

Noosa's Huon Mundy Reefs – performance update

Winter 2023

Monitoring of the ecological and physical performance of Noosa's Huon Mundy Reefs is undertaken by independent consultants, Ecological Service Professionals (ESP), in accordance with the government-approved Monitoring, Evaluation and Learning (MEL) Plan for the project.

The monitoring uses a scientifically rigorous Before After, Control and Impact (BACI) methodology. Core performance metrics include measuring the abundance of rock oysters, presence/absence of invertebrates and fish, recolonisation or colonisation of marine plants to and around the reefs, and changes in the condition of the shoreline adjacent to and 50 metres up and down stream of the 4 restoration sites.

ESP undertook baseline site assessments prior to the laying of the reef patches. In March 2023, 6 months after the reef patches were laid, ESP undertook the second monitoring event. This document summarises the key findings from that event.

Oyster colonisation

Since the rocky reef patches were laid in September 2022, wild rock oysters have recruited to all 30 reef patches in all four restoration areas. There have been dramatic increases in the density of oysters on the reefs:

- Goat Island – 833m² (oysters per metre square)
- Tewantin – 492m²
- Noosa Sound West – 471m²
- Noosa Sound West – 385m²

Oysters are growing on the underside of the rocks and, in some places, up the sides of the rocks (Figure 1 and 2). Figure 3 shows the oyster densities at the four restoration sites in graphic form.



Figures 1 and 2 - Oyster density at Goat Island and at Noosa Sound East (Photos by S.Walker/ESP)

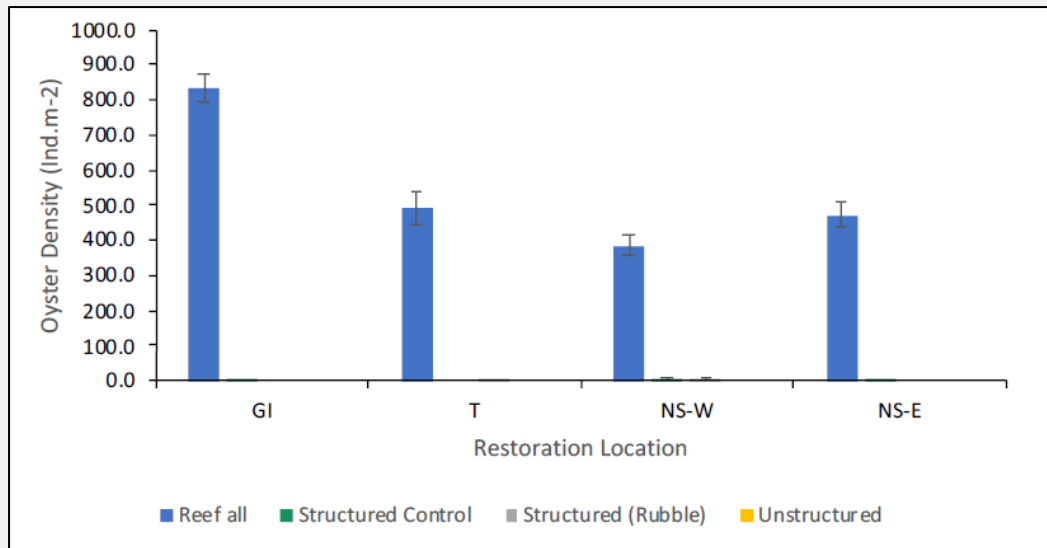


Figure 3 - Oyster density at the four restoration sites in March 2023 (Courtesy of ESP)

Fish

In the July/August 2022, the results of the pre-reef construction survey recorded a total of 9 bony and cartilaginous fish species, from 7 families across all reefs. In March 2023, a total of 31 bony and cartilaginous fish species, from 21 families were recorded across all estuarine sites.

There was an increase in the species richness at most sites between the 2022 and 2023 surveys, which may be due to the timing of the surveys as well as other environmental factors; however, the increase in species using the restoration areas after reef deployment was often substantial and included juvenile and adult life stages of reef associated species such as:

- Yellowfin bream (*Acanthopagrus australis*),
- Black spot snapper (*Lutjanus fulviflamma*),
- Moses snapper (*Lutjanus russellii*),
- silver javelin (*Pomadasys argenteus*),
- Goldspotted rockcod (*Epinephelus coioides*)
- Black rabbitfish (*Siganus fuscescens*) among other species.

Nudibranchs, anemones, octopus, crabs and eels have all been recorded (Figure 4). Some species are opportunistically using the reefs for shelter or food, others are taking up residence.

One octopus at the Noosa Sound West Restoration Site has been observed taking great advantage of the oyster smorgasbord on offer!



Figure 4 – A variety of life is already appearing on the and within the oyster reefs (Photos by MConnell/TNC)

Marine plants

In March 2023, patches of seagrass (*Halophila ovalis*) were recorded between several of the reef patches at Noosa Sound East (Figure 2). The existing marine plants have remained at a similar extent at each of the sites; however, in most restoration areas there has been settlement of red mangrove propagules on the tops of the reef patches. Over time we expect that these mangroves may become established on the reefs which would further stabilise the rock substrate.

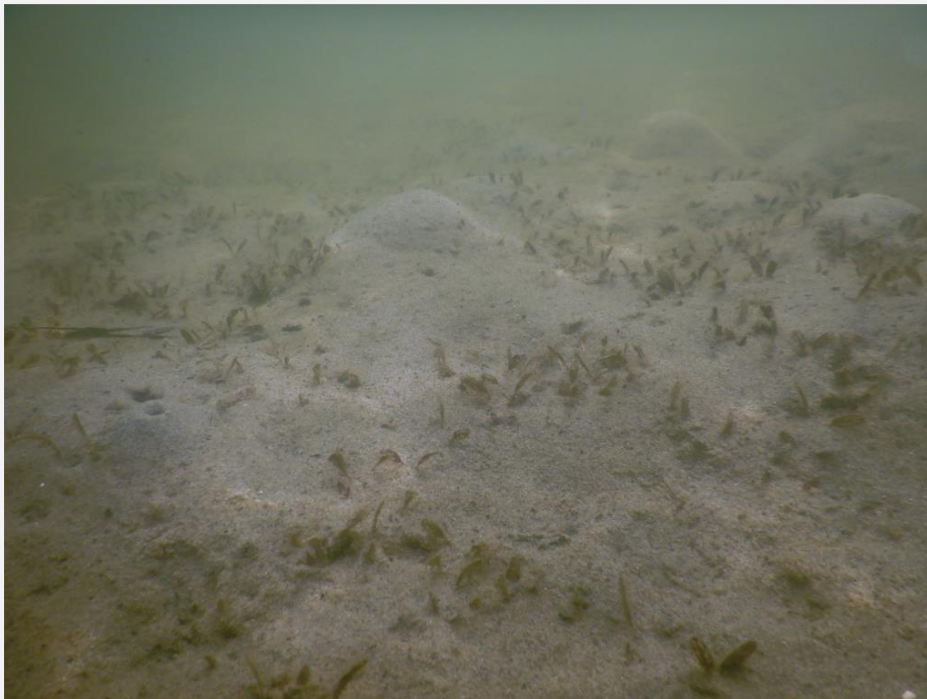


Figure 5 - Sparse seagrass (*Halophila ovalis*) growing between reef patches at Noosa Sound East (Photo by S.Walker/ESP)

Reef seeding

Reef seeding with seeded oyster cultch (oysters set on oyster shells and placed into voids of the reef) has been undertaken successfully on all reef patches with great local support. Thanks to Noosa Council, Noosa Integrated Catchment Association and the Department of Fisheries who provided strong support.



Figure 6 – Volunteers assist TNC with seeding the reef patches at Noosa Sound West restoration site (Photo by K.Horner Productions)

The project's partnership with the Bribie Island Research Centre (BIRC), who is supporting reef seeding and oyster research, is strong and productive. Together we are learning a lot about oyster species, their habitat and husbandry requirements and commercial relevance. We have already discovered three species of rock oyster and three species of pearl oysters living in the Noosa River.

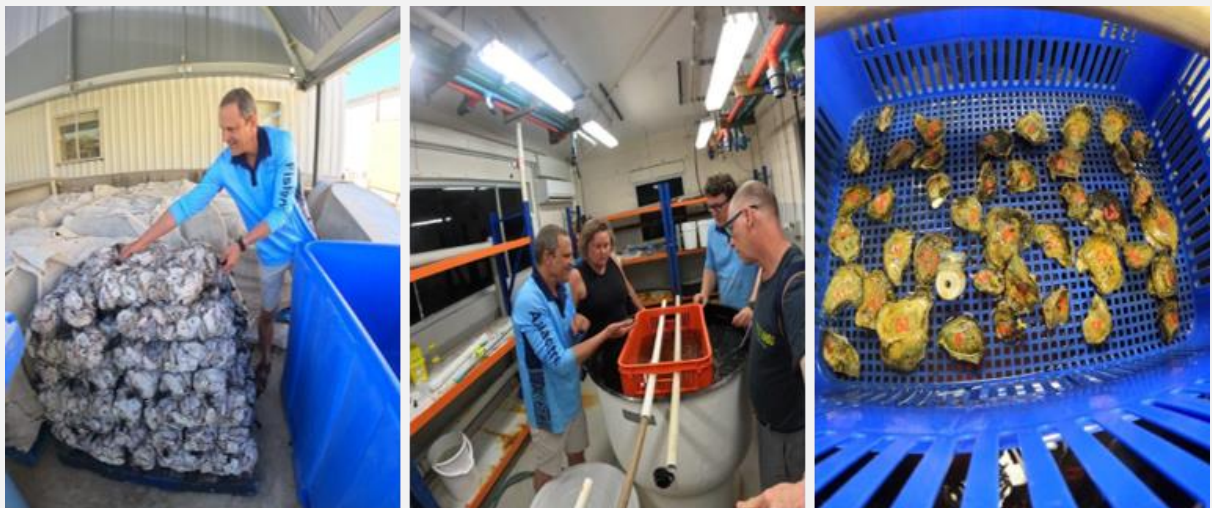


Figure 7 – Oyster seeding work being undertaken at Bribie Island Research Centre (Photos by C.Bohm/TNC)

Kabi Kabi

TNC has worked with Kabi Kabi elders and Noosa Council to install three interpretive signs, one each near to the Tewantin, Noosa Sound East and Noosa Sound West sites.

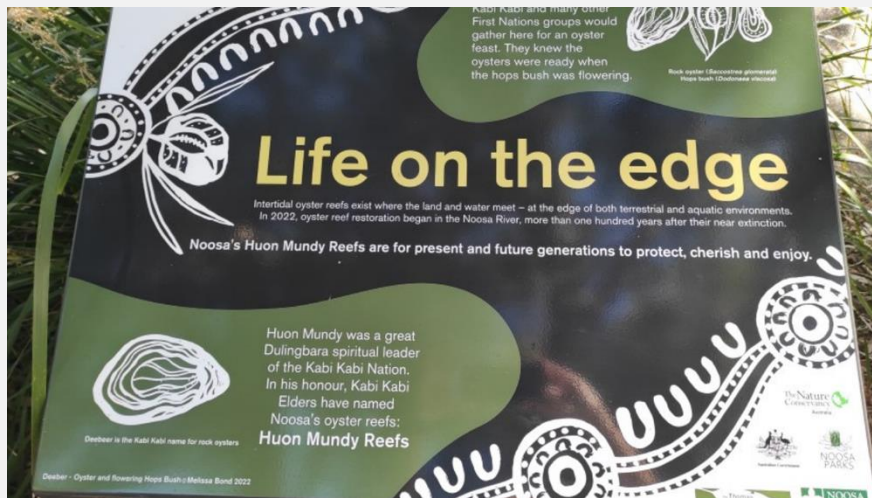


Figure 8 – One of three signs celebrating the Huon Mundy Reefs at Kabi Kabi connections to the Noosa River (Photo by C.Bohm/TNC)

Oyster gardening

Oyster gardening is continuing its success around the river under the dedicated project management of the Noosa Integrated Catchment Association (NICA) (Figure 9). Richard and his team have been out maintaining baskets, sharing information through an oyster masterclass, and providing baskets to the schools' programs. There are plenty of oysters inhabiting the baskets including all 3 species of rock oyster, 3 species of pearl oyster, many crabs and shrimp, fish such as stripeys, gobies and gudgeons, and numerous invertebrates such as ascidians, nudibranchs, and tunicates.



Figure 9 – An oyster garden ready for cleaning (Photo by NICA)

Oyster Gardening Master Class

Our recent oyster gardening master class was well attended. Many thanks to our visiting marine pathologist (and past oyster gardening facilitator from Bribie Island), Ben Diggles, and shellfish researchers Max Wingfield and Aiden Mellor from Bribie Island Research Centre who helped ID local Noosa species being found in the oyster gardens and talked to the public about the value of invertebrates to river health (Figure 10).



Figure 10 – Aiden Mellor (BIRC) and Ben Diggles (Digfish Services) identifying invertebrates found in the oyster gardens during the Oyster Gardener Master Class (Photo by C.Bohm/TNC)

The Oyster Gardener short film

The team at Regen studios have produced a short film about oyster gardening on the Noosa River (Figure 11). The film follows Jolie, who learns about oyster gardening at school with the Noosa Environmental Education Hub and follows the spat production process at the Bribie Island Research Centre. This focus on an important element of the reef restoration process is great to share with a broader audience through this film. You can watch the film now that it is also on ABC iView here: [The Oyster Gardener : ABC iView](#)



Figure 11 - Promotional flier from 'The Oyster Gardener' (Flier courtesy of ABC)

Tread lightly

Tourism Noosa has a tread lightly program where tourists, visitors and interested locals can participate in [Oyster Gardening](#) on the Noosa River (Figure 12). Visitors receive a river tour or the Huon Mundy oyster reefs and gain insight into the Noosa Oyster Gardening Program. Onboard, The Nature Conservancy and Noosa Integrated Catchment Association examine baskets filled with juvenile rock oyster spat and share information about the reef restoration process. You can learn more about the program on their website, or through the [Youtube](#) clip.



Figure 12 - NICA's Richard Howard presenting to guests at a Tread Lightly event (Photo by M.Connell/TNC)