

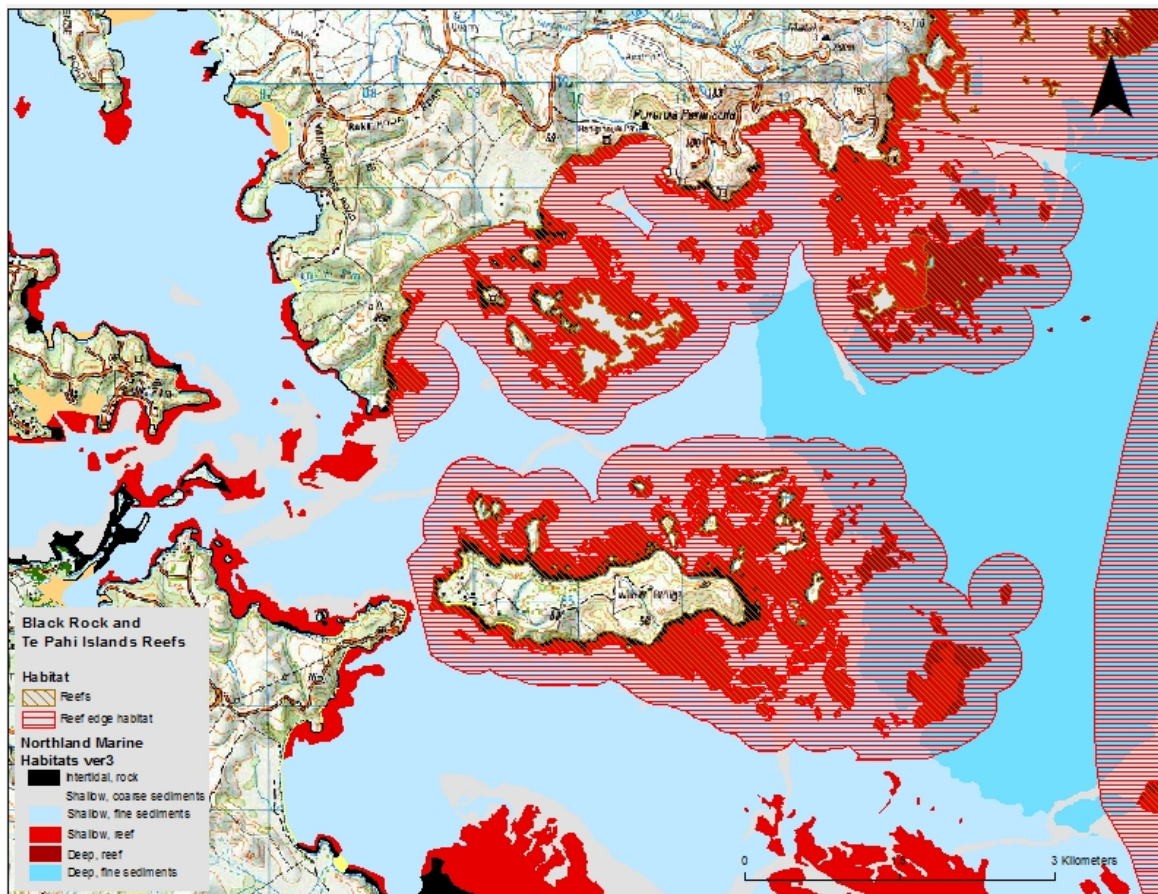
Significant Ecological Marine Area Assessment Sheet

Name: Black Rocks and the Te Pahi Islands coast reefs, Bay of Islands

Summary:

The reef systems of Black Rocks, Te Pahi Islands coast and adjoining reef edges of soft-bottom habitat score as a high ranking ecological area. This reef system is predominantly a fringing shallow reef with small areas of deep reef extending to beyond 30m depths. The Black Rocks reefs are distinctive because of the unique and complex volcanic rock formations resulting in a shallow reef with vertical faces, many cracks, overhangs and complex indentations in the shoreline. Black Rocks shallow reefs have quite high fish diversity equivalent to some of the better east coast sites.¹ The area is also known as excellent habitat for rock lobster *Jasus edwardsii*.

Habitat map of the Black Rocks and the coastal reefs of the Te Pahi Islands area, showing significant ecological areas.



¹ 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

Description

The Black Rocks area is located at the eastern end of Moturoa island near the entrance to Kerikeri Inlet in the Bay of Islands. The mapped ecological area encompasses the northern coastline of Moturoa and the reefs of Black Rocks. The area extends out to sea including the shallow reefs, small areas of deep reefs and the soft-bottom habitats that make up the reef edge habitats of this area. ²

The Te Pahi coast reefs SEA runs from the mouth of the Te Puna east to Tikitiki near North western extent of the Bay of Islands or tip of the Purerua Peninsula. The shoreline is predominantly rocky with stony sand beaches and gentle sloping shore with shallow fringing rocky reefs. The reefs surrounding the Te Pahi Islands are extensive with some extending outwards to depths exceeding 30 m and supporting deep reef habitats. These shallow reefs enjoy consider oceanic influence from currents entering the Bay of Islands but are also enriched by and affected by the sedimentation and nutrients circulating out from the inner Bay habitats.

A 3D aerial view of the Black Rocks Islands, showing the complex array of islands and fringing shallow rocky reefs.



² 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 Unpublished GIS project in progress.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.

An aerial view of the Te Pahi Islands and coast.



Oceanography

The Black Rocks area has a mixture of oceanographic and estuarine influences. It could be described as semi-sheltered shore that, at times, is exposed to relatively high wave energy from easterly storms and ocean swells making their way into this part of the Bay of Islands. The area is occasionally influenced by the East Auckland current, which eddies into the coast bringing warm water from the north and, with it, larvae of subtropical species.

Ecological Values

The shallow fringing reefs are good examples of their type and generally in good health. In the upper exposed zone the shallow mixed weed algal communities are characterised by several *Carpophyllum* species. Below the shallow mixed weed zone at 2-5m depth the large brown kelp, *Ecklonia radiata* forest takes over, which at Black Rocks is very productive and home to a great deal of diversity. The kelp forest and fringing reefs run out to a sand or sandy gravel bottom at 15-30m. These reef edge soft bottom habitats are rich in invertebrate and shellfish communities and thus play a key role in supporting the high diversity of the reef systems.

The reefs of Black Rocks and Te Pahi Islands have traditionally been known as very productive habitat for rock lobster *Jasus edwardsii*. Large packhorse crayfish *Sagmariasus verreauxi* used to be commonly seen on this coast but unfortunately are rare today.

A study of Northeast New Zealand reef fish biogeography by Brook³ presents the results of a comprehensive survey effort and review of past survey efforts. A list of common algal species is also reported in this study. The reef fish diversity recorded at Black

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

Rocks site compare with the better east coast sites in Northland and could be described as high compared to other regions of New Zealand.

The marine ecology values of Black Rocks, Te Pahi Islands and Northland's east coast more generally 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 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 Black Rocks coastal area 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 here.⁸ Less common, but occasionally encountered in the Black Rocks area of the 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 here.

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.

⁸ 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 Black Rocks⁹

Black Rocks and Te Pahi Islands Coast 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.	M
Rarity and Distinctivene ss	supports indigenous species threatened, at risk, or uncommon, nationally or within the relevant ecological scale	Has significant number subtropical fish species	H
	supports species endemic to the Northland-Auckland region or at distributional limits within the Northland region	Has significant number subtropical fish species	H
	distinctive of a naturally restricted occurrence	Diversity of habitats is good	M
	developed as a result of unusual environmental factor(s) or is part of an ecological unit that occurs within an originally rare ecosystem	Complex topograhpy created by reefs volcanic origins is very unusual	H
	identified as nationally or regionally rare habitat(s) in MPA Plan	Not evaluated yet	R
Diversity and Pattern	high diversity of indigenous ecosystem or habitat types	Diversity of habitats is good	M
	high diversity of indigenous taxa	One of the better east coast sites for high diversity of fish species	H
	its composition reflects the existence of diverse natural features or ecological gradients	Good complex ecological gradients	M
	contains intact ecological sequences	good examples	M
Ecological Context	provides or contributes to ecological linkages, networks, buffering functions	Some connectivity to general environments	M
	supports the natural functioning of freshwater or coastal ecosystems	Small limited systems only	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>			+++
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			

⁹ 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

