

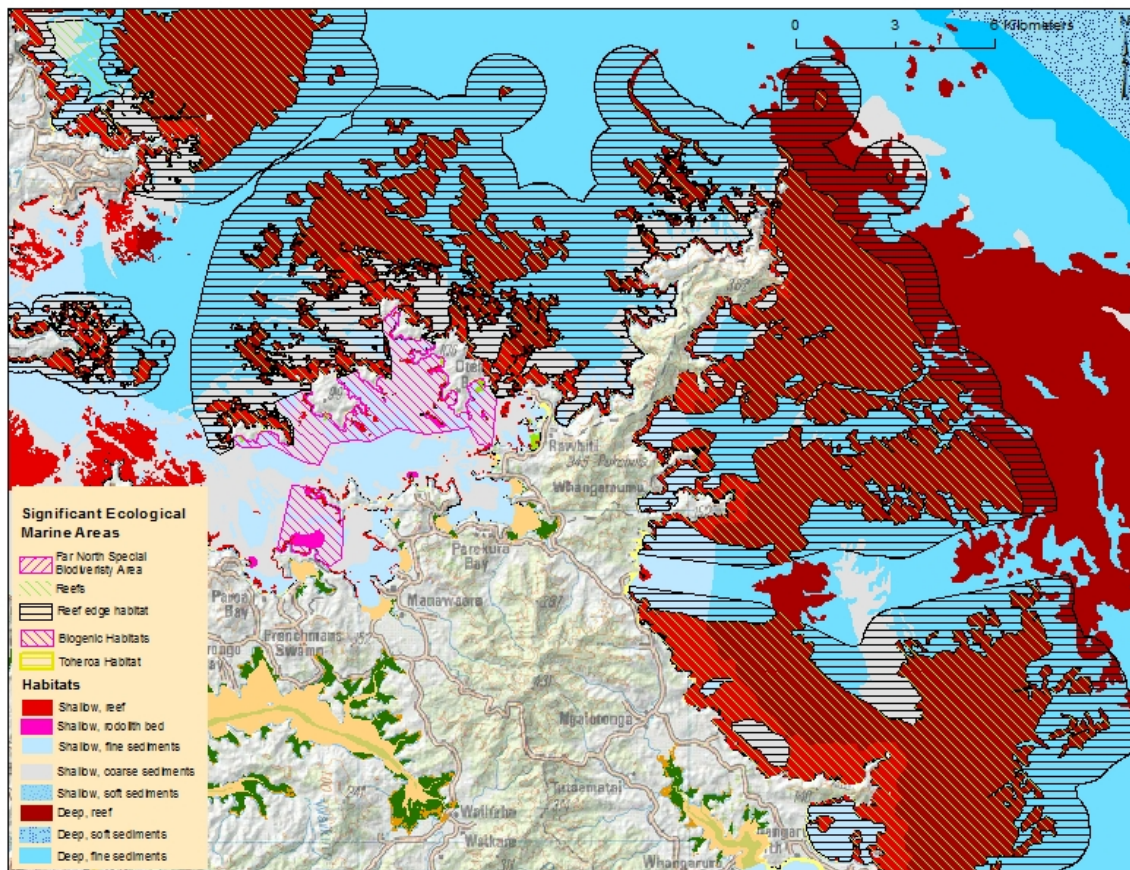
## Significant Ecological Marine Area Assessment Sheet

Name: Eastern Bay of Islands and Cape Brett Coast

### Summary:

The reef systems of Eastern Bay of Islands and Cape Brett 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 up to more than 13 kms. These complex reefs, coastline and small islands create a significant sequence of high quality marine habitats. In addition the Eastern Bay of Islands and Cape Brett creates an ecological sequence and connectivity with important conservation areas in this group of islands and the Cape Brett peninsula. There is a *rahui* (fisheries closure) supported by a Fisheries Act regulation at Maunganui Bay (Deep Water Cove) and a proposal for two marine reserves around the waters of Waewaetorea Island and out on Cape Brett Peninsula past Maunganui Bay <sup>1</sup>

Habitat maps and mapped significant ecological area of Eastern Bay of Islands



<sup>1</sup> Kerr, V.C., Langford, C., Wright, D., 2014. Proposal for two marine reserves and a scientific reserve in the Bay of Islands: results of community consultation. Prepared for and published by Fish Forever, Bay of Islands Maritime Park Inc.



*A view of Cape Brett from the west showing the steep rocky shoreline. Photo credit: Chris Richmond*



*A stingray sits amongst a healthy Ecklonia radiata kelp forest. Note the stony gravelly substrate which is common near shore on the Cape Brett Peninsula. Photo credit: Northland Dive.*



*A deep reef scene typical of deeper areas greater than 30m depth out at Cape Brett. Pink Gorgonian fans are an indicator of a healthy and productive encrusting invertebrate community. Photo credit: Northland Dive.*



**Description:**

Eastern Bay of Islands and the Cape Brett peninsula, at the eastern entrance of the Bay of Islands, is an area of exposed coastline on Northland's northeast coast. The east coast of Northland is part of the North-eastern Biogeographic Region <sup>2</sup> and is generally characterised by a series of rocky headlands and steep and ragged shorelines, and a number numerous islands and pinnacles. Eastern Bay of Islands and Cape Brett is exceptionally diverse and has some of the best examples of coastal rocky reef communities in Northland. The mapped ecological area encompasses the exposed rocky shores and offshore reef areas from Motuarohia in the west to Cape Brett in the east, then south down the Cape Brett coast to Elliot Beach including soft-bottom habitats making up the reef edge habitats of this area.

Eastern Bay of Islands and Cape Brett area has attracted considerable scientific investigation. NIWA as part of an Ocean 20/20 project carried out extensive sonar survey, sediment and biodiversity sampling in 2008-9. <sup>3</sup> This survey was followed by a regional scale marine habitat mapping project in 2010. <sup>4</sup> A recent publication shows fine scale habitat mapping and habitat and biological community descriptions for the marine areas

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<sup>2</sup> Department of Conservation & Ministry of Fisheries, 2008. Marine Protected Areas: Classification, Protection Standard and Implementation Guidelines.

<sup>3</sup> Mitchell, J. et al., 2010. Bay of Islands OS20/20 survey report. Chapter 2: Seafloor Mapping. <http://www.os2020.org.nz/bay-of-islands-coastal-survey-project/>

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



around Waewaeatorea, Okahu and Urupukapuka islands. <sup>5</sup>

## Oceanography

The Eastern Bay of Islands area has a variety of exposures to the oceanic influences of the offshore area. The chain of islands on the outside of the Rawhiti Channel are less exposed than the shoreline out at Cape Brett but are still subject to considerable wave energy during easterly gales. Cape Brett Peninsula itself extends a great distance outwards into the offshore area and deeper areas and is battered at times from easterly storms. 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 unique.

## Ecological Values

The main reef habitats at Eastern Bay of Islands and Cape Brett are described in the 2015 habitat report. <sup>6</sup> There is great diversity in the algal communities that dominate the shallow reef areas., 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.

At between 100 to 500m off shore 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. <sup>1</sup>

A special aspect of the Eastern Bay of Islands and Cape Brett 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* <sup>6</sup> 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.

A study of Northeast New Zealand reef fish biogeography by Brook<sup>7</sup> presents the results of a comprehensive survey effort and review of past survey efforts. The reef fish diversity of Cape Brett tops the list of Northland coastal sites, with 93 species recorded. The area around Urupukapuka had 63 species; still a very diverse community. Both areas showed high numbers of subtropical species and are very diverse compared to other regions of New Zealand.

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<sup>5</sup> Kerr, V.C., Grace, R. V., 2015. Marine habitats of the proposed Waewaetorea Marine Reserve. A Report prepared for Fish Forever, Bay of Islands Maritime Park Inc.

<sup>6</sup> 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.

<sup>7</sup> 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 marine ecology values of the Eastern Bay of Islands and Cape Brett area and Northland's east coast are summarised in the Nearshore Classification produced by the Department of Conservation<sup>8</sup>. A further and more detailed review of natural features and ecology was completed by NIWA in 2005.<sup>9</sup> 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.<sup>10 11</sup> 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 truncatus*, and Orca *Orcinus orca*. The common dolphin *Delphinus delphis*, which is not threatened, is also commonly seen in the Eastern Bay of Islands with the dolphins having resident population. The two dolphin species have been studied over the last ten years in relation to concerns over the impacts on them of the eco-tourism boats that operate there.<sup>12</sup> 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 Eastern Bay of Islands and Cape Brett area as transient visitors.

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<sup>8</sup> 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](http://www.marinenz.org.nz/nml/files/documents/3_northland-mpa.html)

<sup>9</sup> 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.

<sup>10</sup> 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.

<sup>11</sup> 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.

<sup>12</sup> Constantine, R., Brunton, D.H., & Dennis, T., 2004. Dolphin-watching tour boats change bottlenose dolphin (*Tursiops truncatus*) behaviour. Biol. Conserv. 117: 299–307.

## Assessment of Ecological Significance

Table 1 Ranking score of ecological significance of Eastern Bay of Islands and Cape Brett Reefs<sup>13</sup>

| Eastern Bay of Islands and Cape Brett Reefs: Assessment of Ecological Significance |   |   | Rank                 |
|--|---|---|----------------------|
| Overall Ranking  |   | Notes   | High                 |
| Representati<br>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<br>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 exceptional  | H                    |
|  | 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  | H                    |
|  | identified as nationally or regionally rare habitat(s) in MPA Plan  | Diversity and quality of habitats is recognised as regionally significant   | H                    |
| Diversity and Pattern  | high diversity of indigenous ecosystem or habitat types   | Diversity of habitats is exceptional  | H                    |
|  | high diversity of indigenous taxa   | One of the better east coast sites for high diversity   | H                    |
|  | 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                    |
|  | 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>   |   |   | 1-7                  |
| Reliability of Information <i>see below</i>  |   |   | +++                  |

<sup>13</sup> 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

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| 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 |