



**Marine
and Coastal**

National Environmental Science Program

PROJECT 4.13

**Assessing and mapping northern
Australia's endangered shellfish reefs**

The challenge

Shellfish reefs are large, dense structural aggregates of oysters or mussels, or both.

These reefs contribute to shoreline stability, filter water, assimilate nutrients, and provide habitat for other species including fishes and crustaceans.

Very little is known about tropical shellfish reefs globally; none have been characterised in Australia, so their vulnerability to threatening processes is unknown. It is known, however, that 85% of temperate oyster reefs have been lost through destructive and unsustainable harvesting, pollution, disease and coastal development. It is critical that we ensure that the tropical reefs within our region avoid a similar fate.

The shellfish species inhabiting these reefs might be a new opportunity for aquaculture in Australia's tropics. They also have potential to replace cool water adapted species in broader farming as climate change proceeds.

This project will assess the current distribution, status and characteristics of northern Australia's tropical shellfish reefs, and determine whether protection and restoration are required.

The approach

Maps of past and present oyster reefs will be prepared using satellite imagery, and input from Traditional Owners, fishers and others.

Assessments of reefs will be undertaken at selected sites to determine shellfish species and numbers, supported biodiversity, habitat preferences, and settlement substrates. This will inform future management, monitoring needs, and determines conservation status of tropical shellfish reefs, now and in the future.

Rapid assessment methods will be developed, and training implemented to support ongoing, cost-effective monitoring by Traditional Owner and citizen scientists.

Expected outcomes

- Shellfish reef data to support regional planning.
- Traditional Owner research and monitoring aspirations for Sea Country delivered.
- Knowledge built to support shellfish reef management and restoration.
- Values of shellfish reefs quantified and potential threats assessed.
- Monitoring needs and conservation approaches developed for a vulnerable ecological community.
- Capacity of recreational fishers and community built to identify existing shellfish reefs.

FRONT: Tropical oyster reef aerial imagery. BACK: (Left) Oyster reef and mangroves. (Right) Leaf oysters in tropical waters.



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