

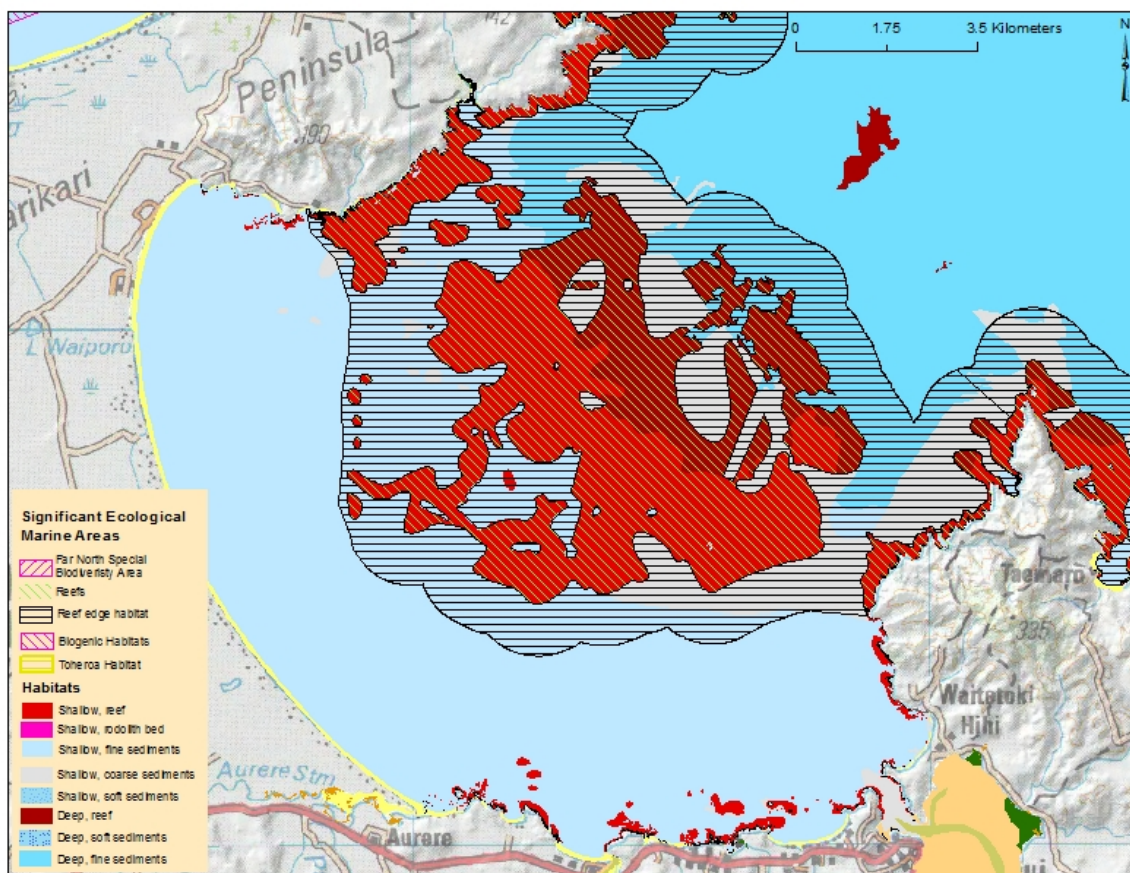
Significant Ecological Marine Area Assessment Sheet

Name: Doubtless Bay

Summary:

The reef systems of Doubtless Bay and adjoining reef edges of soft bottom habitat score as a high ranking ecological area. This reef system is extensive and makes up much of the centre of Doubtless Bay. It has large areas of shallow reefs connected to a large and complex offshore reef system. These complex reefs, diverse coastline and adjoining soft sediment areas create a significant sequence of high quality marine habitats. In addition, Doubtless Bay creates an ecological sequence and connectivity with important terrestrial conservation areas adjoining the coast surrounding the area.

Habitat map and significant ecological area of Doubtless Bay



Description:

Doubtless Bay is a large bay bounded by Knuckle Point on the Karikari Peninsula to the north and Berghan Point, which is the southern headland to the bay. The bay consists of exposed North rocky cliff headlands and intertidal reefs, with intervening sandy, shelly and locally gravelly beaches broken by occasional rocky outcrops. Major beaches include Coopers Beach, Cable Bay, Taipa, Tokerau Beach and Whatuwhiwhi. There is a small estuarine harbour (Mangonui Harbour) in the south-eastern corner of the bay. Smaller estuaries are the Awapoko and Taipa estuaries. The east coast of Northland is part of

the North-eastern Biogeographic Region. ¹ Doubtless Bay is exceptionally diverse and has some of the best examples of coastal rocky reef communities in Northland. The shape of the large bay is unusual: it faces northeast and varies in width from 13-17km wide. The mapped ecological area encompasses the exposed rocky shores of both sides of the Bay and the offshore reef areas in the middle of the Bay, which are extensive and include large areas of both deep and shallow reefs. With such a large complex reef area the soft bottom habitats making up the reef edge habitats here are particularly significant in area and in diversity of substrates and communities.

The marine habitats of Doubtless Bay were surveyed and described in 2005. ² This survey was followed by a regional scale marine habitat mapping project in 2010. ³

Aerial view of Nuggets Point showing the steep exposed coastline and fringing rocky reef.
Photo credit: Roger Grace and Vince Kerr



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

² Grace, R.V.,_Kerr, V.C., 2005. [Intertidal and subtidal habitats of Doubtless Bay, Northland, N.Z.](#) Contract report for the Department of Conservation, Northland Conservancy, Whangarei. [Habitat maps.](#)

³ Kerr, V. 2009: Marine habitat map of Northland: Mangawhai to Ahipara vers. 1. Northland Conservancy, Department of Conservation, Whangarei. 33 p.

View of the healthy kelp forest and associated understory community of encrusting invertebrate species taken near Nugget Point. Photo credit: Roger Grace



An aerial of the large fringing rocky reefs just east of Whatuwhiwi. The darkest areas are shallow mixed weed kelp forest areas and the barer more grey looking areas are predominantly kina grazed zones or kina barrens. Photo credit: Roger Grace and Vince Kerr.



Orca regularly come in to Doubtless Bay to feed. The Orca pictured here was part of a pod seen feeding on an offshore reef near Fairway Reef. Photo credit: Roger Grace.



Oceanography

The Doubtless Bay area has a unique variety of exposures to the oceanic influences of the offshore area, but most of the coastline is exposed to considerable wave energy during easterly gales. The coasts near Knuckle Point and Berghan Points at the bay's entrance have quite high exposure levels and are influenced by oceanic waters. This influence decreases as you move further into the Bay. The whole area is strongly influenced by the warm subtropical East Auckland Current, derived from the north-western Tasman Sea flowing south-eastwards adjacent to the coast. This current brings with it a variety of Indo-Pacific larvae. The mix of these surviving subtropical species with the many endemic species, make these areas ecologically important.

Ecological Values

The reef habitats at Doubtless Bay are quite varied in terms of exposure and topography. A distinctive feature of the reefs is the large area of connected reefs in the central area of Doubtless Bay. This area represents one of the largest continuous areas of shallow rocky reef in Northland and is connected to a significant deep reef area to the east beyond 30m depth. This ranges from semi sheltered shores with mixed red algal and *Carpophyllum sp.* shallow mixed weed zones giving way to the dominant *Ecklonia radiata* forests, to the exposed shores where wave energy is high and the more exposed algal communities, represented by *Carpophyllum maschalocarpum* and *Lessonia variegata*, make up the shallow mixed weed zone with *Ecklonia radiata* forest below and extending down to 30m.

In the large reef area in the centre of Doubtless Bay on the eastern side the reefs drop to depths beyond 30 m.³ At these depths and beyond 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.

The marine ecology values of the Doubtless Bay area and Northland's east coast are summarised in the Nearshore Classification produced by the Department of Conservation⁴. A further and more detailed review of natural features and ecology was completed by NIWA in 2005.⁵ 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

Information on the presence and conservation status of marine mammals in relation to Northland's coasts and estuaries has been reviewed by Baker.^{6 7} 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

⁴ 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

⁵ 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.

⁶ 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.

⁷ 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.

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 the Doubtless Bay. Less common, but occasionally encountered in the Eastern Bay of Islands 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 the Doubtless Bay area as transient visitors.

Assessment of Ecological Significance

Table 1 Ranking score of ecological significance of Doubtless BayReefs⁸

Doubtless Bay Reefs: Assessment of Ecological Significance			Rank
Overall Ranking		Notes	High
Representati on	supports most taxa expected for habitat type	High diversity of marine species	H
	large example of its type	Good size example of complex sequence of habitats.	H
Rarity and Distinctivene ss	supports indigenous species threatened, at risk, or uncommon, nationally or within the relevant ecological scale	Important area for threatened marine mammals species and rare subtropical species	H
	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 important including varyig exposures and large shallow central reef area	M
	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 important	M
	identified as nationally or regionally rare habitat(s) in MPA Plan	Not assessed	NA
Diversity and Pattern	high diversity of indigenous ecosystem or habitat types	Diversity of habitats is significant	H
	high diversity of indigenous taxa	Insufficient species surveys	DD
	its composition reflects the existence of diverse natural features or ecological gradients	Very complex ecological gradients	H
	contains intact ecological sequences	Excellent examples	H
Ecological Context	provides or contributes to ecological linkages, networks, buffering functions	Has complete marine habitat sequences and connects to important terrestrial conservation area with diverse habitats	H
	supports the natural functioning of freshwater or coastal ecosystems	Some connection with small streams and wetlands	M

⁸ 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

	supports life stages of indigenous fauna	High diversity well supported by habitats	H
Assessed by: Vince Kerr		Date: September 2015	
Information Source(s) <i>see below</i>			2-7
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			