

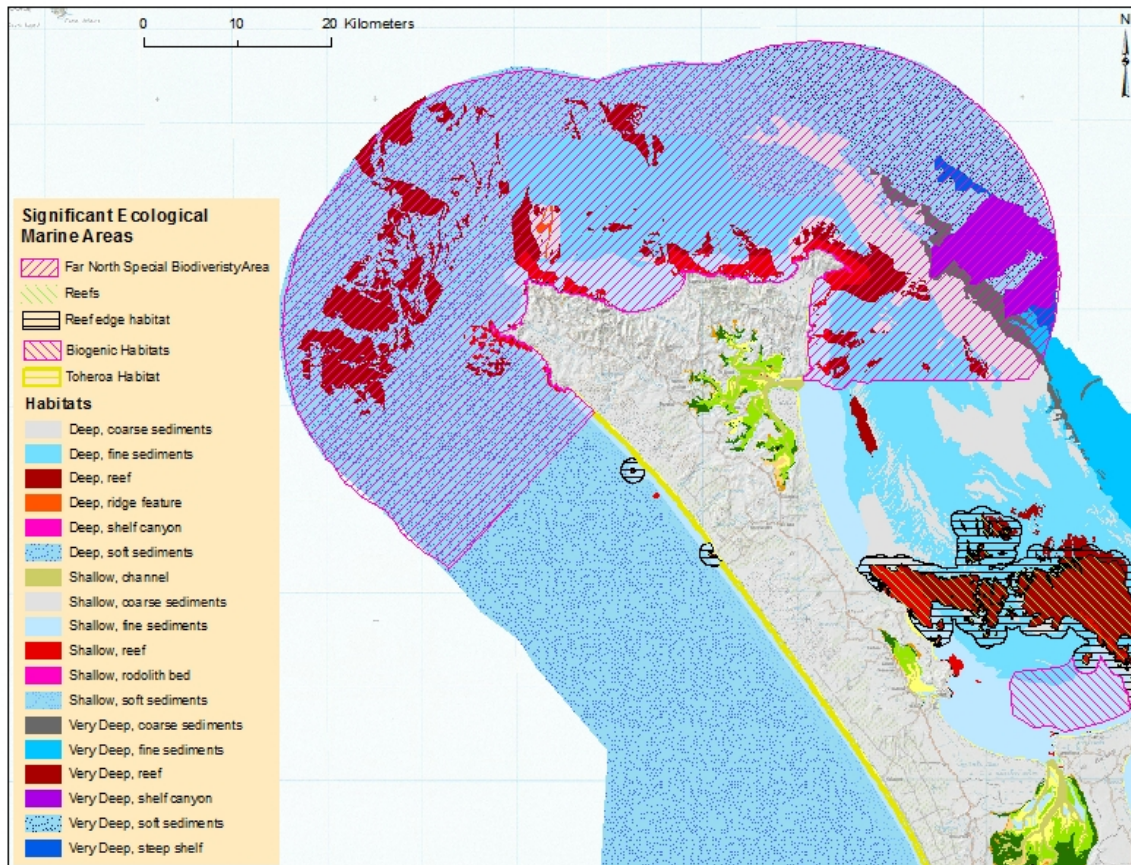
Significant Ecological Marine Area Assessment Sheet

Name: Far North Special Biodiversity Area

Summary

The Far North Special Biodiversity Area scores as a high ranking ecological area. This remote area has a unique set of physical and oceanic properties due to its geological origins and complex ocean currents; this northern extreme of New Zealand is the meeting place of two oceans and is subject to several substantial currents. Studies of marine biodiversity identify this area as having the richest benthic invertebrate communities in New Zealand ¹ with a level of endemism that is internationally significant. The valuable fringing shallow rocky reefs here form connections with high ranking conservation areas on shore, making this entire area a marine biodiversity hotspot at both the national and the international level. ²

Habitat map and significant ecological area of the Far North Special Biodiversity Area.



Oceanography

¹ Cryer M., et.al., 2000. Distribution and structure of benthic invertebrate communities between North Cape and Cape Reinga. NIWAR Final research report for Ministry of Fisheries Research Project ENV9805 Objectives 1-4

² Taylor, P.D.; Gordon, D.P., 2003. Endemic new cyclostome bryozoans from Spirits Bay, a New Zealand marine-biodiversity "hotspot". New Zealand Journal of Marine and Freshwater Research 37: 653–669.

The Far North of the Aupouri peninsula is influenced by strong currents and water masses from the Tasman to the west and the Pacific to the north and east. Typically, long-shore currents running up the west coast bring colder water; sometimes this is reversed in summer months and the warm subtropical East Auckland Current (EAC) has more influence. The EAC is derived from the north-western Tasman Sea flowing south-east towards the top of New Zealand and down the Northland east coast. This current brings a variety of Indo-Pacific larvae. The subtropical species sourced from these currents, along with the many endemic species, make these areas ecologically unique. Strong inshore tidal currents move around the top of the far north peninsula; the maximum tidal range is 2.1 m.

Description

The Far North Special Biodiversity Area comprises the entire coast between Te Pahi stream in the west to Parengarenga Harbour in the east including the areas offshore out to the 12-mile limit. The coast is a repeating sequence of rocky headland and sandy beaches; two large north-facing embayments dominate the coastline. The beaches are often backed by large areas of wetlands and Holocene dunes. Most of the headlands are of volcanic origin with steep cliffs and rocky platforms at their bases. Reefs on this coast are typically gradual sloping and inundated with sand at depths varying from 10m to 30m. There are large areas of deep reef (greater than 30m depth) offshore from Kerr Point extending out to 100+m depths. Large areas offshore are characterized by calcareous gravel sands. These habitats are considered valuable as substrates for complex invertebrate communities to develop.

Ecological Values

This area has an impressive list of marine biodiversity values. The following excerpt from the NIWA study, led by Cryer ¹, illustrates just how special it is:

“Sponges (over 200 species) and bryozoans (over 300 species) are present in great diversity in the area between North Cape and Cape Reinga. The richness of bryozoans is not matched anywhere in the world. Two gorgonian and two coral species were collected from four stations in deep water (65- 100 m), and black coral was observed on video at one station (live material has been collected since). The epifaunal assemblage has very high rates of local endemism (i.e., many of the species are found nowhere else in the world). There are some ubiquitous New Zealand species, some species with subtropical affinities, and some species with affinities with areas of high current or carbonate-rich substratum in New Zealand or overseas. The richness of sponges, bryozoans, and hydroids were all correlated, and richness was highest between about 30 m and 80 m depth. Rates of endemism peaked at similar depths. There was a strong correlation between bryozoan and crustacean species richness, suggesting that colonial filter feeding fauna provide a diverse habitat suitable for a diverse macrofauna. Colonial, filter-feeding animals comprised 85% of all taxa collected. Such taxa are efficient components of pelagic-benthic energy coupling systems, and provide three-dimensional structure which may be important to other components of the fauna. “

A study of the biogeography of reef fish in northeast New Zealand by Brook³ presents the results of a comprehensive survey effort and review of past survey efforts for this area. The reef fish diversity is amongst the highest in New Zealand, comparable to the most diverse site (Poor Knights Islands). In the Brook study, 80 species of fish were found in the shallow reef sites along the Cape Reinga coast.

³ Brook, F.J., 2002. Biogeography of near-shore reef fishes in northern New Zealand. *Journal of the Royal Society of New Zealand* 32: 243-274

The algal communities of shallow rocky reefs in Northland are described in Shears and Babcock⁴ : the importance of these shallow algal communities is discussed in relation to a study site at Cape Reinga.

The rocky reef habitats are an important rock lobster crayfish fishery *Jasus edwardsii*. This area is also significant to the second crayfish species living in New Zealand. A large area offshore from Kerr Point is an important packhorse crayfish *Sagmariasus verreauxi*, breeding and nursery area.⁵

Biodiversity values and biota are summarised in a *Nearshore Classification* produced by the Department of Conservation⁶. A further review of natural features and ecology was completed by NIWA in 2005.⁷ Both publications have comprehensive references compiled covering previous descriptive work done in Northland. The later report summarises some of the local scale habitat mapping work done in the region. More recently, regional scale marine habitat maps have been completed by Kerr.^{8 9}

Northland Marine Mammals

Information on the present conservation status of marine mammals in relation to Northland's coasts and estuaries has been reviewed by Baker.^{10 11} 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. There are three threatened species among those most often encountered in inshore waters: Bryde's whales *Balaenoptera edni*, bottlenose dolphins *Tursiops truncatus*, and Orca *Orcinus orca*. The common dolphin *Delphinus delphis*, which is not threatened, is also commonly seen in estuaries and along the coast. Less common, but occasionally encountered, 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 in this area and a haul out area is well established.

Seabirds and Shorebird values

Motuopao Island, just off Cape Reinga, is an important nesting area for seabirds: grey-faced petrel (*Pterodroma macroptera*), black-winged petrel (*P. nigripennis*), sooty shearwater (*Puffinus griseus*), common diving petrel (*Pelecanoides urinatrix*), and blue penguin (*Eudyptula minor*). Two species of threatened shorebirds - New

⁴ Shears, N.T.; Babcock, R.C. 2004: Community composition and structure of shallow subtidal reefs in northeastern New Zealand. *Science for Conservation* 245. 65 p.

⁵ Booth, J.D. 1997. Long-distance movements in *Jasus* spp. and their role in larval recruitment. *Bulletin of Marine Science*. 61: 111–128.

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

⁷ 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.

⁸ Kerr, V., 2015. *Marine habitat map of Northland's west coast, (draft)*. Unpublished GIS project in progress. Kerr & Associates, Whangarei, Northland. Email: vince@kerrandassociates.co.nz.

⁹ Kerr, V. 2009: *Marine habitat map of Northland: Mangawhai to Ahipara vers. 1*. Northland Conservancy, Department of Conservation, Whangarei. 33 p.

¹⁰ 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.

¹¹ 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.

Zealand dotterel (*Charadrius obscurus*) and variable oystercatcher (*Haematopus unicolor*) - breed on the beaches along this coast.

Assessment of Ecological Significance

Table 1 Ranking score of ecological significance of Far North Special Biodiversity Area¹²

Far North Special Biodiversity Area Estuary Shorebird Values: Assessment of Ecological Significance			Rank
Overall Ranking		Notes	High
Representation	supports most taxa expected for habitat type	In most flora and fauna groups area is best example	H
	large example of its type	Large area of exceptional values	H
Rarity and Distinctiveness	supports indigenous species threatened, at risk, or uncommon, nationally or within the relevant ecological scale	Very high number of endemic invertebrates, some threatened	H
	supports species endemic to the Northland-Auckland region or at distributional limits within the Northland region	Very high levels of endemism	H
	distinctive of a naturally restricted occurrence	Oceanographic factors are unique to this area	H
	developed as a result of unusual environmental factor(s) or is part of an ecological unit that occurs within an originally rare ecosystem	Various environmental factors contribute to unique values	H
	identified as nationally or regionally rare habitat(s) in MPA Plan	Yes internationally significant	H
Diversity and Pattern	high diversity of indigenous ecosystem or habitat types	Very high habitat diversity	H
	high diversity of indigenous taxa	Highest scoring site for marine invertebrates in NZ	H
	its composition reflects the existence of diverse natural features or ecological gradients	Various environmental factors contribute to unique values	H
	contains intact ecological sequences	Many sequence from shore to deep habitats intact	H
Ecological Context	provides or contributes to ecological linkages, networks, buffering functions	Believed to be very important area connectivity to other areas	H
	supports the natural functioning of freshwater or coastal ecosystems	Has small wetland and estuarine areas of high quality	M
	supports life stages of indigenous fauna	Very high diversity supported	H
Assessed by: Vince Kerr		Date: September 2015	
Information Source(s) see below			1-7

¹² 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

Reliability of Information <i>see below</i>	+++
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	