eConch: Online Course About Growing Queen Conch for Conservation and Restoration in the Caribbean

eConch: Curso en línea sobre el cultivo del caracol rosado para su conservación y restauración en el Caribe

eConch: Cours en ligne sur la culture du lambi pour la conservation et la restauration dans les Caraïbes

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EXTENDED ABSTRACT

The Florida Atlantic University Queen Conch Lab program was established in 2019 to address the urgent need for queen conch (*Aliger gigas*) conservation and restoration aquaculture. With a vision to establish a community-based queen conch farm in every Caribbean country, Dr. Megan Davis and her team lead a threefold mission: cultivating queen conch to aid in the survival of the species, maintaining the health of seagrass ecosystems where conch play a vital role as grazers, and to provide opportunities for coastal communities.

Over the past six years, this vision has steadily taken root, evidenced by successful collaborations. Today, the Queen Conch Lab is actively collaborating with partners in nine locations, including Florida, Puerto Rico, The Bahamas, Jamaica, and Curaçao, with several additional projects in various stages of development. Each partnership is tailored to the unique environmental, cultural, and economic needs of its region, ensuring that queen conch aquaculture is both sustainable and beneficial to local communities.

The pressing need to expand access to this technology to more individuals was underscored in February 2024, when NOAA Fisheries listed the queen conch as threatened under the Endangered Species Act. Anticipating this need, FAU's Queen Conch Lab, led by Dr. Davis—who has spent over 40 years working with queen conch—and FAU's Center for Online and Continuing Education teamed up to create eConch. This is a free online course designed for students, professionals, and community members interested in queen conch aquaculture for conservation and restoration. Launched in June 2024, this self-paced, seven-module training program is designed for accessibility and ease of learning (Fig. 1). The modules include Introduction to Conch Aquaculture, Microalgae Culture, Collection and Hatching Egg Masses, Larval Rearing, Metamorphosis, Juvenile Culture, and Restoration Tips.

Students who have taken the course have shared that they discovered many fascinating facts about the queen conch. For instance, it takes 4–5 years for a queen conch to reach adulthood, at which point it can reproduce through internal fertilization. During the warm summer months (April to September), a female lays approximately 10 sand-covered egg masses per season, each containing around 500,000 eggs. After four days of incubation, the eggs hatch close to 9:00 PM, releasing microscopic veligers that enter a three-week larval phase. These veliger larvae feed on microalgae or phytoplankton until they reach competency for metamorphosis. At this point, they require a specific environmental cue—the presence of epiphytes on seagrass blades—to trigger the transformation from swimming to a benthic snail. This trophic cue initiates settlement, after which the young conch in the wild burrow into the sediment for their first year and graze on epiphytes on seagrass blades. They later emerge as juveniles, continuing their growth until they reach maturity.

This visually appealing course is set at the Naguabo Aquaculture Center, a partnership project with FAU, Conservación ConCiencia and the Naguabo Fishing Association supported by Saltonstall-Kennedy NOAA Fisheries. It features high-quality videos, narrated PowerPoints, handouts, a discussion board, and expert guidance. Its textbook, the *Queen Conch Aquaculture Manual*, is available in both English and Spanish, published by the Journal of Shellfish Research and the Food and Agriculture Organization, respectively. Upon completion of the course, students receive a certificate and an online badge they can share with their networks.

From June 2024 to February 2025, the utilization of the eConch online course has steadily increased. So far, 109 students from 15 countries have registered, and 28 students have successfully completed the course and earned a certificate (Table 1).

By using eConch as a remote training tool, the Queen Conch Lab is delivering aquaculture education to individuals and community-based hatchery operations throughout the Caribbean. The curriculum provides participants with the knowledge and resources to cultivate queen conch in a responsible manner, ultimately contributing to population restoration efforts in

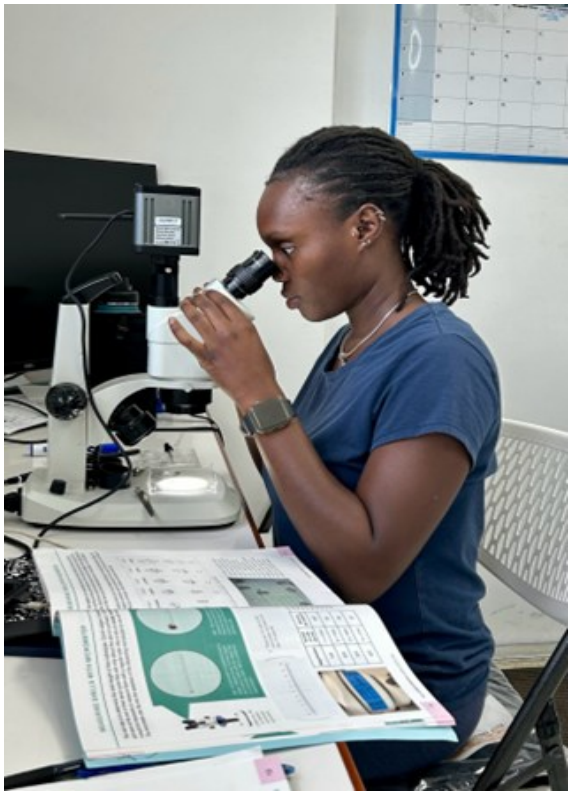

Figure 1. Lachelle Russell, Aquaculture Technician at Blue Action Lab, learning how to grow conch in The Bahamas. (Photo credit: Megan Davis)

their own ocean backyards.

Beyond aquaculture, the Queen Conch Lab is working to raise awareness and foster collaboration through its many other programmatic initiatives. By combining scientific research, hands-on training, and community engagement, they aim to create a network of conservation-driven initiatives that will help to safeguard the future of queen conch for generations to come.

KEYWORDS: *Aliger gigas*, Queen Conch, Online Course, Aquaculture, Conservation, Restoration

Table 1. Data showing the demographics of the participants that have registered for eConch from June 2024 to February 2025.

Country	Percentage	Numbers
The Bahamas	30%	28
Curacao	14%	20
United States	14%	22
Jamaica	12%	13
Colombia	8%	6
Guadeloupe	7%	5
Turks and Caicos Is	4%	3
Belize	3%	3
Martinique	3%	2
Mexico	3%	2
Haiti	1%	1
France	1%	1
Spain	1%	1
Africa	1%	1
Puerto Rico	1%	1

eConch

June 2024 – February 2025

- **109 participants**
- **15 countries represented**
- **28 completed the course**