Community-Based Queen Conch Mariculture Center in Grand Bahama

Centro comunitario de maricultura del caracol rosado en Grand Bahama

Centre communautaire de mariculture du lambi à Grand Bahama

MEGAN DAVIS[1], BECKY HOLT[1], RUPERT HAYWARD[2], MELISSA HALPERN, JEFFREY STOIKE[2], and ANTONY JOHNS[2]

[1]*Florida Atlantic University Harbor Branch Oceanographic Institute, 5600 US 1 North, Fort Pierce, Florida, 34946 USA, mdavi105@fau.edu*

[2]*Blue Action Lab, Freeport, Grand Bahama, The Bahamas, rupert@blueactionlab.com*

EXTENDED ABSTRACT

Now is the time to help communities grow queen conch for the sake of the species, the seagrass ecosystem, and the people who depend on the fishery. Queen conch has suffered significant population loss over the years. Along with overfishing of adults, harvesting of immature queen conch before they are large enough to reproduce has contributed to their decline. Climate change pressures and disappearing seagrass beds have also become threats for the survival of the species. Local regulations as well as trade regulations (CITES II) are helping with fishery management, yet significant challenges remain, leading NOAA Fisheries to recently announce a proposed rule to list queen conch as a threatened species on the Endangered Species Act. These collaborative efforts will help to drive science and society toward a vision for a sustainable conch fishery.

Florida Atlantic University Harbor Branch Oceanographic Institute has been a leader in ocean science for over 50 years, and FAU Queen Conch Lab (QCL) director, Megan Davis Ph.D. has been working with the species for nearly 50 years, making QCL the global headquarters for knowledge on the queen conch lifecycle as it relates to queen conch aquaculture and conservation technologies. In 2021, Builders Initiative, an organization investing and collaborating with partners on sustainable solutions to societal and environmental challenges, learned about a community-based conch ranching project in Grand Bahama led by the Bahamas National Trust with the FAU Queen Conch Lab as a scientific advisor. Builders Initiative selected Grand Bahama as a site to expand economic and environmental opportunities for the community and provided significant funding to the QCL to partner with Blue Action Lab, a Grand Bahamian non-profit and blue/green accelerator, and unite with the community to pilot-test queen conch aquaculture for restoration in National Parks, sustainable seafood, and pearl culture. In addition to its goal of helping replenish queen conch populations, the project will also develop new economic and workforce training opportunities using QCL's eConch, an online training course modeled after FAU's free manual (Davis and Cassar 2020).

This 3-year project, launched in January 2023, includes a mobile queen conch hatchery where Bahamian staff and interns will be trained to grow queen conch from egg to juvenile stage to be released or ranched in Bahamian waters. The solar-powered mobile lab hatchery has the capacity to grow up to 2,000 juvenile conch per year. The project also includes a second mobile lab for queen conch pearl culture using FAU's patented technology (Acosta-Salmón, H. and M. Davis. 2014), with the intent to develop a new business model for the benefit of the Grand Bahamian community. These mobile labs are built at FAU Harbor Branch with the Institute's skilled ocean engineers, fabricators, and aquaculturists (Fig. 1). The mobile labs will be located at Blue Action Lab's Conservation Cove (Fig. 2) with the support of project partner Coral Vita, a commercial coral farm working to restore reefs worldwide. The Coral Vita site has optimal water quality and a dedicated team running state-of-the-art facilities. Other partners on the project responsible for managing various aspects of the grant deliverables are University of The Bahamas Northern Campus, Perry Institute for Marine Science, The Nature Conservancy, Bahamas National Trust, Centro de Investigaciones Biológicas del Noroeste, and Pinder's Paws.

Aquaculture to strengthen food and nutrition security, livelihood diversification, and new tourism streams is a priority for the Bahamian Government. For generations, queen conch has been highly significant to the livelihoods and culture of Grand Bahama, especially in the East and West Ends of the island, therefore, building trust amongst these community members and communicating that aquaculture is complimentary to fisheries, and not competitive, is key. Conch is a way of life for the Caribbean people. It is a cultural icon and there are whole communities and islands that were settled because of the queen conch. Communities depend on this important artisanal fishery for subsistence and livelihood. The 'Grand Bahama Queen Conch Mariculture Center' will be a model project, transferable to other communities throughout The Bahamas and the Caribbean.

KEYWORDS: *Aliger gigas*, queen conch, mariculture, Grand Bahama, community

LITERATURE CITED

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Davis, M., and V. Cassar. 2020. Queen Conch Aquaculture: Hatchery and Nursery Phases User Manual. *Journal of Shellfish Research* 39(3): 731-810.

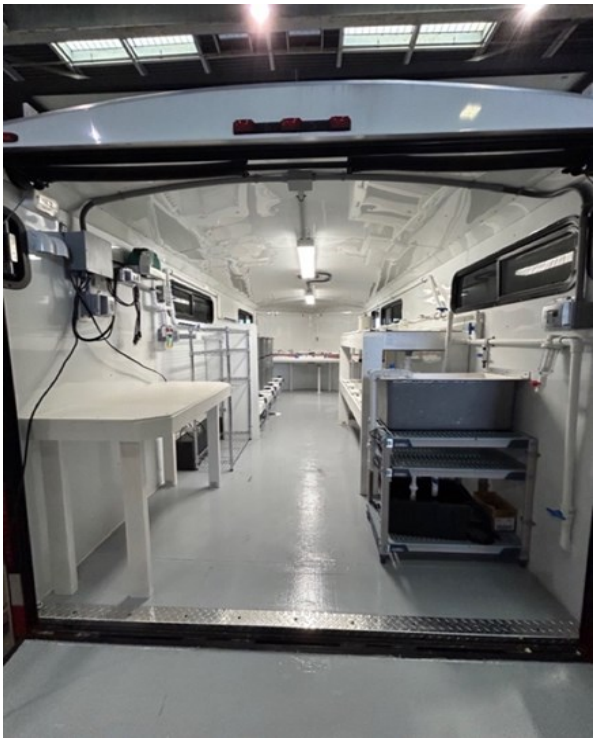

Figure 1. Interior of the mobile hatchery during installation at FAU Harbor Branch

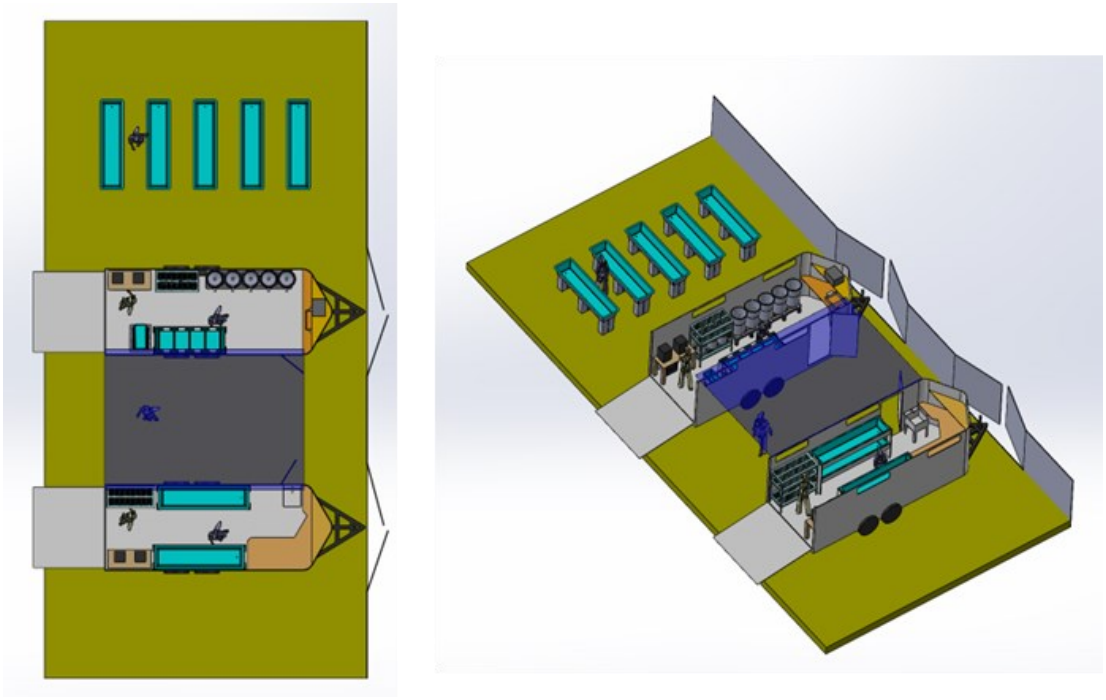

Figure 2. Drawing showing the layout for the Hatchery and Pearl Mobile Labs in Grand Bahama.