

# **Northland Regional Council: Coastal Hazard Zone Assessment - Information Summary**

## **1. Background**

Section 12.4 of the Far North District Plan (FNDP) deals with natural hazards and the management of activities occurring on land which are or are likely to be subject to natural hazards.

The hazard zones of the FNDP were derived from coastal hazard assessments undertaken in 1991 (refer Appendix 1).

During 2002 – 2005 the Northland Regional Council revised a number of the original 1991 assessments and undertook assessments for additional areas. These revised or new assessments are not included in the current FNDP hazard maps.

This document provides a summary of the coastal hazard zone assessment information.

## **2. Original Coastal Hazard Assessments**

The original 1991 coastal hazard assessments provide the coastal hazard zone 1 lines (CHZ1) and coastal hazard zone 2 lines (CHZ2) of the FNDP hazard maps.

The position of each of these hazard lines was determined from an assessment of the coastal processes, coastal hazards, historic shoreline positions and the application of a formula to determine appropriate setback and position of the hazard line.

The position of CHZ1 represents the dominant (i.e. the most landward) natural coastal hazard (i.e. flooding, erosion or instability, whichever being most significant taking precedence) based on a 'planning horizon' of 50 years.

The position of CHZ2 represents the dominant (i.e. the most landward) natural coastal hazard (i.e. flooding, erosion or instability, whichever being most significant taking precedence) based on the same 'planning horizon' (50 years), but takes into account the predicted effects that a 0.5 m sea level rise would have on the position of CHZ1 in terms of enhanced erosion processes or enhanced flooding effects.

## **3. Revised and New Hazard Zones**

Coastal hazard zone assessments were revised during 2002 – 2005 for Rangiputa, Taipa, Coopers Beach and Hihi, with inaugural assessments undertaken for Taupo Bay, Tauranga Bay, Te Ngairi and Cable Bay.

The revised and new coastal hazard assessments were generally undertaken by assessing the erosion and inundation hazards separately for each area, resulting in the delineation of two sets of hazard lines with separate 'planning horizons'.

A set of coastal erosion hazard lines 1 and 2 for years 2050 and 2100 respectively, and a set of coastal flood hazard lines 1 & 2 for years 2005 and 2100 respectively were produced.

In some areas, for example Hihi and Coopers Beach, coastal instability/landslip hazard were also assessed for parts of the coast where cliff or land instability were the predominant natural hazards.

#### 4. Far North District Coastal Hazard Assessment References.

Table 1 provides a summary of the current hazard lines referenced in the FNDP and the revised or new hazard lines.

**Table 1. Coastal hazard lines and report references (refer Appendix 3).**

Location	District Plan Coastal Hazard Lines	NRC Revised or new Coastal Hazard Lines
Omapere-Opononi	Report 1. District Plan Maps 120 to 122.	Refer report 1.
Ahipara	Report 2. Maps 117 to 119.	Refer report 2.
Rangiputa	Report 2. Map 109.	Report 3 & 5.
Tokerau Beach (Whatawhwhi, Aurere)	Report 2. Maps 107, 108, 110, 111 & 112.	Refer report 2.
Taupo Bay	Nil.	Report 3 & 5.
Tauranga Bay	Nil.	Report 3 & 5.
Te Ngaire	Nil.	Report 4 & 5.
Taipa	Report 2. Map 113	Report 3 & 5.
Cable Bay	Nil.	Report 3 & 5.
Coopers Beach (& Mangonui West)	Report 2. Maps 114 & 115.	Report 3.
Hihi	Report 2. Maps 116.	Report 3 & 5.

There are 5 sets of data for Far North which contains coastal hazard zone data as summarised in Table A1.

**Table A1. Coastal hazard assessment reports for the Far North District containing information for coastal hazard lines.**

Report	Coastal Hazard Report	Date, Author
1	Urban Capability Classification and Coastal Hazard Identification Omapere-Opononi Area.	1991, NRC.
2	Coastal Hazard Identification in Former Mangonui County Area.	1991, NRC.
3	Identification of Coastal Hazard Zones at Nine Selected Northland Beaches.	2002, Geomarine Int. Ltd.
4	Identification of Coastal Hazard Zones at Ahipara & Te Ngaire.	2003, NRC
5	Coastal Inundation Hazard Assessment for Selected Far North Settlements.	2005, NRC.

A summary of the content of each report and the applicable method is given for each of the aforementioned reports

## **Report 1**

### **Areas Assessed:**

Omapere-Opononi

### **Methodology:**

- Multi hazard assessment approach, considering erosion, coastal flooding and instability hazards.
- Two hazard lines derived CHZ1 & CHZ2.
- Hazard lines derived from an assessment of coastal geomorphology, rates of historic long-term shoreline change, short term shoreline fluctuations and effects of sea level rise for CHZ2

### **Outputs:**

- Summary of coastal processes.
- CHZ1, position based on the dominant (i.e. the most landward) hazard based on a 50 year horizon.
- CHZ2, position based on the dominant (i.e. the most landward) hazard, and was derived based on a 50 year horizon taking into account the predicted effects of a 0.5 m sea level rise on the position of the CHZ1.

### **Notes:**

- To determine the dominant coastal hazard (i.e. flooding, erosion or instability) the original reports and/or coastal resource maps should be referred to.

## **Report 2**

### **Areas Assessed:**

- Hihi, Coopers Beach, Taipa, Tokerau (incl Parakerake and Waihapurua Stream beaches), Rangiputa and Ahipara.

### **Methodology:**

- Same as for Report 1

### **Outputs:**

- Same as for Report 1.

### **Notes:**

- Same as for Report 1.

## **Report 3 & 4**

### **Areas Assessed:**

- For report 3, Taupo Bay, Tauranga Bay, Hihi, Coopers Beach, Cable Bay, Taipa and Rangiputa.
- For Report 4, Ahipara & Te Ngaire.

### **Methodology:**

- Single hazard assessment approach focused mainly on erosion hazard, with some assessment of coastal flooding (Tauranga Bay) and instability hazards (Coopers Beach, Taupo Bay, Hihi).

- Two hazard lines derived CHZ1 & CHZ2 (some referred to as CLHZ, due to coastal landslide instability hazard) .
- Hazard lines derived from an assessment of coastal geomorphology, rates of historic longterm shoreline change, short term shoreline fluctuations and effects of sea level rise for both CHZ1 & CHZ2

**Outputs:**

- Summary of coastal processes.
- CHZ1 based on a 50 year horizon (i.e. to year 2050).
- CHZ2 based on a 100 year horizon (i.e. to year 2100).

**Notes:**

- To determine the dominant coastal hazard (i.e. flooding, erosion or instability) the original reports and/or coastal resource maps should be referred to, although in most cases the dominant hazard will be erosion.

**Report 5**

**Areas Assessed:**

- Rangiputa, Takerau Beach – North, Cable Bay, Taipa, Hihi, Taupo Bay, Taunaga Bay and Te Ngaire.

**Methodology:**

- Single hazard assessment approach focused on coastal flooding hazard.
- Two hazard lines derived CFHZ2005 & CFHZ2100.
- Hazard lines derived from an estimate of combined effects of storm surge and wave overtopping, taking into account predicted effects of sea level rise for the CFHZ2100.

**Outputs:**

- Summary of coastal processes, plus accurate DTM's and contour data sets derived from photogrammetry.
- CFHZ2005 based on current flooding risk (i.e. as derived for year 2005)
- CFHZ2100 horizon based on a 100 year horizon (i.e. flooding risk at year 2100).