

# Seed production of rabbitfish *Siganus guttatus*

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Southeast Asian Fisheries Development Center  
**AQUACULTURE DEPARTMENT**  
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ON THE COVER: Rabbitfish *Siganus guttatus* raised at SEAFDEC/AQD  
[photo by J Zarate]

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# FOREWORD

SEAFDEC/AQD has been doing research on rabbitfish *Siganus guttatus* since 1983 which led to the successful breeding and seed production of the species in captivity. In 1988, refinement and verification of the hatchery technology was done and diet for early juveniles was formulated the following year.

We have been disseminating our rabbitfish breeding and hatchery technologies through our annual training course on Marine Fish Hatchery Operations and Management. Hence, we came up with this manual on fry production of rabbitfish to reach more aquaculture stakeholders. Moreover, this manual is also timely to help address the limited seed supply faced by the industry and the recent increased demand of rabbitfish for polyculture and mariculture. We are hoping that through this manual, seed availability for this species will improve.

This manual is mainly intended to serve as a practical guide to fishfarmers and other stakeholders interested to venture in operating a rabbitfish hatchery. It details site selection, hatchery design & layout, and protocols in broodstock management, spawning, larval rearing, and harvest & transport. It has also a section on natural food production for rabbitfish larvae.

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# INTRODUCTION

The rabbitfishes have long been considered a good mariculture species in view of its desirable production traits. *Siganus guttatus* is one species that can attain large size, withstand overcrowding and tolerate low dissolved oxygen (DO) level. It is also euryhaline and can be cultured in brackishwater and seawater (salinities ranging from 10 to 35 ppt). Like other rabbitfishes,



Photo by J Zarate

Figure 1. Rabbitfish *Siganus guttatus*

it is an herbivore but becomes an omnivore when held under captivity. Because of its feeding habit, inputs for production in grow-out culture are low. In many areas in the Philippines, it commands a higher market price than milkfish, hence profit margin is higher. Thus, *S. guttatus* is a good alternative species to milkfish for grow-out culture.

The beneficial effects of the green water culture technique that has reduced the incidence of luminous vibriosis in shrimp (*Penaeus monodon*) grow-out culture is partly due to the presence of anti-bacterial substances that are produced by phytoplankton, fungal associates and skin mucus produced by fish species (e.g. tilapia) cultured together with shrimp. Recent studies have shown that among the fish species used, the skin mucus of *S. guttatus* is the most potent in preventing the occurrence of luminous vibriosis. Since like *P. monodon*, *S. guttatus* grows well in brackishwater, and because of its high price compared to tilapia, *S. guttatus* is deemed a better fish species to be used in the green water culture for *P. monodon*. For this reason, there is now an increasing demand for *S. guttatus* for polyculture with shrimps and also in mariculture where they are used as net cleaners because they graze on the algae that grow on the nets. There is, however, a problem of seed supply since at present, aside from the fish hatchery of SEAFDEC/AQD, only a few hatcheries are producing rabbitfish fry. Although seeds can also be obtained from the wild, they are seasonal and the fry caught come as a mix of the many rabbitfish species. Hence, publication of this manual is timely as it hopes to address the need for promoting technologies that can help boost the production of seedstock for this species.

## BIOLOGY

The rabbitfish, *Siganus guttatus*, belongs to Family Siganidae. It is popularly known as *samaral* or *kitong*. Some of its common names are: goldlined spinefoot, malaga or danggit (Philippines), belais or ketang (Malaysia), and birra or samadar (Indonesia). This species inhabits turbid inshore reefs among mangroves and can tolerate or prefers low salinities. It is an herbivore that feeds mainly on benthic algae. Its fry settles on seagrass beds around river mouths and adults enter and leave rivers with the tide, but are also found on the drop-offs of inshore fringing reefs down to 6 m. Unlike other siganids, this species is reported to be active at night.

*S. guttatus* is widely distributed in Eastern Indian Ocean and Western Pacific like the Andaman Islands, Thailand, Malaysia, Singapore, Indonesia (including Irian Jaya), Viet Nam, Ryukyus, southern and eastern China, Taiwan, South China Sea, Philippines, and Palau.