



NOOSA OYSTER ECOSYSTEM RESTORATION PROJECT

Oyster Shell Biosecurity Fact Sheet

Noosa Oyster Shell Biosecurity

What is the project?

The Nature Conservancy (TNC) is working with Noosa Council, the Australian and Queensland governments, The Thomas Foundation, Noosa local businesses and community to restore critically endangered rock oyster ecosystems (*Saccostrea glomerata*) in the Noosa River estuary.

How do you restore the ecosystem?

- We place clean, locally-sourced rock on the riverbed. The rock is arranged in elevated 'reef patches' to keep oysters away from being smothered by mobile river sediment. Reef patches form the foundation of the rock oyster ecosystem.
- Adult oysters are then collected from the Noosa River and spawned in tanks at the Queensland-government operated Bribie Island Research Centre. The juvenile oysters (or spat) are attached to clean oyster shells (called 'cultch'). The oyster shells are recycled from Noosa restaurants and Sunshine Coast seafood wholesalers as part of TNC's *Shuck Dont Chuck* shell recycling project.
- Oyster shells and their attached oyster spat are then returned to Noosa and placed in voids in the reef foundations. Wild oyster spat also naturally recruits on to the reef foundations, as will a variety of plants and invertebrates. Together, this mix of species grows and forms the complex oyster reef ecosystem.

How do you ensure the recycled oyster shell is safe to use?

The oyster shells have been dried (desiccated and cured) and cleaned against Queensland's strict biosecurity protocols* and international best practice**. Shells are collected from local restaurants and seafood suppliers in disinfected buckets.

How do you dry the shells?

The shell is cured in the sun for a minimum of 6 months, which is 2 months longer than required by the government protocol. For Noosa, the shell has been dried for more than 12 months. The shell is sorted and labelled with the month of collection, and piled no more than one metre high. The shells are turned after 3 months to aid in the dessication process.

How do the shells get washed?

The cured shells are washed in a commercial shellfish tumbler. This process cleans the dried shell of anything that may have settled on the shells during the curing process.

Biosecurity Facts:

- Shells are cured to kill any pathogens or diseases that may be present.
- Using imported raw prawns as bait has far greater biosecurity risks to local species.
- Moving vessels between waterways without cleaning poses a higher risk to Noosa ecosystems.

How are the shells stored?

The cured, washed oyster shell is placed in 5 kg bags on pallets wrapped in shade cloth and are stored under cover at the Bribie Island Research Centre. They are also stored in bulk at the Doonan Solid Waste Depot prior to use.

What happens to the juvenile oysters?

The juvenile oysters attached to shell is called oyster cultch. This cultch is transported directly from Bribie Island Research Centre to the Noosa River estuary and placed into the oyster reef patches or deployed into oyster gardening baskets that are placed directly into the Noosa River.

What is oyster gardening?

Oyster gardening involves attaching oyster cultch filled baskets on to solid structures such as private jettys. The owners of these jettys have nominated themselves as oyster gardeners and will maintain these gardens for 6-12 months, after which the adolescent oysters will be seeded on to the oyster reef patches. This activity is being managed by NICA (Noosa Integrated Catchment Authority).

Do you need permission to do this?

Yes. The Nature Conservancy is registered as a "resource provider" with the Department of Environment and Science, as per the *Queensland End of Waste Code - Oyster shells (ENEW07278317)* and *Waste Reduction and Recycling Act 2011*.

TNC also consults regularly with marine pathologists and the Department of Agriculture and Fisheries biosecurity unit, which is a member of the project Technical Advisory Group. The biosecurity processes are communicated through the project's standard reporting protocol to government, donors, stakeholders, and the project Technical Advisory Group.

TNC also requires a General Fisheries Permit from the Department of Agriculture and Fisheries to release live oysters into the Noosa River and Development Approval from the Queensland Government and Noosa Council to construct the reef foundations.

Where can I find out more?

Website: natureaustralia.org.au/noosa

Email: queensland@tnc.org

*Diggles, B.K. *Biosecurity Risks related to recycling of mollusc shell waste for shellfish reef restoration in Australia*. Ecological Management and Restoration 2021.

** Fitzsimons, J., Branigan, S., Brumbaugh, R.D., McDonald, T. and zu Ermgassen, P.S.E. (eds) (2019). *Restoration Guidelines for Shellfish Reefs*. The Nature Conservancy, Arlington VA, USA.

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