



**Pacific Islands Regional Oceanscape
Program for Economic Resilience
(PROPER)**

Project Number: P179599

Tuvalu Fisheries Authority
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TUVALU

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Terms of Reference

Title	Technical Assistance – Hatchery Operations Specialist for Giant Clams.
Location	Funafuti
Duration	28 days in country over a two-month period
Start Date	Planned start date as soon as possible

Tuvalu has received financing from the World Bank for the *Pacific Islands Regional Oceanscape Program (PROP) Second Phase for Economic Resilience (PROPER)*. The Tuvalu project builds on experience and progress made during the seven years of implementation of phase one.

The Project Development Objective is to strengthen regional collaboration and national capacity for the management and the sustainable development of the oceanic and coastal fisheries sector in Tuvalu. An element of this, which particularly addresses sustainable management, is the use of a mariculture hatchery to restore depleted populations of a few key species in inshore areas. The first of these is Giant Clam (*Tridacna sp.*) using a hatchery which was built and equipped with support from New Zealand and has been operating successfully for over a year. Achieving successful spawning and larval rearing of Giant Clams on a regular basis is a performance indicator of the PROPER project.

The aim of this consultancy is to support the Tuvalu Fisheries Authority (TFA) to improve the management and operation of the hatchery and to document operating procedures.

Background

There are two endemic species of Giant Clam in Tuvalu – *Tridacna maxima* and *Tridacna squamosa* - Which have traditionally been an important source of food in the islands with large lagoons. As sedentary animals living in shallow water they are very prone to over-exploitation. Populations have been depleted to very low levels, particularly in Funafuti atoll, to the extent that their ability to reproduce successfully is in doubt.

Fortunately, they are also species which can be propagated successfully in a hatchery and, since neither the larvae nor adults require live algae for feeding, the hatchery techniques are relatively simple. Over the next couple of years TFA plans to expand the operations of the hatchery to work with other depleted shellfish species such as Blacklip Pearlshell, which are more complex, but the initial focus is on Giant Clam. While the main objective is stock enhancement, *Tridacna maxima* is also sought after for marine aquariums and there may be some potential for developing a small export industry in the future.

For this reason, TFA established a mariculture hatchery at its Teone site, with funding support from New Zealand, which was commissioned in 2025. Following a brief overseas attachment, and with some short-term technical support in-country, TFA's Aquaculture Officer successfully spawned *Tridacna maxima* and the first juveniles have now been reared to the size at which they can be planted out in the Funafuti Conservation Area.

The aim of this assignment is to build on this initial success to improve techniques and strengthen the management of the hatchery, including record keeping and reporting. Also, although there are several published manuals on giant clam culture, it will be useful to develop a series of short practical operating procedures specific to this hatchery and to local conditions, which can guide other staff through the steps required to successfully spawn Giant Clams and care for the juveniles, as TFA's skills and experience currently all rest with one person.

Purpose

The purpose of this consultancy is to support the TFA to improve the management and operation of its mariculture hatchery.

Objective

The objectives of the consultancy are:

1. to improve hatchery management by developing a simple and practical system of record keeping to monitor performance;
2. to review and document the operating procedures to provide brief guidelines for each stage of production of Giant Clams using the hatchery facilities; and
3. To improve post-spawning survival rates by providing best practice training to TFA aquaculture staff on identifying and managing the key causes of larval and juvenile giant clam mortality

Expected Outcomes and Deliverables.

The key outcomes are a practical system of record keeping and operating procedures which are easy to use and are adopted by hatchery staff.

Deliverables expected from this consultancy are:

a) Hatchery record-keeping system improved

- production records and monitoring templates improved with general guidelines.
- spawning, survival, feeding, and growth data properly documented.
- reporting system introduced for hatchery management.

The system will use standard MS Office programmes to keep electronic records.

b) A series of brief operating procedures prepared for;

- broodstock management
- spawning induction
- larval rearing
- settlement management
- water quality monitoring
- hatchery hygiene and biosecurity
- cleaning and disinfection

Specification of activities

The consultant will work closely with the Aquaculture Officer and Assistant Aquaculture Officer of the TFA and other senior staff as may be required.

The activities to be carried out include the following:

a) Review current practices of record-keeping for the hatchery and develop an improved system to provide key data in the form of -

- production records and monitoring templates improved with general guidelines.
- spawning, survival, feeding, and growth data properly documented.
- reporting system introduced for hatchery management.

The system will use standard MS Office programmes to keep electronic records.

b) Work with TFA Aquaculture staff to review current hatchery operations, propose improvements where appropriate and then develop brief (1-2 page) operating procedures for each of the following stages that are tailored to the TFA hatchery facilities -

- broodstock management.
- spawning induction.
- larval rearing.
- settlement management.
- water quality monitoring.
- hatchery hygiene and biosecurity.
- cleaning and disinfection.

c) Provide best practice training module on post-spawning mortality management, covering

- Identification of the primary causes of mortality in larval and juvenile giant clam
- Early warning indicators and monitoring protocols (as above)
- Corrective actions

Consultant's qualifications and experience

The Project is seeking to contract an individual consultant to complete these activities.

Applicants for the consultancy will be assessed against the following requirements:

Essential requirements:

- A relevant qualification in aquaculture, marine biology or other relevant field;

- At least ten years' experience of work in aquaculture, with extensive experience of bivalve culture particularly giant clams;
- Hands on experience of operating small mariculture hatcheries in the Pacific Islands;
- Good written communication skills in English, as evidenced by production of quality technical guides or manuals.

Desirable requirements:

Following are desirable areas of experience for the consultant:

- Experience of providing hands-on training and developing training materials;

Duration of the assignment and schedule

It is planned that the assignment will involve 3 weeks in country and that most deliverables will be provided and, where possible, field-tested on site during this visit. The work is scheduled to take place in October..

Work Plan

A more detailed workplan should be provided by interested consultants with the Expression of Interest.