efforts will not only help to rebuild wild conch stocks but will also aid in the restoration of the important ecosystem services that queen conch provide in local seagrass beds. The goal is for these solutions to be used Caribbean-wide and enhanced with existing fisheries management techniques and strategies that embrace the species, ecosystem and people dependent upon the queen conch. With your investment in FAU Harbor Branch's Queen Conch Lab and the Mobile Queen Conch Lab Initiative, we can move forward with our vision of establishing pilot-scale aquaculture labs in every Caribbean nation and work with local communities to reestablish conch breeding populations to prevent the species from reaching an endangered status.

CURRENT PARTNERS:

- Conservación ConCiencia, Puerto Rico
- Naguabo Commercial Fishing Association, Puerto Rico
- Bahamas National Trust, The Bahamas
- Curaçao Queen Conch Hatchery, Curaçao Sea Aquarium
- University of West Indies, Jamaica
- Caribbean Netherlands Science Institute, St. Eustatius
- NOAA Fisheries
- USDA Agricultural Research Service
- Puerto Rico Sea Grant

“Having a hatchery operating in the community with full participation from the community will be a great way to not only increase knowledge and awareness of the life cycle of the conch, but it will also allow the opportunity to build relationships, technical skills and solutions together.”

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Catherine Booker
Bahamas National Trust

TIMELINE

Year 1

- Establish and maintain relationships with the Strategic Partner(s) and community in the Caribbean nation where the Mobile Queen Conch Lab will be located.
- Select the site location for the Mobile Queen Conch Lab that ensures access to seawater, security and local community.
- Build the Mobile Queen Conch Lab (20' x 8') that is fully equipped to grow queen conch from egg stage to early juvenile stage. The Lab will be equipped to operate on solar power and backup batteries with inverter. The growing systems will be on flow through or recirculation.

This size Mobile Queen Conch Lab has the capacity to grow up to 2,000 conch per year that are 4-10 mm in size. An additional nursery tank area will be required to grow the conch to 7-8 cm (3 in), or approximately one year old, for release in seagrass habitats.

- Shipment of the Mobile Queen Conch Lab to the Caribbean nation.

Year 2

- Establish and maintain relationships with the Strategic Partner(s) and community in the Caribbean nation where the Mobile Queen Conch Lab will be located.
- Provide on the ground and remote training, as well as resource materials for local staff.
- Provide ongoing technical support.

Year 3

- Establish and maintain relationships with the Strategic Partner(s) and community in the Caribbean nation where the Mobile Queen Conch Lab is going to be located.
- Provide on the ground and remote training, as well as resource materials for local staff.
- Provide ongoing technical support.



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