

Caribbean Lobster Aquaculture

This innovation offers a holistic and revolutionary approach to addressing the increasing environmental and economic challenges on the exploitation of the Caribbean spiny lobster, the region's most economically significant fishery, with Bahamian exports generating US\$90M annually. This innovation has three components. First is developing a novel genetic tool based on population genomic data for Caribbean spiny lobster, enabling improved, science-based management of this economically and ecologically important fishery. Second is the transfer the latest grow-out aquaculture technology and management, co-design small-scale grow-out operations for spiny lobster with fishers. This innovation will be accessible, community-led, and appropriate to Bahamian and the wider Caribbean context. Finally, by engaging with fishing communities and government policymakers, there will be increased awareness of the conservation challenges for this fishery, the science, and aquaculture-based solutions to protect it, and the economic benefit it provides. The project will also evaluate the feasibility of establishing a National Caribbean spiny lobster nursery in The Bahamas, drawing on the well-established model by the National Lobster Hatchery in Cornwall, UK.



Innovative and transformational

The University of Exeter's innovative approach to enhancing the sustainability of Caribbean spiny lobster exploitation is empowering local communities and fishers to become agents of change. By taking a multidisciplinary approach jointly with local partners and developing groundbreaking tools, knowledge, and policy considerations, they are ensuring the effective management of Caribbean spiny lobster populations across the region. This project has the potential to boost small-scale fishers in the Bahamas and the wider Caribbean access to new markets and broader promotional opportunities.

Key achievements so far

- ⇒ Collected and performed **quality control of 839 Caribbean spiny lobster samples**, representing **29 sites across 15 nations and including samples of 4 closely related *panilurid* species**.
- ⇒ **Sequenced 384 of the best quality range-wide samples**, to generate a unique dataset with approximately **5 million reads per sample**.
- ⇒ Completed **two knowledge exchange activities in the Bahamas with local fishers**, where the University of Exeter and partners co-designed grow-out practices and operations with the fishers.
- ⇒ Deployed **15 novel grow-out cages across 2 sites** on Eleuthera island to assess cage fouling dynamics and ability to support lobster growth.
- ⇒ Established land-based grow-out trials, with **55 pueruli and juvenile Caribbean spiny lobster**.
- ⇒ Conducted three stakeholder engagement activities: two focus groups targeted at school-age children (11 to 14), with **26 children** participating, learning about the importance of spiny lobster, and the possibilities of aquaculture; a focus group with **eight community members of Tarpum Bay (Rotary Club)**; and **interviews with 15 fishers** from across the Island of Eleuthera to learn their views on sustainable fisheries, spiny lobster and aquaculture

Sustainability beyond OIC

At this stage, the University of Exeter has already engaged with other funders, philanthropic organizations, and charities to fund other aspects of this project (e.g. development of a collector-building trade on the island, establishment of a small nursery and scheme to support fisher collection of juveniles). The University of Exeter has also been approached by representatives from other governments in the region (Jamaica, Bermuda) who are keen to explore whether the approach is transferable. They will continue to pursue these opportunities to ensure wider adoption of the innovations both locally and regionally in the long term.



Caribbean spiny lobster – developing innovative fisheries management and aquaculture practices to sustain ecosystems and livelihoods

University of Exeter
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OIC financing \$250,000

Realized additional co-financing \$214,240