

2 Waipu Cove

Description and geomorphology

Waipu Cove is located at the southern end of Bream Bay, approximately 35 km south of Whangarei. The Waipu Cove site is approximately 2 km long and consists of an open coast sandy beach and dune system.

Waipu Cove has a flat dissipative beach slope comprising fine sand. The beach berm width above high tide varies from approximately 20 m in the south to 10 m in the north. The dunes are well vegetated with spinifex along the majority of the shoreline and the dune crest elevation ranges from RL 3 – 9 m increasing from south to north. Some localised areas of dune blow outs exist near the northern end of the site.

Local considerations

There are no coastal protection structures located along Waipu Cove. Dune restoration has been undertaken along the southern 400 m fronting the Council reserve and surf club, where pedestrian access is most frequent. A boat ramp is situated near the southern end of the site.

The Waipu River entrance is located approximately 3 km north of the site. The river has a southern arm that extends in behind the site. This section of the river is located some 100 m inland of the dune toe at the narrowest point.

Coastal Erosion Hazard Assessment

The site is split into 4 cells based on differences in the dune elevation and long term shoreline movement with the coast in the north experiencing erosion, while in the south the coast is stable to slightly accretionary. All coastal cells are characterised as non-consolidated beach type.

Adopted component values are presented within Table 2-1.

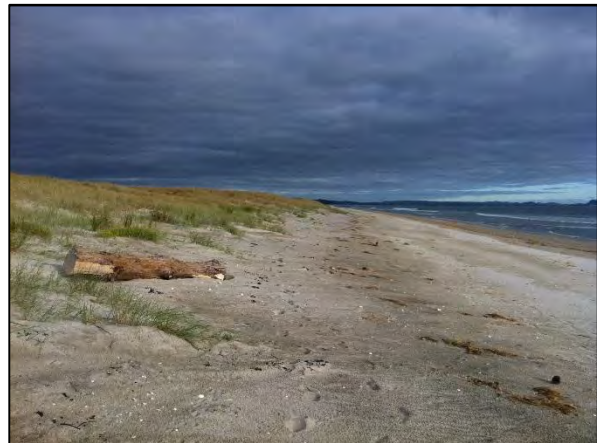
Histograms of individual components and resultant CEHZ distances using a Monte Carlo technique are shown in Figure 2-1 to Figure 2-4.

Coastal Erosion Hazard Zone widths are presented within Table 2-2 and Figure 2-5 and are generally larger in the north, reducing in the south. CEHZ's have been mapped in agreement

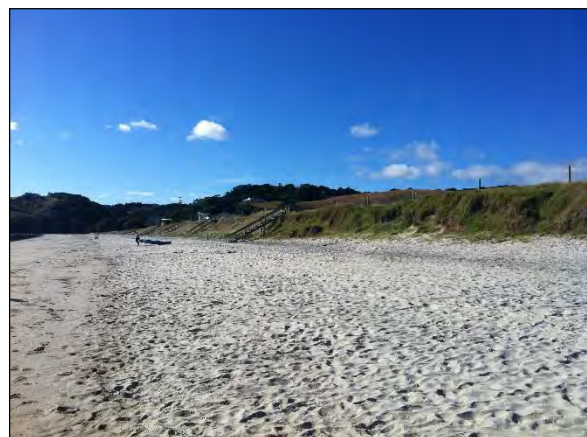
with the calculated values. Figure 2-6 shows the available historic shorelines for Waipu Cove.



Site Photographs A (south)



Site Photographs B (north)



Site Photographs C (dune restoration)

Table 2-1 Component values for Erosion Hazard Assessment

Site		2. Waipu Cove			
Cell		2A	2B	2C	2D
Cell centre (NZTM)	E	1735370	1735370	1735370	1735370
	N	6012543	6012543	6012543	6012543
Chainage, m (from N/W)		0-1200	1200-1700	1700-1930	1930-2120
Morphology		Dune	Dune	Dune	Dune
Short-term (m)	Min	10	10	5	5
	Mode	15	15	10	10
	Max	20	20	15	15
Dune/Cliff elevation (m above toe or scarp)	Min	4.0	5.1	4.5	2.4
	Mode	7.0	6.6	5.8	3.8
	Max	9.1	7.9	7.7	5.0
Stable angle (deg)	Min	30	30	30	30
	Mode	32	32	32	32
	Max	34	34	34	34
Long-term (m) - ve erosion +ve accretion	Min	-0.1	0	0.1	0.2
	Mode	-0.15	-0.05	0	0.1
	Max	-0.25	-0.1	-0.075	-0.05
Closure slope (beaches)	Min	0.058	0.058	0.058	0.058
	Mode	0.026	0.026	0.026	0.026
	Max	0.022	0.022	0.022	0.022
SLR 2065 (m)	Min	0.19	0.19	0.19	0.19
	Mode	0.29	0.29	0.29	0.29
	Max	0.39	0.39	0.39	0.39
SLR 2115 (m)	Min	0.45	0.45	0.45	0.45
	Mode	0.77	0.77	0.77	0.77
	Max	1.1	1.1	1.1	1.1

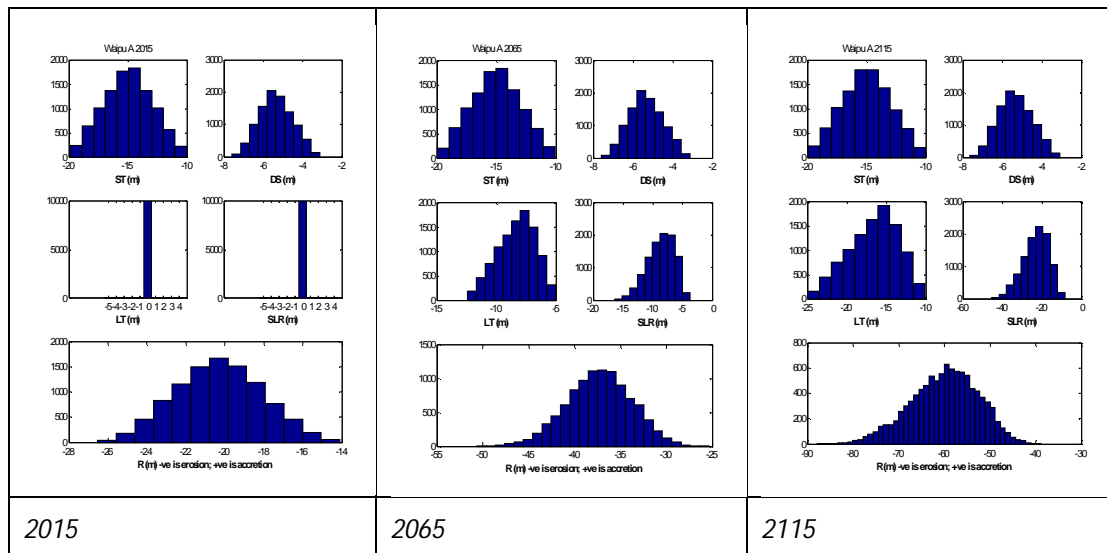


Figure 2-1 Histograms of parameter samples and the resultant shoreline distances for 2015, 2065 and 2115 timeframes for cell 2A

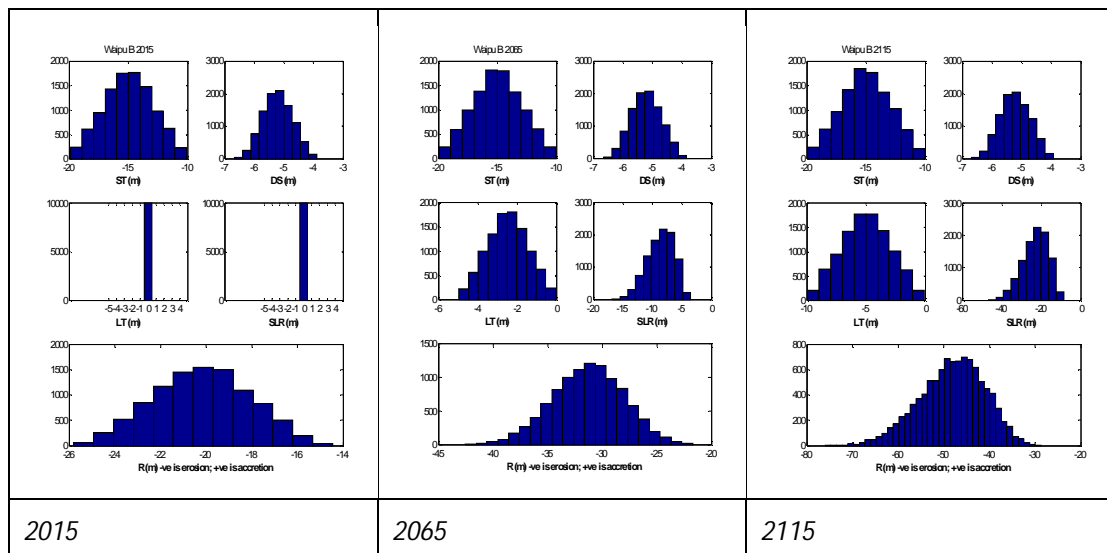


Figure 2-2 Histograms of parameter samples and the resultant shoreline distances for 2015, 2065 and 2115 timeframes for cell 2B

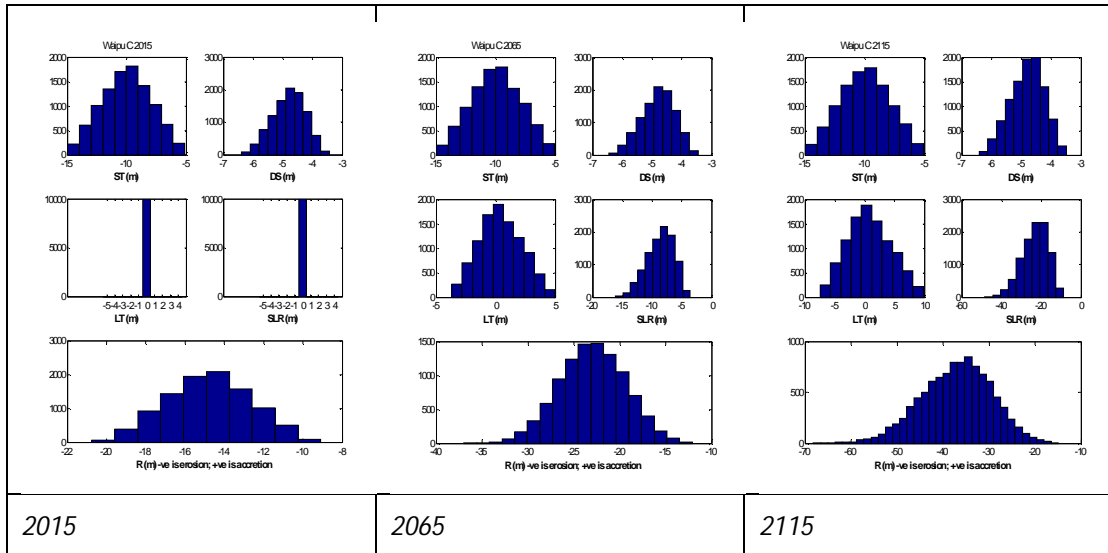


Figure 2-3 Histograms of parameter samples and the resultant shoreline distances for 2015, 2065 and 2115 timeframes for cell 2C

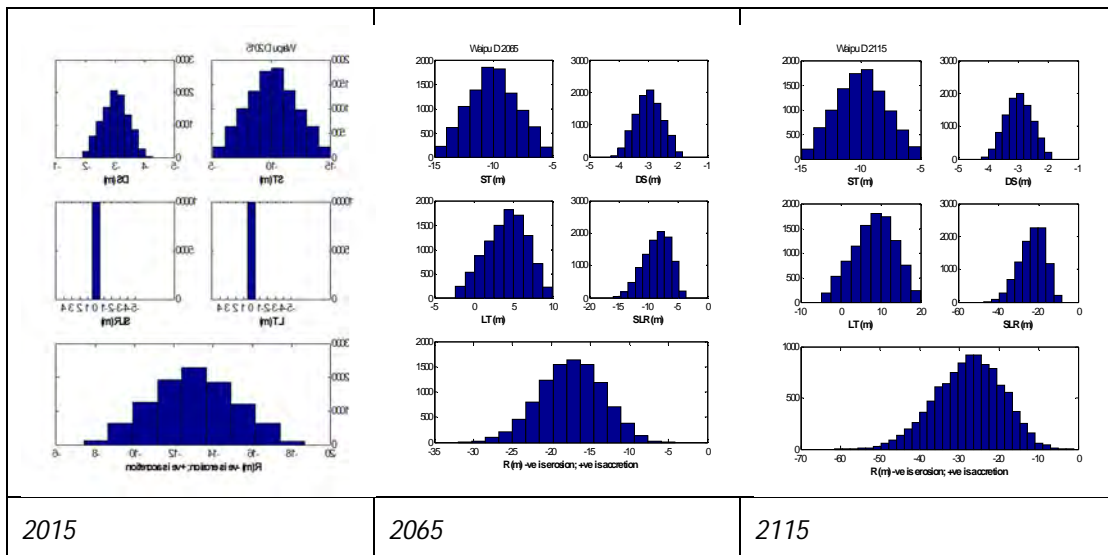


Figure 2-4 Histograms of parameter samples and the resultant shoreline distances for 2015, 2065 and 2115 timeframes for cell 2D

Table 2-2 Coastal Erosion Hazard Zone Widths

Site		2. Waipu Cove												
Cell		2A			2B			2C			2D			
Time		2015	2065	2115	2015	2065	2115	2015	2065	2115	2015	2065	2115	
Probability of CEHZ (m) Exceedance	Min	-14	-26	-36	-14	-21	-27	-9	-12	-16	-7	-5	-1	
	99%	-15	-30	-45	-16	-24	-34	-10	-15	-21	-9	-9	-10	
	95%	-17	-32	-49	-17	-26	-38	-11	-17	-25	-9	-11	-14	
	90%	-17	-33	-51	-17	-27	-39	-12	-18	-27	-10	-12	-17	
	80%	-18	-34	-54	-18	-29	-42	-13	-20	-30	-11	-14	-20	
	70%	-19	-35	-56	-19	-30	-44	-14	-21	-33	-12	-15	-23	
	66%	-19	-36	-56	-19	-30	-45	-14	-21	-33	-12	-16	-24	
	60%	-20	-36	-58	-20	-30	-46	-14	-22	-35	-12	-16	-25	
	50%	-20	-37	-60	-20	-31	-48	-15	-23	-36	-13	-17	-27	
	40%	-21	-38	-62	-21	-32	-49	-15	-24	-38	-14	-18	-29	
	33%	-21	-39	-63	-21	-33	-51	-16	-25	-40	-14	-19	-31	
	30%	-22	-39	-64	-21	-33	-52	-16	-25	-41	-14	-20	-32	
	20%	-22	-40	-66	-22	-34	-54	-17	-26	-43	-15	-21	-35	
	10%	-23	-42	-70	-23	-36	-58	-18	-28	-47	-16	-23	-39	
	5%	-24	-43	-73	-24	-37	-61	-18	-29	-50	-17	-24	-42	
	1%	-25	-46	-79	-25	-39	-66	-19	-31	-56	-17	-27	-48	
	Max	-27	-51	-89	-26	-43	-77	-21	-37	-66	-19	-32	-61	
	CEHZ1		-36			-30			-21			-16		
	CEHZ2		-73			-61			-50			-42		

Path: \\itgroup.local\files\AKLP\Projects\1001049\Working\Material\GIS\FINAL\1001049-000-CEHZ001.mxd Date: 11/10/2017 Time: 11:55:43 AM



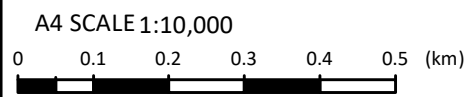
LEGEND

- 2013 - 2014 shoreline
- Erosion Protection Structures
- ↔ Cell Extent

Coastal Erosion Hazard Zone

- CEHZ0 (protected by structure)
- CEHZ1 (2065 CEHZ)
- CEHZ2 (2115 CEHZ)

Notes: Dashed CEHZ indicates greater uncertainty around stream mouths and backshore topography. Northland 0.1m Rural Aerial Photos (2014-2015).



Tonkin+Taylor
 105 Carlton Gore Rd, Newmarket, Auckland
 www.tonkintaylor.co.nz

DRAWN	PPK	Dec.17
CHECKED	TDS	Dec.17
APPROVED	RRH	Dec.17
ARCFILE 1001049-000-CEHZ001.mxd		
SCALE (AT A4 SIZE) 1:10,000		
PROJECT No. 1001049		

NORTHLAND REGIONAL COUNCIL
 Coastal Erosion Hazard Assessment
 Waipu Cove
 Site: 2

FIGURE No. **Figure 2-5**

Rev.	2
------	---



Legend

←→ Cell Extent

Shorelines

- 2014 baseline
- 14/01/2014
- 06/05/1998
- 13/12/1985
- 02/05/1966
- 20/05/1963

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGR, IGN, and the GIS User Community

Path: P:\1001049\WorkingMaterial\GIS\FINAL\HistoricShorelines.mxd Date: 4/10/2017 Time: 3:06:52 PM

Notes: Dashed CEHZ indicates greater uncertainty around stream mouths and backshore topography. Northland 0.1m Rural Aerial Photos (2014-2015).

A4 SCALE 1:10,000

0 0.1 0.2 0.3 0.4 0.5 (km)

Tonkin+Taylor

www.tonkintaylor.co.nz

DRAWN	PPK	Dec.17
CHECKED	TDS	Dec.17
APPROVED	RRH	Dec.17
ARCFIELD HistoricShorelines.mxd		
SCALE (AT A4 SIZE) 1:10,000		
PROJECT No. 1001049		

NORTHLAND REGIONAL COUNCIL

Historic shorelines
Waipu Cove
Site: 2

FIGURE No. **Figure 2-6**

Rev. **2**