



Australian Government

Australian Centre for
International Agricultural Research

Fisheries

Improving technical and institutional capacity to support development of mariculture-based livelihoods and industry in New Ireland, Papua New Guinea (PNG)



Overview

Numerous communities along Papua New Guinea's (PNG) vast coastline depend primarily on marine resources for their livelihoods. There is an opportunity for coastal communities to better utilise the economic potential and livelihood opportunities provided by the environment.

Traditionally, the sea cucumber fishery provided income to local communities, but overfishing resulted in a nationwide moratorium. Therefore, alternative activities are urgently required to provide livelihood opportunities for PNG's coastal communities.

Building PNG's mariculture capacity is a priority. Development of mariculture opportunities will be supported by the recently completed National Fisheries Authority Nago Island Mariculture and Research Facility in Kavieng, New Ireland.

The assessment of the mariculture potential of three major commodities in PNG (sea cucumbers, edible oysters and marine ornamentals), led to support for routine sea cucumber hatchery production and ornamental fish breeding. Field-culture sites for sea cucumbers and oysters have been established in partnership with local communities. Strong collaborative links have been made between project partners, local communities and non-governmental organisations (NGOs).

Further research is required to determine the mariculture potential of target species and maximise outputs relating to potential social and economic benefits of mariculture in the New Ireland Province.

KEY FACTS

ACIAR Project No. FIS/2014/061

Duration: March 2016 to February 2020 (4 years)

Target areas: Papua New Guinea (PNG)

Budget: A\$1,741,605

Project Leader

Professor Paul Southgate, University of the Sunshine Coast

Key partners

- James Cook University
- National Fisheries Authority (NFA), PNG

ACIAR Research Program Manager

Dr Ann Fleming



Objective

The project's overall aim is to provide a sustainable basis for the further development of a mariculture sector in PNG, and to increase capacity within partner country organisations and coastal communities to support this development.

The project's specific objectives are to:

- ◆ Further develop culture and husbandry protocols for target species.
- ◆ Develop community-based sea cucumber culture methodology to a level supporting income generation.
- ◆ Continue building long-term institutional mariculture capacity in PNG.
- ◆ Appraise opportunities, risks and impacts associated with sustainable, community-based sea cucumber farming.

Expected scientific results

- ◆ Development of larger scale culture systems for sea cucumbers that will facilitate uptake by local communities.
- ◆ Development of culture systems for clown fishes and giant clams supporting sustainably sourced animals for the export aquarium trade.
- ◆ Promotion of simplified and standardised hatchery culture methods for sea cucumbers.
- ◆ Expansion of hatchery-based sea cucumber culture and increased juvenile production capacity.
- ◆ Propagation of giant clam species *Tridacna noae* (not previously cultured) with pioneer hatchery, nursery and grow-out culture methods, to develop sustainable production methods.
- ◆ Optimisation of stocking density in juvenile culture through the investigation of larval energetics and nutrition. The findings for both sea cucumbers and giant clams will have potential for broad application.
- ◆ Development of seaweed culture methods appropriate to the Kavieng environment. Investigation of potential seaweed/sea cucumber co-culture could provide a more sustainable and economically viable mariculture system with regional relevance.
- ◆ Greater industry and community capacity in PNG.

Expected outcomes

- ◆ Further development of community-based mariculture and improved livelihood opportunities.
- ◆ Attainment of extensive information relating to the feasibility of various potential mariculture activities with emphasis on village-based culture systems.
- ◆ Greater institutional awareness of regional mariculture potential and improved capabilities to support sustainable mariculture development and increased household livelihood opportunities.
- ◆ Improved mariculture production methods for sea cucumbers and ornamental species which both support fledgling industries in Australia, and potential for trade development with the Australian aquarium supply industry.
- ◆ Greater community awareness of mariculture opportunities in PNG, where there is no real mariculture tradition.
- ◆ Potential income generation opportunities for women and youth.

