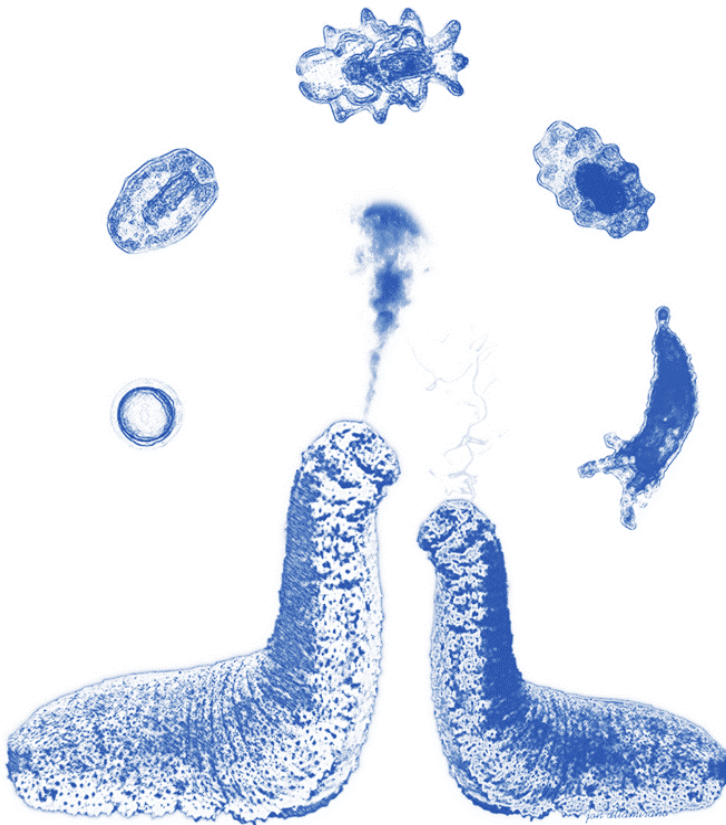


# Hatchery Production of Sea Cucumbers (Sandfish *Holothuria scabra*)

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AQUACULTURE DEPARTMENT  
Tigbauan, Iloilo, Philippines



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# Foreword

Sea cucumbers are highly valued marine commodities traditionally collected from the wild. However, lucrative market prices promoted increased trade that led to their overexploitation in many countries. Some species have even been classified as endangered or vulnerable under the IUCN Red List of Threatened Species.

Fortunately, the aquaculture of sea cucumbers is making progress, which can help reduce the pressure on wild stocks and contribute to the market supply. It was in 2007 when SEAFDEC/AQD began work on the hatchery production of sea cucumber, specifically the sandfish *Holothuria scabra*, mainly for stock enhancement. In 2010, a small-scale sea cucumber hatchery was established at the research center's main station in Tigbauan, Iloilo, Philippines. At this same year, the first training course on seed and nursery production of sandfish was conducted.

After developing initial seed production techniques and producing hatchery-bred juveniles, SEAFDEC/AQD tested the potential of sandfish mariculture in community-based sandfish sea ranching sites in central Philippines from 2013. One pilot site in Negros Occidental, Philippines successfully sustained a stock of cultured sandfish up to the present, some even reached market size in as early as 2017. There, sandfish ranching is viewed to be a potentially sustainable source of alternative livelihood for coastal communities.

Fifteen years since sea cucumber research began at SEAFDEC/AQD, Dr. Jon Altamirano and his team have accumulated a substantial understanding of sandfish reproductive biology and developed significant refinements on the practical procedures of seed production of the species. This manual is a compilation of those techniques and technologies that continue to be developed at SEAFDEC/AQD's small-scale sea cucumber hatchery.

We hope that the hatchery technology described in this manual will be a useful guide for hatchery operators, technicians, researchers, and other stakeholders, and lead to a flourishing sandfish industry and the recovery of wild sandfish populations.



**DAN D. BALIAO**

SEAFDEC/AQD Chief

# *About the Manual*

This manual, entitled Hatchery Production of Sea Cucumbers (Sandfish *Holothuria scabra*) includes the consolidated methods, practical protocols and good practices in sea cucumber breeding that were established within the past decade of research and development at the small-scale sea cucumber hatchery in the Tigbauan Main Station of SEAFDEC Aquaculture Department. Hence, this manual focuses only on demonstrating the technology, requirements and procedures in operating a small to medium-scale tropical sea cucumber hatchery.

This manual is written for potential sea cucumber hatchery operators, technicians, enthusiasts, researchers, and students with some basic experience and knowledge on aquaculture. However, even beginners may find this manual informative and useful, as it highlights the importance of sea cucumbers and their potential as an aquaculture commodity, particularly that of the tropical sea cucumber *H. scabra*, commonly known as the sandfish. This manual also serves as the primary reference material of the Training Course on “Sandfish (*Holothuria scabra*) seed production, nursery and management” offered by SEAFDEC/AQD. Hence, some specific descriptions of the actual facilities and existing equipment are detailed here.

The manual describes the various hatchery production methodologies that were specifically optimized for the sandfish *H. scabra*. These methods were designed to be practical and easy to implement. The materials mentioned herein are those that can be easily procured, otherwise if unavailable, can be fabricated from common materials.

The following are the main sections included in this manual:

1. Broodstock selection, collection, and conditioning
2. Natural food (microalgae) cultivation
3. Spawning stimulation and fertilized eggs management
4. Larval rearing and settlement
5. Harvesting of early juveniles, packing, and transport

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