CONTRIBUTION 5.1

A Bioeconomic Approach for Sea Cucumber Mariculture in the Caribbean

Ricardo Anthony Morris

Caribbean Aquaculture Education and Innovation Hub
E-mail: ricardomorrisphd@gmail.com

Abstract

The downturn of the lucrative multi-species sea cucumber trade in the Asian market has in the last decade led to an increase in fishing pressure in other regions where the fishery previously did not exist. This has led to an increased threat of unsustainable fishing, overexploitation of stocks, loss of biodiversity, negative ecological impacts, and the destabilization of sensitive ecosystems and coastal communities targeting these species. All these impacts have been realized in the Latin America and Caribbean region including Jamaica, whose management has been slow or unresponsive in adapting to the sudden demand for the species. On the other hand, this demand and high prices for the species present several opportunities including for aquaculture and mariculture which can provide economic benefits, supplement already overexploited fisheries, and contribute to the restoration and resilience of coastal ecosystems to climate change impacts.

A bioeconomic approach to investigation and then implementation of sea cucumber mariculture can provide an inefficient means of optimizing ocean space, inputs (costs), economic benefit, and ecological contribution. This is given that space and cost are major limitations to aquaculture and mariculture development in small island states like those in the Caribbean. The approach involves an initial experimental mariculture phase where wild seeds (juveniles) are collected and kept in identical enclosures on the seabed in different densities and habitat conditions. Over time, biological indicators such as ambient conditions, mortality, and growth, are monitored along with applicable costs which could include feed, security, lease arrangements, etc. Following this monitoring period, a bioeconomic assessment is conducted to determine the optimum harvest time and harvest size for the targeted market along with the different density habitat conditions. The results are expected to provide critical management and policy development information, with the potential for being scaled up, about the viability of sea cucumber mariculture as a business in conditions specific to the Caribbean.

KEYWORDS: sea cucumber, mariculture, bioeconomics, Caribbean

NOTE: *There is no accompanying paper for this item.*

CITATION: Morris, R.A., 2026.A Bioeconomic Approach for Sea Cucumber Mariculture in the Caribbean. Contribution 5.1, p330 *IN* CRFM, 2026. Volume I: Technical Papers.Presented at the CRFM 20th Anniversary Scientific Conference, 28-31 August 2023. CRFM Special Publication No. 37, CRFM Secretariat https://www.crfm.int/index.php?option=com_k2&view=item&id=925