Significant Ecological Marine Area Assessment Sheet

Name: Mimiwhangata Coast

Summary:

The reef systems of Mimiwhangata and adjoining reef edges of soft bottom habitat score as a high ranking ecological area. This reef system is extensive and with large areas of shallow reefs connected to a large and complex deep reef system extending offshore more than 13 kms in places. These complex reefs, coastline and small islands create a significant sequence of high quality marine habitats. In addition the marine area at Mimiwhangata creates a sequence and connectivity with important conservation areas on land making up the Mimiwhangata Marine Park. The marine area surrounding Mimiwhangata is currently a Marine Park with restrictions of commercial and recreational fishing. There is a pending proposal for Marine Reserve status at Mimiwhangata.

Habitat map and significant ecological area of Mimiwhangata.



An aerial view looking east of the Mimiwhangata peninsula and Rimariki Island offshore.



An aerial view of the sandy bays and shallow rocky reef habitats of Paparahi Point at the northwestern end of the Mimiwhangata Park. The reefs coloured a dark colour are healthy kelp forest, the reefs that look gray and barren are urchin grazed habitat or kina barrens, extensive in the more sheltered areas of Mimiwhangata. Photo credit: Roger Grace and Vince Kerr.



A typical view of healthy kelp forest over shallow rocky reef at Mimiwhangata. Photo credit: Vince Kerr.



The understory of the Ecklonia radiata kelp forest is a rich and productive habitat of encrusting invertebrate organisms. Photo credit: Vince Kerr.



Paua are under intense fishing pressure at Mimiwhangata but the large area of complex exposed rocky reef shoreline is ideal habitat for them. Photo credit: Vince Kerr.



A view of the widespread urchin grazed areas or kina barrens seen at Cocker's rock gut at Rimariki Island. Photo credit: Vince Kerr.



An image taken from a video survey of the deep reefs off Mimiwhangata in 2004. This shot was taken at approximately 60 m depth and shows a diverse encrusting sponge dominated invertebrate community. The wispy white tree in the photo is a specimen of the rare black coral.



Several large patches of seagrass are growing on clean sand in association with the shellfish Tawera speciosa offshore at Mimiwhangata Bay. Examples of subtidal seagrass like this are rare in Northland. Photo credit: Vince Kerr.



Description:

Mimiwhangata Marine Park (1890 ha) is located approximately halfway between Cape Brett and Whangarei Harbour. The east coast of Northland part of the Northeastern Biogeographic Region ¹ is characterised by series of small to large harbours and estuaries, rocky headlands and sheltered bays, and numerous offshore islands and rock stacks. Mimiwhangata is exceptionally diverse and has good examples of virtually every east coast habitat. The mapped ecological area as presented here encompasses the coastline from Paparahi to the northwest to Pareparea Beach in the southeast. The area extends out to sea, including the shallow and deep reefs of Mimiwhangata and the soft bottom habitats that make up the reef edge habitats of this area.

Mimiwhangata has attracted considerable scientific attention dating back to the 1970s when a comprehensive ecological survey and report was commissioned by Lion Breweries' owner at the time. This report introduced the first subtidal marine habitat map completed in New Zealand. ² This survey was followed by subsequent surveys covering larger offshore areas in 2005³ and 2010⁴. The later surveys expanded on the observations and documentation of the deeper reef areas. Intermittent monitoring of fish and crayfish abundance in the shallow reef areas has been taking place from 1979 to present, utilising consistent methods. This research was summarised in two international publications one for crayfish ⁵ and one for reef associated predatory fish ⁶ which examined the question of whether or not the partial protection regime at Mimiwhangata was improving marine life in the Park. In both cases the answer was that it had not led to improvements in species abundance. This work led to the proposal from local hapu and the Department of Conservation in 2005 for a marine reserve there. This proposal remains pending until a Marine Protected Area planning process is supported for Northland.

Oceanography

It is more sheltered from the prevailing westerly winds, but is exposed to wave and wind energy north-easterly gales and the occasional remnants of tropical cyclones. Many of the offshore islands and parts of the mainland coast are influenced by the warm subtropical East Auckland Current, derived from the north-western Tasman Sea that runs adjacent to the coast in a south-easterly direction. This current brings with it a variety of Indo-Pacific larvae. The mixing of these subtropical species that survive with the many endemic species make these areas ecologically unique.

Ecological Values

The marine habitats at Mimiwhangata are described in the 2005 habitat report ² and in the original 1973 report. ³ There is great diversity in the algal communities that dominate

¹ Department of Conservation & Ministry of Fisheries, 2008. Marine Protected Areas: Classification, Protection Standard and Implementation Guidelines.

² Ballantine, W. J., Grace, R. V. & Doak, W. T. (1973). Mimiwhangata Marine Report. Turbott & Halstead/New Zealand Breweries Limited, Auckland. 98p.

³ Kerr, V.; Grace, R. 2005: Intertidal and subtidal habitats of Mimiwhangata Marine Park and adjacent shelf. DOC Research & Development Series 201. Department of Conservation, Wellington. 55 p.

⁴ Kerr, V. 2009: Marine habitat map of Northland: Mangawhai to Ahipara vers. 1. Northland Conservancy, Department of Conservation, Whangarei. 33 p.

 ⁵ Shears N.T., Grace R.V., Usmar N.R., Kerr V., Babcock RC., 2006. Long-term trends in lobster populations in a partially protected vs. no-take Marine Park. *Biological Conservation* 132:222-231.
⁶ Denny, C. M., Babcock, R. C. 2004 Do partial marine reserves protect reef fish assemblages? Biological conservation 116(1):119-129.

the shallow reef areas, ranging from sheltered shores with *Carpophyllum flexuosum* forests to the very exposed shores where wave energy is high; here, *Carpophyllum maschalocarpum* and *Lessonia varieagata* represent the more exposed algal communities

At between 1.5 and 1.7 km offshore the reefs drop to depths beyond 30 m. At these depths and beyond the light is insufficient to support the algal forests, so the reef communities become dominated by a diverse filter-feeding encrusting invertebrate community. Sponges play a key role in these communities. This invertebrate community provides protection and food sources for a complex community of marine species and trophic food webs, culminating in the top order predators who frequent these biodiversity hotspots and at times become residential. ³

A special aspect of the Mimiwhangata reef systems is that they have extensive areas of soft bottom habitats surrounding them to the north and south. Recent ecological studies of rock lobster *Jasus edwardsii*⁷ demonstrate that important ecological connections exist between deep reef habitats, patch reefs, shallow reefs and surrounding soft sediment areas. In these studies, crayfish were found to regularly migrate up to several kilometres out onto sand and gravel areas from their reef habitats to feed on bivalves and other benthic organisms.

Mimiwhangata each year is visited by a congregation of young hammerhead sharks. This event occurs typically around the first weeks of November with the sharks remaining in the area for a period of 1-3 weeks. This event has been observed every year for some 10 years by the DOC ranger at Mimiwhangata. ⁸ Numbers range from dozens to over one hundred individuals. Sizes range from 1.5- 2.0m animals – an absence of very large or very small individuals. Typically the sharks are seen just off Mimiwhangata beach, milling around in the sheltered waters. The ecological function of this congregation is unknown, but it could fulfil an important social or breeding function for the species.

A comprehensive species list has been prepared for Mimiwhangata, which identifies 71 species of reef associated fish species. This figure compares favourably with the most diverse coastal sites on Northland's east coast and includes numerous sub-tropical species.

The marine ecology values of the Tutukaka to Taiharuru Coast and Northland's east coast are summarised in the Nearshore Classification produced by the Department of Conservation⁹. A more detailed review of natural features and ecology was completed by NIWA in 2005.¹⁰ Both publications have comprehensive references covering previous descriptive work done in Northland. The later report summarises some of the local scale habitat mapping work done in the region.

Northland Marine Mammals

⁷ Kelly, S. 2001: Temporal variation in the movement of the spiny lobster (Jasus edwardsii). New Zealand Journal of Marine and Freshwater Research 52: 323.331.

⁸ Pers. Com. Chris Moretti, Doc Ranger Mimiwhangata

⁹ Department of Conservation, 2005. Near Shore Marine Classification System. Compiled by Vince Kerr for Northland Conservancy, Department of Conservation. Revised September 6, 2005. <u>http://www.marinenz.org.nz/nml/files/documents/3_northland-mpa.html</u>

¹⁰ Morrison, M., 2005. An Information Review of the Natural Marine Features and Ecology of Northland. Prepared for the Department of Conservation. NIWA Client Report: AKL 2005-50.

Information on the presence and conservation status of marine mammals in relation to Northlands coasts and estuaries has been reviewed by Baker. ¹¹ ¹² Thirty-five species of marine mammals are known from Northland waters (within the 12 n ml limit). Some marine mammal species are resident or semi-resident and breed along the Northland coast, and others are transients. Three threatened species are amongst the species most often encountered in inshore waters: Bryde's whales *Balaenoptera edni*, bottlenose dolphins *Tursiops truncates*, and Orca *Orcinus orca*. The common dolphin *Delphinus delphis*, which is not threatened, is also commonly seen in estuaries and along the coast. All of these species have been occasionally reported at Mimiwhangata. Less common, but occasionally encountered on Northland's east coast, are pilot whales *Globicephala spp.*, false killer whales *Pseudorca crassidens*, and some of the large baleen whales. New Zealand fur seals are present in small numbers at Mimiwhangata area as transient visitors.

Assessment of Ecological Significance

Mimiwhangata Reefs: Assessment of Ecological Significance				
	Overall Ranking	Notes	High	
Representati on	supports most taxa expected for habitat type	High diversity of marine species Good size example of	Н	
	large example of its type	habitats.	н	
Rarity and Distinctivene ss	supports indigenous species threatened, at risk, or uncommon, nationally or within the relevant ecological scale	Significant number of threatened bird species and several marine species	Н	
	supports species endemic to the Northland- Auckland region or at distributional limits within the Northland region	Level of endemism of marine species not well studied	NA	
	distinctive of a naturally restricted occurrence	Diversity of habitats is exceptional	Н	
	developed as a result of unusual environmental factor(s) or is part of an ecological unit that occurs within an originally rare ecosystem	Diversity of habitats is exceptional	Н	
	identified as nationally or regionally rare habitat(s) in MPA Plan	Diversity and quality of habitats is recognised as regionally significant	н	
Diversity and Pattern	high diversity of indigenous ecosystem or habitat types	Diversity of habitats is exceptional	Н	
	high diversity of indigenous taxa	One of the better east coast sites for high diversity	Н	

Table 1 Ranking score of ecological significance of Mimiwhangata Reefs¹³

¹² Baker, C.S, Chilvers, B.L., Constantine, R., DuFresne, S., Mattlin, R.H., van Helden, A. & Hitchmough, R., 2010. Conservation status of New Zealand marine mammals. New Zealand Journal of Marine and Freshwater Research, 44:2, 101-115.

¹³ Table 1 details the ranking criteria and scoring that was used to determine the overall high ranking given to the ecological significance of this area. The criteria used have been adopted from Appendix 5 of the Northland Regional Council Proposed Policy Statement. See reference to Methodology report or other council documents to call up

¹¹ Baker, A. N., 2005. Sensitivity of marine mammals found in northland waters to aquaculture activities. Report to the Department of Conservation, Northland Conservancy. A. N. Baker Cetacean Biology Consultant, Kerikeri.

	its composition reflects the existence of diverse natural features or ecological gradients	Very complex ecological gradients		H			
	contains intact ecological sequences Excellent examples						
Ecological Context	provides or contributes to ecological linkages, networks, buffering functions	Has complete marine habitat sequences and connects to important terretrial conservation area with diverse habitats		н			
	supports the natural functioning of freshwater or coastal ecosystems	Significant connection with streams and wetlands		н			
	supports life stages of indigenous fauna	High diversity well supported by habitats		Н			
Assessed by: Vince Kerr Date: Sep 2015			Date: Septe 2015	ember			
Information Source(s) see below							
Reliability of Information see below							
Rank (overall score) H = high, M = moderate, L =low, DD = data deficient, R = recommended for further investigation							
Information Source(s) 1 = quantitative report, 2 = qualitative report, 3 = habitat map or classification, 4 = expert opinion, 5 = personal communication, 6 = anecdotal information, 7 = visit and observation							

Reliability of Information expressed as a scale of confidence ranging from high (+++) to low confidence (---) Criteria Rank - score for each individual criteria) H = high ranking, M = moderate ranking, L = low ranking, DD = data deficient, R = recommended for further investigation, NA = not assessed for this criteria