

18 Bland Bay

Description and geomorphology

Bland Bay is situated on the eastern shoreline of Whangaruru Peninsula. The site shoreline is approximately 2.2 km long situated between Parerangi reef in the south and an unnamed reef to the north.

The beach comprises fine to medium sand with some shell and pebble component. The beach has a berm width of approximately 5 m above the high tide line along the northern 1 km of the site. The dune system is well developed along the northern 1 km of shoreline, with healthy spinifex vegetation present.

A small stream enters the site shoreline at the northern end, which has a minimal effect on shoreline position. The dune elevation and berm width decreases toward the southern end of the site.

Another small stream is located near the southern end of the site situated adjacent to Waitapu reef. Waitapu reef is located approximately 700 m from the southern end of the site. The beach morphology changes south of this point with a relatively flat backshore area that has a vertical erosion scarp.

The southern 150 m of the site is a cliff shoreline, which is a sedimentary melange formation.

Local considerations

There are no erosion protection structures at this site.

The southern stream meanders along behind the shoreline and the bank edge is approximately 30 m from the dune toe at the narrowest point.

Coastal Erosion Hazard Assessment

The site is split into five cells based on differences in geomorphology, dune height and shoreline movement trends.

Adopted component values are presented within Table 18-1. The beach is relatively exposed to storm waves and short-term erosion values of 5 to 20 m are adopted. The beach is generally accretional at between 0.05 and 0.3 m/year.



Site Photograph A (southern end)



Site Photograph B (centre)



Site Photograph C (northern end)

Histograms of individual components and resultant CEHZ distances using a Monte Carlo technique are shown in Figure 18-1 to figure 18-5.

Coastal Erosion Hazard Zone widths are presented within Table 8-2 and Figure 18-6. CEHZ's have been mapped in agreement with the calculated values.

Note that cell 18A and 18B have experienced accretion since about 1971 over approximately 600 m, with CEHZs offset from the accreted most recent shoreline.

Figure 18-7 shows the available historic shorelines for Bland Bay.

Table 18-1 Component values for Erosion Hazard Assessment

Site		18. Bland Bay				
Cell		18A	18B	18C	18D	18E
Cell centre (NZTM)	E	1722721	1722798	1723139	1723572	1723883
	N	6088544	6088225	6087763	6087570	6087555
Chainage, m (from N/W)		0-300	300-660	660-1510	1510-1750	1750-2190
Morphology		Dune	Dune	Dune	Dune	Melange Formation mudstone
Short-term (m)	Min	5	5	5	5	0
	Mode	15	10	10	15	0
	Max	20	15	15	20	0
Dune/Cliff elevation (m above toe or scarp)	Min	6.6	5.4	3.6	2.9	3.0
	Mode	7.7	6.7	4.6	3.5	3.4
	Max	8.4	8.1	6.3	4.1	3.9
Stable angle (deg)	Min	30	30	30	30	26.6
	Mode	32	32	32	32	30.2
	Max	34	34	34	34	33.7
Long-term (m) -ve erosion +ve accretion	Min	0.3	0.3	0.15	0.05	-0.05
	Mode	0.2	0.2	0.1	0	-0.1
	Max	0.1	0.1	0.05	-0.05	-0.2
Closure slope (beaches)	Min	0.03	0.03	0.03	0.03	0.75
	Mode	0.019	0.019	0.018	0.018	0.5
	Max	0.016	0.016	0.012	0.012	0.25
SLR 2065 (m)	Min	0.19	0.19	0.19	0.19	0.19
	Mode	0.29	0.29	0.29	0.29	0.29
	Max	0.39	0.39	0.39	0.39	0.39
SLR 2115 (m)	Min	0.45	0.45	0.45	0.45	0.45
	Mode	0.77	0.77	0.77	0.77	0.77
	Max	1.1	1.1	1.1	1.1	1.1

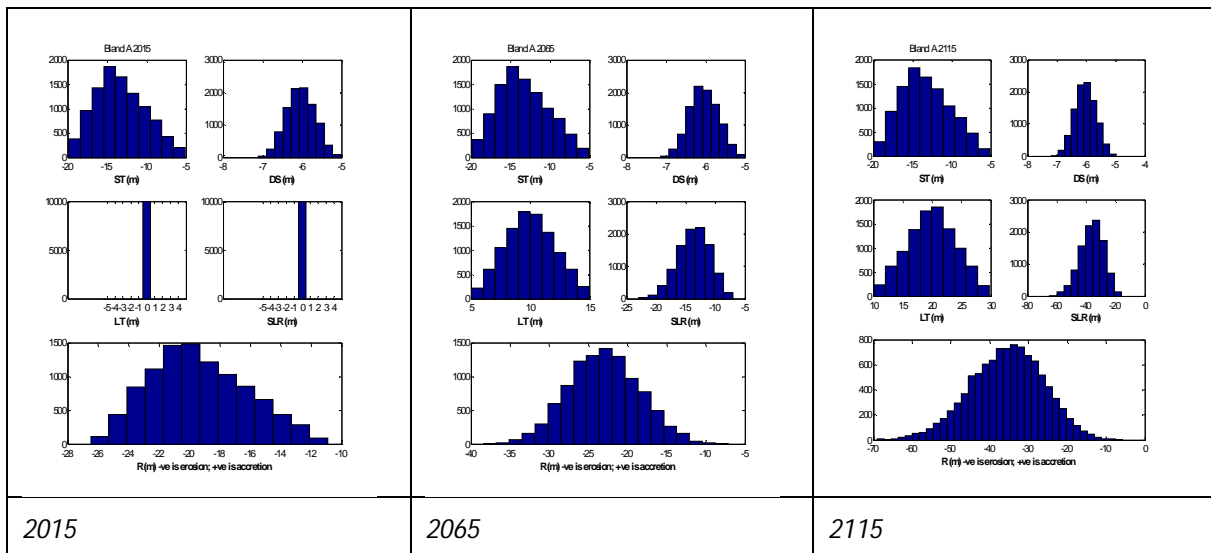


Figure 18-1 Histograms of parameter samples and the resultant shoreline distances for 2015, 2065 and 2115 timeframes for cell 18A

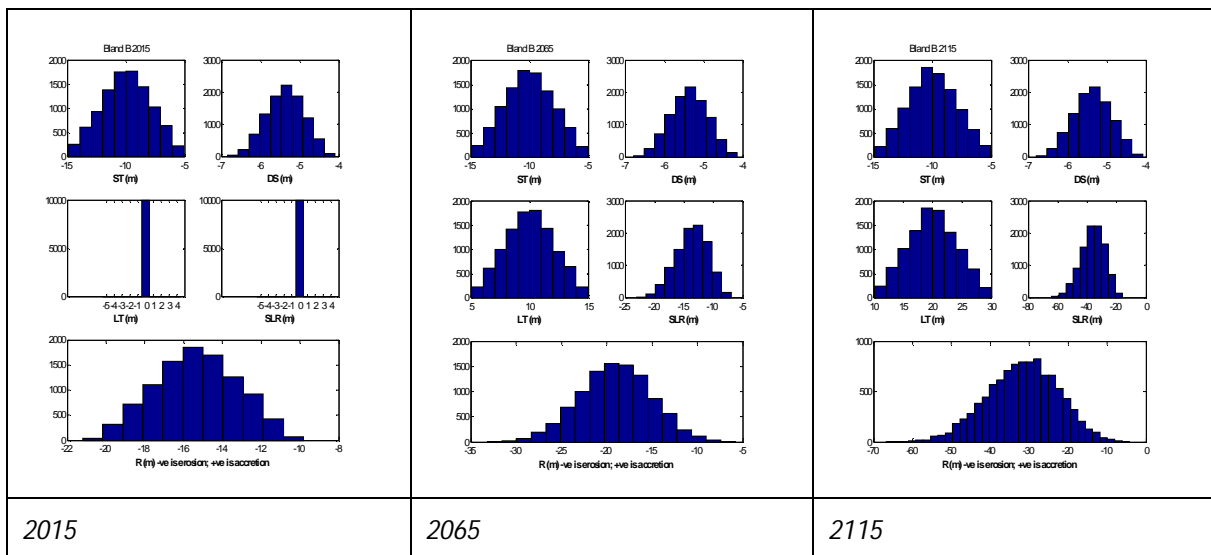


Figure 18-2 Histograms of parameter samples and the resultant shoreline distances for 2015, 2065 and 2115 timeframes for cell 18B

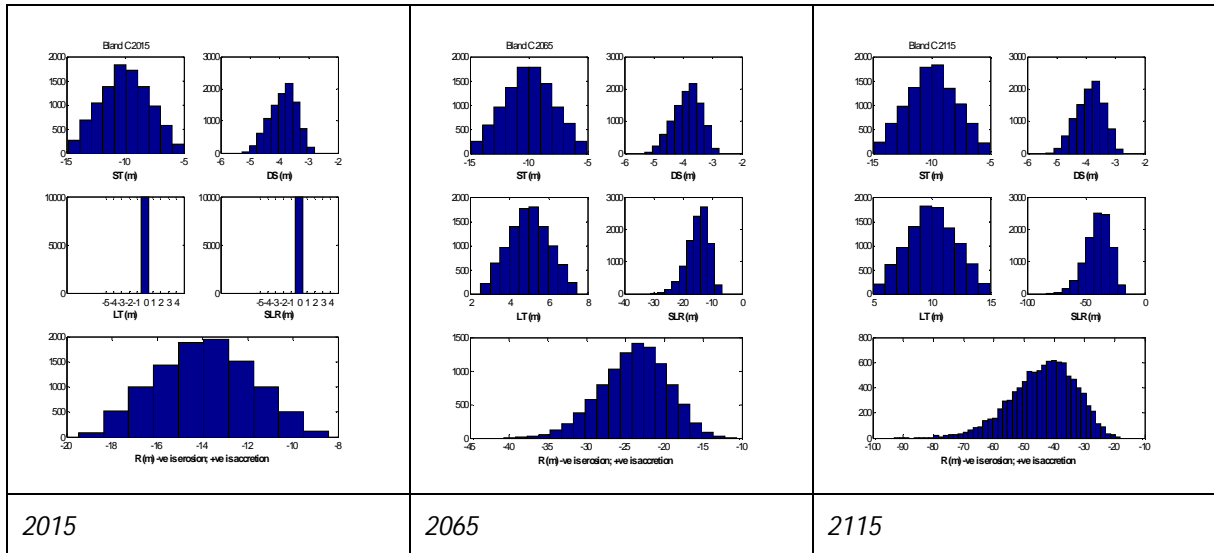


Figure 18-3 Histograms of parameter samples and the resultant shoreline distances for 2015, 2065 and 2115 timeframes for cell 18C

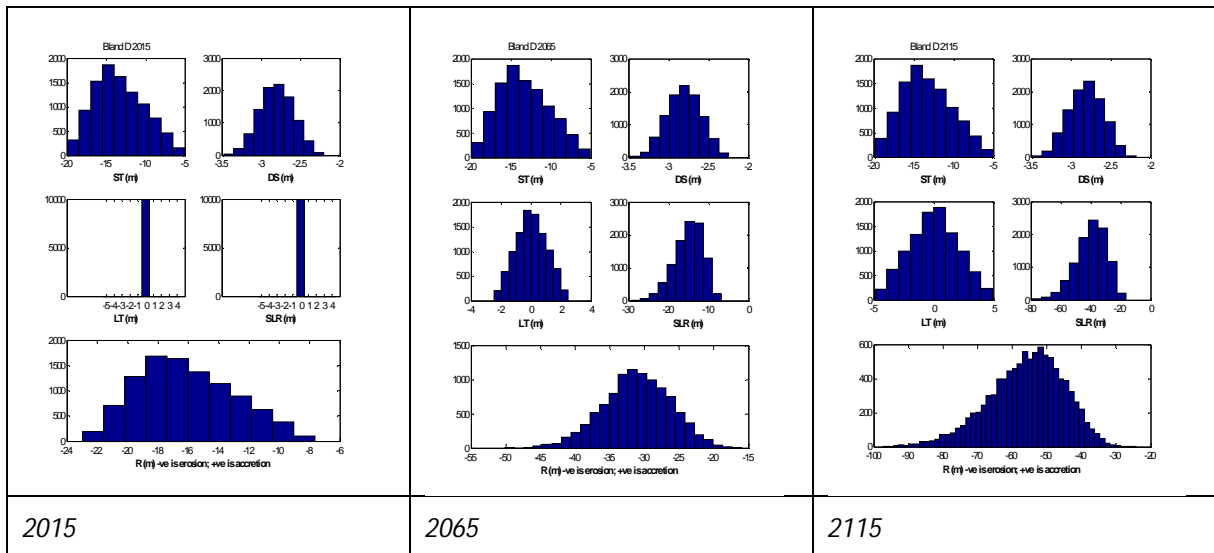


Figure 18-4 Histograms of parameter samples and the resultant shoreline distances for 2015, 2065 and 2115 timeframes for cell 18D

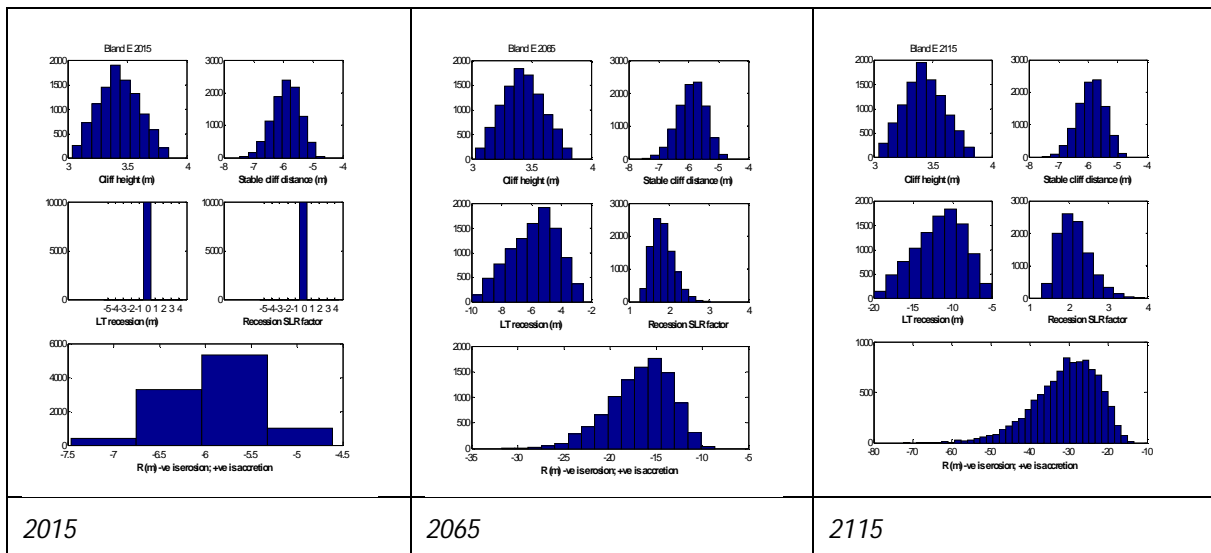


Figure 18-5 Histograms of parameter samples and the resultant shoreline distances for 2015, 2065 and 2115 timeframes for cell 18E

Table 18-2 Coastal Erosion Hazard Zone Widths

Site		18. Bland Bay														
Cell		18A			18B			18C			18D			18E		
Time		2015	2065	2115	2015	2065	2115	2015	2065	2115	2015	2065	2115	2015	2065	2115
Probability of CEHZ (m) Exceedance	Min	-11	-7	-6	-10	-6	-4	-8	-11	-18	-8	-16	-24	-5	-9	-13
	99%	-12	-13	-15	-11	-10	-12	-9	-15	-24	-9	-21	-35	-5	-11	-17
	95%	-14	-15	-21	-12	-13	-17	-10	-17	-28	-11	-23	-40	-5	-12	-20
	90%	-15	-17	-24	-13	-14	-20	-11	-19	-31	-12	-25	-43	-5	-13	-21
	80%	-16	-19	-28	-13	-16	-24	-12	-20	-34	-13	-27	-47	-6	-14	-24
	70%	-18	-21	-30	-14	-17	-27	-13	-21	-37	-14	-28	-50	-6	-15	-26
	66%	-18	-21	-31	-14	-17	-28	-13	-22	-38	-15	-29	-51	-6	-15	-27
	60%	-19	-22	-33	-15	-18	-29	-13	-23	-40	-16	-30	-52	-6	-15	-28
	50%	-20	-23	-35	-15	-19	-31	-14	-24	-43	-16	-31	-55	-6	-16	-30
	40%	-20	-24	-38	-16	-20	-34	-14	-25	-46	-17	-32	-58	-6	-17	-32
	33%	-21	-25	-39	-16	-21	-36	-15	-26	-48	-18	-33	-60	-6	-18	-34
	30%	-21	-26	-41	-16	-21	-36	-15	-26	-49	-18	-33	-61	-6	-18	-34
	20%	-22	-27	-44	-17	-22	-40	-16	-27	-53	-19	-35	-65	-6	-20	-38
	10%	-23	-29	-48	-18	-24	-44	-17	-30	-58	-20	-37	-71	-7	-21	-42
	5%	-24	-30	-52	-19	-26	-47	-17	-31	-63	-21	-39	-75	-7	-23	-46
	1%	-25	-33	-59	-20	-28	-54	-18	-35	-73	-22	-43	-85	-7	-26	-54
	Max	-26	-38	-69	-21	-33	-67	-19	-41	-93	-23	-50	-97	-7	-32	-72
	CEHZ1		-21			-17			-22			-29			-15	
CEHZ2		-52			-47			-63			-75			-46		

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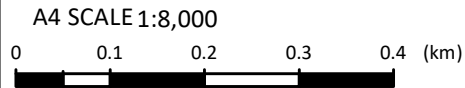
LEGEND

- 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	DKR	Dec.17
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SCALE (AT A4 SIZE) 1:8,000		
PROJECT No. 1001049		

NORTHLAND REGIONAL COUNCIL
 Coastal Erosion Hazard Assessment
 Bland Bay
 Site: 18

FIGURE No. Figure 18-6

Rev. 2



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

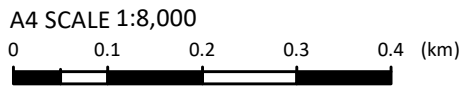
Legend

↔ Cell Extent

Shorelines

- 2014 baseline
- 14/01/2014
- 09/12/2005
- 13/12/1985
- 23/08/1971
- 10/06/1968
- 02/05/1966
- 13/09/1955

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



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CHECKED	TDS	Dec.17
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ARCFIELD HistoricShorelines.mxd		
SCALE (AT A4 SIZE) 1:8,000		
PROJECT No. 1001049		

NORTHLAND REGIONAL COUNCIL
Historic shorelines
Bland Bay
Site: 18

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