Taputeranga – Benefits from a Marine Reserve - Murray Hosking

The following paper was written in 2006 before the marine reserve was finally approved by Ministers. It will be interesting to revisit this question over time t see whether the benefits are being realised:

The benefits flowing from a marine reserve at this location on the Wellington South Coast may be summarised as follows:

Biodiversity Values

On 14 May 2002 the then Minister of Conservation, Hon. Sandra Lee, gave approval to the application for this area of Wellington South Coast, and then sought the concurrence of fellow Ministers. The proposed reserve reaches from intertidal rocky and gravely beaches, to a southern limit of the reserve at depths of 40 to 45 metres in gravels and sediments beyond the ends of the reefs.

The Minister's 'decisions' document published at the time notes the key features of the marine life, habitats and natural features:

- The proposed reserve lies in the confluence of three oceanic water bodies and currents, which bring a richly varied mixture of warm, cold temperate and subantarctic fauna and flora together. This mixture of plants and animals on this coast is unique in New Zealand.

- The northern and southern limits of many fish, invertebrates and algal species occur in the waters within which the reserve is proposed. The resulting variety is unusual and worthy of protection.

- The complex topography of the coast and high energy of the coastal waters has created a wide variety of habitats within a relatively small area of the reserve.

The marine reserve application makes clear that the south coast area has a series of rocky headlands interspersed with gravel or sand beaches. Offshore reefs extending out into Cook Strait provide an extensive variety of habitats for fish invertebrates and algae. These reef systems in places run to an extent parallel to the shore, thus absorbing much of the wave energy striking the coast, creating a mosaic of high and low energy habitats. Equally of interest are the soft sediments between the reefs; although less species-rich these sediments would make a contribution to marine biodiversity protection.

The area has particularly diverse seaweed communities including almost half of the large seaweed (macroalgae) species known from New Zealand coastlines. Unusual and important features include the seasonal abundance of juvenile crayfish, the presence of an unusual mollusc (*Smeagol climoi*) known only from intertidal gravels at Houghton Bay, and the unexpected comparative absence of suspension-feeding mussels. A number of rare invertebrate species (sponge and bryozoans in this case) found along the south coast are of current interest to medical science as potentially active in anti-tumour and anti-viral compounds.

Over 180 fish species are recorded from the coast, including 13% at the southern limit of their distribution and 7% at their northern limit. There are special habitats in the shelter of Taputeranga Island at the head of Island Bay. The calmer waters encourage forests of *Macrocystis* kelp. Amongst the kelp stems New Zealand's only seahorse species finds shelter. Seahorse numbers have been dropping around the coastline and it is important to protect safe habitat for this species.

To summarise, this proposed reserve has outstanding biodiversity values at both species and at community levels. The mix of species at northern or southern limits is of particular interest to science.

Value to Science and Education

Taputeranga is already a much studied area. Victoria University marine department has had a field station at Island Bay for some decades. Since the first marine reserve was established near Leigh, about 30 years ago, this marine reserve will be the only new one with a major research programme *in situ.* The marine reserve will protect important habitats for ongoing study which will be able to focus on the changes in biota after removal of fishing and allow comparison with fished sites outside the reserve.

It is possible to speculate on the nature of the changes that might come about by closing this area of the Wellington South Coast to fishing. The old frigate HMNZS Wellington (F 69) was sunk off Houghton Bay and is now a no fishing zone. The F 69 Trust reports that there are thousands of triple fins seen throughout the ship, red cod, blue cod, parrot fish, butterfish, crayfish, kina, starfish, spotties, octopus, schooling barracuda and kahawai and on several occasions, dolphins have been seen on and around the ship. A 1 metre high carpet of seaweed/kelp now covers the upper structures with numerous other plant species, sponges, sea anemones, sea worms and coralline algae taking hold externally and internally.

Within the marine reserve fish and invertebrates with a sedentary or territorial habit on the scale of the habitats involved may be expected to benefit. This will include species such as blue cod, red (very rare presently) and blue moki, and butterfish which are taken by line fishers, netters and spear fishers. Crayfish, paua and kina will be expected to increase in numbers and size within a marine reserve that is well policed. Octopus will increase as a large number of these are regularly killed from rock lobster pots. Maori Chief (or hiwi hiwi?) may also grow in numbers. Increase in these fish targeted by commercial and recreational fishers will have a cascade effect through trophic levels as balance and abundance of species returns to a 'natural state'. Divers will also see schooling fish such as trevally, kahawai, barracouda and blue warehou, though these fish are unlikely to obtain habitat protection benefit from the marine reserve.

This marine reserve will be on the doorstep of the capital city, allowing scientific and technical education and interpretation of these unique south coast marine ecosystems for many local schools and for national and international visitors. The marine reserve is known to have the full support of Wellington's mayor and councillors, and will be an asset to the Capital's burgeoning eco-tourism industry.

The recreational value of the reserve should be readily appreciated – the south coast is already popular for visitors and residents because of its wild and scenic nature, and its marine environment is popular for diving and diver training. These activities will be enhanced as a marine reserve. The small loss of recreational fishing

opportunity will be replaced by enhanced recreational opportunity in diving to view marine life in protected habitats.

While historical features and associations are not taken into account in Marine Reserves Act considerations and decisions, it is of value to appreciate the Wellington south coast has had a chequered history of shipwrecks, including most recently the scuttling and then break up of the old F69 frigate. Maori history of occupation and use of the south coast is equally rich and was at times turbulent. Taputeranga Island itself, the centre point of the marine reserve, was a site of occupancy and refuge against invading tribes. These features embellish the value of a marine reserve uniquely sited on the doorstep of the Capital city.

Issues Affecting the Economic Value Provided by a Taputeranga Marine Reserve

The economic value to the Wellington region from the marine reserve is likely to be significant. A Wellington South Coast marine reserve will be able to be promoted amongst tourism opportunities such as Matiu/Somes Island, the Karori Wildlife Sanctuary, Wilton's Bush, the proposed marine education centre, Te Papa and the seal colonies at Turakirae and Sinclair Head/Red Rocks, and there will be synergistic spin-off for all of these eco-tourism activities and features. This will play through into benefits to the economy of the Wellington region through sustained attraction to the City to those interested in marine environments and to nature in any form, consumption of services such as food, accommodation and transport among categories of extra spending and extra jobs.

The marine reserve application document[1] noted a 1997 survey of businesses in the south coast area, where 23% of respondents expected a marine reserve would have a positive effect on their business. (1% negative, the remainder neutral or unsure). However, some 53% expected positive benefits for the community (10% negative, the rest neutral or unsure).

Diving supplies and tourist ventures in 2006 have already benefited on the south coast from the sinking of the F69 frigate. Dive operators suggest that the marine reserve will enhance the numbers and act to sustain and generate growth in numbers even as the frigate deteriorates over time. Tim Walshe, Island Bay Divers says:

"I think, as a conservative estimate, that the F69 wreck has created $60,000 of extra revenue to the Dive Shops in Wellington, since it was sunk in November last year. On top of this is the indirect revenue to infrastructure businesses - food, accommodation, transport etc. A marine reserve should bring in at least that in the same period of time... And although the wreck has a limited life (because it is breaking up), a marine reserve will only increase in economic generation as it restocks and grows in population and diversity. Look at the growth of wealth for Tutakaka from the Poor Knights, for example.
Most of our F69 tourists were backpackers. These people rely on fellow travellers' word of mouth recommendations for planning their trips. Therefore I would think that the revenue from tourists visiting the reserve would grow exponentially each year as the 'word gets out'." (pers.com.)

The F 69 Trust reports:

[1] Taputeranga Marine Reserve Marine Reserve Application, October 2000 (page 19)

"To date approx 2500 divers have enjoyed the shipwreck. This would have generated in excess of $130,000 directly to the dive industry. Added to this and shown in the economic impact report by McDermott Miller (commissioned by WCC), is accommodation for out of town divers, food and drink spend and spin-off to other attractions whilst divers in town. Add to this family/friends travelling with divers (non-divers) who spend time in the City whilst others dive.

Based on number to date the ship is on target to generate $500,000 into the dive industry in its first year (expected to increase to $800,000 plus in the second year based on our other dive wrecks performance (Waikato, Tui, etc) and another $2m thru additional spend as mentioned above. Touring Divers are noted for being high spend tourists on items other than diving (est. at $250 per head). Over the life of the ship this figure will surpass $50m into the local economy." (M. Zeeman pers.com.)

Mr Zeeman's estimates are consistent with the McDermott Miller Ltd economic assessment of the impacts of the project on the Wellington economy reported to the Wellington City Council.[2]

Some study of the value of the marine reserve at Leigh to the surrounding Rodney district has been attempted, but the circumstances are not directly comparable (rural as opposed to urban setting). In that 2002 study[3] the Rodney Economic Development Trust made a simple estimate of the amount spent by visitors (then 300 000 per year) to the marine reserve, placing the value to the local economy at $12.5 million per year at that time. The Wellington South Coast would not offer as many fine, warm days as Leigh, but on the conservative assumption that additional visitor numbers to the Wellington marine reserve would grow to be only 10% annually of those at Leigh, the additional value to the local economy in direct spend could be at least $1.25 million annually. (Taking a conservative approach to value provides a level of confidence that the values realised will be at least as high as those quoted.)

The Tourism Research Council estimates the value of international and domestic visitors to the Wellington region at around $240 per person benefit to the local economy. If only 10% again of those visitors (say 3000) to the marine reserve have come from outside the region or overseas specifically to visit the marine reserve, using the Tourism Research Council's multiplier for accommodation, etc., the overall value of the marine reserve to Wellington would be more in the region of $2 million per year when added to the above estimate of direct spend. Experience with visitor numbers at other marine reserves accessible to urban populations around Auckland and the Coromandel (100 000+ p.a. at Cathedral Cove) strongly supports the view that these assessments of visitor numbers will be very conservative.

The Wellington Marine Education Centre project for Te Raekaihau Point, at one corner of the proposed marine reserve, is promoted as fully consistent with the 2005 Wellington Regional 'Growth Framework' developed by Positively Wellington Tourism. This 'framework' places particular stress on the depth and quality of international visitor experience, including the development of leading edge tourism attractions that reflect a priority given for nature based tourism.[4] While the WMEC is not dependent on the establishment of a marine reserve, there would be clear synergies associated with a focus on south coast marine experience in education and interpretation of the special nature of marine environments as well as water-based tourism, especially when the marine reserve can be seen to augment

[2] Excerpt from Reports (12/15/52/IM) to the WCC Strategy and Policy Committee, 15 June 2006.
[3] 'The Economic Benefits of the Goat Island Marine Reserve', Rodney Economic Development Trust, *circa* 2003
[4] Wellington Marine Education Centre Report for Resource Consent.

attraction to the area, and retain and increase the visitor numbers already brought to the area by the F69 frigate.

In any event, the Wellington South Coast is developing additional shops, café/restaurants and diving services as property values increase and new houses replace older style maritime cottages. There is an increasing appreciation of amenity as part of urban lifestyles which has driven the property boom along Wellington's south coast and elsewhere. Real estate agents have cited this as a reason for rising property prices. A marine reserve would act to both maintain the natural setting and provide an additional focus for both residents and visitors, as has occurred around the Karori Wildlife Sanctuary.

The economic value of the science and education provided from a marine reserve is difficult to estimate, as much of the study work is not directly related to meeting the needs of commercial clients. Nevertheless, a value exists even if it is not feasible to measure at reasonable cost in dollar terms. The marine reserve clearly adds a dimension to scientific opportunity, through provision of a recovering ecosystem, which allows comparison of target species in fished and ‘no-take’ paired trials. Such studies at Leigh, Hahei, Te Angi Angi and Long Island have provided valuable information directly relevant to a better understanding of the habits and life history of commercial or recreationally important fish species such as snapper, rock lobster, paua and blue cod.

Summary

The value of a marine reserve on the Wellington South Coast goes beyond simply securing more unprotected habitats for the New Zealand Marine Protected Area network. The value of the habitats protected is evident from the applicant’s description of the unique and representative features of the Cook Strait region. Marine reserves should not be seen as dollar-negative, however. With a location close to the capital city’s urban area there will be synergies and economic value-added to existing eco-tourism features of Wellington. A taste of the recovery of this area is already evident from the biodiversity experienced in the short time the F 69 has been sunk off Houghton Bay. The marine reserve may be expected to make a positive contribution to the regional economy.