



“Conservation, education and collaboration”

Vision Statement

Our community and treaty partners working together to restore a healthy, thriving marine environment in Tasman and Golden Bays to sustain connection, use, and enjoyment by present and future generations.

Mission Statement

Facilitate stakeholders to collaboratively address environmental issues so that the marine environment of Tasman and Golden Bay are regenerated.

Issue

In our draft strategy we have identified a number of key threats to local aquatic environments. This project addresses Threat #2:

The sea bed in Te Tai o Aorere was once very different. Sedimentation, dredging and destructive fishing practices have modified the Tasman Bay, large areas of biogenic reefs have been broken down and a layer of fine silt has covered their remains. Bryozoan and sponge reefs were effectively wiped out by human activity. This has had a negative effect on fish stocks and ecosystem health of the inner Tasman Bay. In 1980, the Ministry of Fisheries closed a large section of seabed adjacent to Separation Point as a result of the destruction to all forms of commercial power trawling and dredging. This has provided scientists with a rare glimpse of what the New Zealand soft sediment ecosystem looked like before it was impacted by fishing. However, this is merely 0.04% of the Te Tai o Aorere, or 164 km² of approximately 4000 km².

Other fragile biogenic areas, such as the Rhodolyth beds adjacent to Totaranui are completely unprotected and vulnerable damage from destructive activities.

There appears to be few tangible options to restore the seabed to its original state, as other cumulative factors such as sedimentation and climate change have also altered the ecosystem and continue to do so. However how can we act to protect or even restore some of the ecosystem services that these missing deep reef ecosystems provided to the overall health of the bay.

Studies have shown that underwater structure is effective at attracting fish life, it may even contribute to productivity if on a large enough scale. This happens at the Tasman Bay Spat catching farm, which is well known in the area as a productive recreational fishing area for kingfish, snapper and gurnard. Essentially this fish attracting device is making it easier to catch fish.

Some questions to ask are:

What do we want our Tasman Bay to be like in 100 years?

What have we got to lose?

Can and over what time period can the Tasman Bay sea bed recover from trawling and dredging?

Could intervention in the form of artificial substrates aid in the recolonization of biogenic reef building organisms such as bryozoans (Tasman Bay Corals), tube worms, mussels and rhodoliths?

How can the local community effectively collaborate with treaty partners, scientists and government to help rebuild ecosystem services to ensure a healthy and vibrant Tasman Bay for future generations?

Should we be mitigating the effect of the spat farm by providing safe havens for fish to aggregate, in order to protect a portion of the stock from recreational exploitation?

An Opportunity

Tasman Bay Guardians has been offered the FV Kay Dee, a 16m x 5m disused fishing boat currently at Port Nelson for use as an experimental artificial reef.



How could it work?

The vessel would be towed to a position in Western Tasman Bay on the edge of Tonga Island Marine Reserve. She would be placed on the sea bed in 25 – 30m of water. We propose the formation of a voluntary exclusion of fishing activity from the surrounding area and a rigorous long term Before After Control Impact study to be conducted on the seafloor inside the new exclusion zone, outside in fished areas and in the marine reserve. The wreck itself would be monitored for community succession and fish aggregations in comparison to natural reef areas.

Sediment stabilization is also a key area for study and we could use the opportunity to test the viability of the depositing of shell hash on a part of the sea floor in the treatment area.

By testing key indicators, a provision could be made for more substrate to be placed on the seafloor, should the results provide a positive trend in ecosystem services, cultural and economic benefits to the region.



Potential Outcomes

Artificial reefs are commonplace in the US, and other locations worldwide. In New Zealand, ships such as the Rainbow Warrior, Michael Lehrmontov, Taioma, HMNZS Canterbury, Waikato, Tui and Wellington, all now provide refuge for species and provide interesting dive sites for photography and science, providing tourist income to communities. Most of these projects have been in locations where deep reef already exists, whereas this is a chance to put something back where the reef no longer exists. Potential outcomes are:

- **Community based marine management** – A chance to test effectiveness of through collaboration on a common goal.
- **Regeneration** - Increase the knowledge of community succession from a blank canvas in the Tasman Bay deep reef environment. Critical to know what species are likely to colonize hard substrates in today's conditions.
- **Recovery** - Data from monitoring the recovery of damaged benthic environments from the effects of bottom damaging fishing techniques are important for fisheries management
- **Collaboration** - Strengthened working relationships between different stakeholders in the Tasman Bay community.
- **Economic and social gains** - Increased tourism values and revenue for local dive outfits and dive clubs.
- **Education** - Education and research opportunities for scientists and undergraduates.
- **Culture change** - Providing a reef solely for non-extractive diving and photography will contribute to a change in culture among local divers, moving on from a purely exploitative culture.
- **Conservation** - Testing of a buffer zone around the edge of the Tonga Island Marine Reserve and its impact on the population structure of the ecosystem within the reserve.
- **Role Model** - Positive story on ecological collaboration in the marine space could cause other communities to follow suit.

Contact

Let us know what you think. If you are interested in, oppose or have some knowledge to bring to this project please do not hesitate to contact Tasman Bay Guardians.

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