

# Technical support for pearl culture in coastal Tanzania



## Key details

### Location

Tanzania

### Duration

**Start** Apr 2012

**End** Mar 2016

### Budget

AUD 140,000

### Partners

Ministry for Livestock and Fisheries  
Development; University of Dar-es-Salaam;  
World Wildlife Fund

### Project Leader

Paul Southgate - James Cook University

### Program

Fisheries

### Project code

FIS/2011/069

benign form of aquaculture and compatible with marine resource conservation. Although the results of the pilot activities are promising, technical and strategic issues need to be addressed to maintain current momentum and to develop sustainable pearl culture.

Most oysters used for producing pearls were adults collected in the wild. Collecting adult oysters is unsustainable as a basis for development, and a reliable spat collection program must be established. The project also investigated hatchery production from facilities as a supply of oysters for culture. Assessing and adapting culture methods developed in the Pacific to Tanzanian conditions was also necessary for development.

The research benefitted Tanzanian coastal communities, for which pearl culture generates income; this is compatible with national fisheries/development policy and marine resource conservation efforts. The Food and Agriculture Organization of the United Nations and the World Wildlife Fund have recognised that this concept has considerable regional potential in east Africa.

## Overview

This project aimed to assess whether culture methods developed for black-lip pearl oysters in the Pacific could be used in Tanzania, to establish methods for supplying pearl oyster juveniles to help develop pearl culture, and to develop baseline information that could help develop community pearl culture in east Africa.

Coastal mariculture could improve living standards in Tanzanian coastal communities. Pilot-scale research at Zanzibar and Mafia Island has shown that pearl culture can generate income. Pearl culture is a relatively

## Project outcomes

The overall aim of the project was to develop a basic culture protocol to support pearl culture development in Tanzania. This project involved Mr Ismail Saidi, an AusAID supported MSc graduate in Aquaculture (James Cook University, JCU) who returned to Tanzania in 2013 to undertake in-country coordination of this project. Institutional support for Mr. Saidi was provided by the University of Dar-es-Salaam (UDSM)

and a UDSM Master's student was engaged in spat collection research at Mtwara and Zanzibar as part of this project. Project research focused on the two most productive community-based pearl farms in Tanzania – a farm in Mtwara producing half-pearls from the black-lip pearl oyster (*Pinctada margaritifera*) and a farm in Zanzibar producing mabé pearls from the winged pearl oyster (*Pteria penguin*).

Spat collection infrastructure deployed at both Mtwara and Zanzibar was successful in regular collection of spat of both *Pinctada margaritifera* and *Pteria penguin*; for example, the first collection at Mtwara yielded 73 *P. margaritifera* and 26 *Pt. penguin*. Growth trials were established at both study sites using resulting spat, with growth rates for both species being similar to those reported from other countries and the Pacific. While it was initially proposed to undertake hatchery production trials in the project, neither of the three hatchery facilities inspected were suitable for project research. Instead, emphasis was placed on expansion of spat collection activities and associated extension to maximise the number of spat available to current and prospective pearl farmers.

Spat collection and half-pearl production data generated by the project were used to develop economic models for community-based spat-collection farms and half pearl farms in Tanzania. Outputs include establishment and operational costs, and estimates of potential profitability estimates, for different sizes of spat collection farms and half-pearl farms. The information generated was published in a peer-reviewed journal and is of considerable use to donor and support agencies potentially involved in further pearl industry development work in Tanzania. Extension materials relating to oyster collection, oyster culture, half-pearl production and potential profitability of these activities were developed during the project and translated into Swahili.



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