



Australian Government

Australian Centre for  
International Agricultural Research

Fisheries

# Regional coral restoration networks and appropriate technologies for larger-scale coral and fish habitat restoration in the Philippines and Australia



## Overview

**Coral reef ecosystems have immense ecological, socio-economic and cultural values, providing food for millions of people and global ecosystem services worth US\$10 trillion annually.**

The Philippines and Australia have some of the largest coral reef areas in the world, but their reefs are increasingly threatened by human impact and changing climate-ocean systems, particularly recurrent marine heatwaves. With 1.4 million hectares of degraded reefs, the Philippines has one of the highest areas of threatened reefs globally. Coral cover on Australian reefs is also declining rapidly.

Reef-building corals control reef function, providing critical habitats for many commercially important fish and other species fished by coastal communities reliant on healthy reefs. Degraded coral reef ecosystems threaten the food security of local communities dependent on coastal fisheries as well as key ecosystem services that sustain people's livelihoods and wellbeing. Reef restoration is therefore a priority for both Australia and the Philippines, as recognised by an MoU between the two countries that seeks to restore damaged coral reefs in the Philippines using coral larval reseedling.

This project will significantly expand and build on previous ACIAR research in understanding and demonstrating appropriate ways to scale up coral restoration across multiple regions and socio-ecological contexts.

## KEY FACTS

**ACIAR Project No.** FIS-2019-123

**Duration:** 1 December 2020 to 31 October 2025  
(4 years and 10 months)

**Target areas:** Bolinao-Anda-Alaminos, Verde Island Passage, San Vicente Palawan, Cebu-Bohol (Philippines) and Australia

**Budget:** A\$2,499,960

### Project Leader

Prof Peter Harrison, Southern Cross University

### Key partners

- Southern Cross University
- University of the Philippines
- Queensland University of Technology
- University of Melbourne
- University of Technology Sydney

### ACIAR Research Program Manager

Prof Ann Fleming

## Objective

- Build large-scale, climate-adaptive restorations of corals and fish habitats in four regions of the Philippines to support local communities who depend on these essential reef resources for their food and livelihoods
- Restore breeding fish populations and increase fish supply to adjacent fishing areas through the 'spill-over' effect
- Enable more effective and sustainable management of natural and restored reef resources
- Ensure that local communities have ownership of the restored reefs through involvement in the restoration processes
- Improve ecosystem services for local rural coastal communities, leading to improved food security, human health and nutrition outcomes, and increased community welfare
- Provide pathways for alternative sources of income, including responsible tourism
- Reduce poverty by increasing income for households and add to economic activity in the broader community
- Improve gender equity and empowerment of women and girls through postgraduate and research assistant positions, with capacity-building training by female role models.

## Expected scientific results

- Build substantial scientific, technical and educational capacity among the project participants
- Create a new model for significantly improving reef restoration practices on degraded reefs around the world
- Significantly improve understanding of coral reproduction patterns and prediction of major spawning periods
- Achieve larger-scale coral restoration using innovative technology approaches to increase the efficiency of targeted coral larval delivery over large degraded reef areas
- Develop new vision-based AI solutions to automatically identify restoration target areas on degraded reefs
- See new juvenile coral growth within 6-9 months (for faster growing corals) and within 12-15 months (for slower growing corals).

## Expected impact/outcomes

- Achieve significant scientific, ecological and social wellbeing outcomes from larger-scale reef and fish habitat restoration in four regions of the Philippines in future
- Improve reef health status and consequently increase production of fish and other species used by local fishers and coastal communities for food and income, and improve community wellbeing
- Further stimulate development of similar coral and fish habitat restoration projects in other Southeast Asian and South Pacific nations
- Develop active reef restoration networks and more sustainable management of restored reef areas among the research partners and stakeholders in this project.

