

26 Cable Bay

Description and geomorphology

Cable Bay is located at the southern end of Doubtless Bay, approximately 23 km east of Kaitia.

The site is approximately 1 km long north facing embayment situated between Te Kuihi Point in the west and a rock reef in the east. The rock headland and reef are relatively erosion resistant basalt marine lavas known as Tangihua Volcanics. An area of basalt nearshore reef also exists near the western end of the site.

Opoi Stream mouth is located approximately 200 m from the eastern extent of the site and has a localised effect on the shoreline position. The stream meanders east along the backshore for approximately 80 m forming a small lagoon before cutting through the beach. There is erosion along the backshore edge of the stream.

The site morphology changes at the location of the nearshore reef situated approximately 200 m west of the Opoi Stream mouth (cell 26D). The backshore rises in elevation up to RL 8 m and comprises weakly consolidated colluvium material. The basalt reef extends through the beach up to the backshore area under the colluvium material. The rock reef has a width of approximately 200 m (Photograph C).

The shoreline west of the rock reef comprises relatively low lying unconsolidated beach sand, which extends to Owhetu Stream. Owhetu Stream mouth is located at the western end of the site and has formed a relatively wide intertidal area.

The site has a relatively steep sandy beach comprising medium to coarse sand with a shell component. The beach has a berm width of approximately 5 – 15 m above the high tide line. The berm width is widest at the eastern end.

Local considerations

There is an erosion protection structure located on the western bank of Owhetu Stream. The structure is a rock revetment which is fronting a private dwelling. There are two streams that enter the site and influence the shoreline



Site Photograph A (looking east)



Site Photograph B (Opoi Stream mouth)



Site Photograph C (reef at western end)

position. There is a greater level of uncertainty in these areas because fluvial processes also effect shoreline movement. The resulting hazard zones are dashed in these areas to reflect this uncertainty.

Coastal Erosion Hazard Assessment

The site is split into six cells based on differences in geomorphology, exposure and dune height. Adopted component values are presented within Table 26-1.

Histograms of individual components and resultant CEHZ distances using a Monte Carlo technique are shown in Figure 26-1 to figure 26-4.

Coastal Erosion Hazard Zone widths are presented within Table 26-2 and Figure 26-5.

CEHZ's have been mapped in agreement with the calculated values, although lines have been dashed around stream entrances to reflect the increased uncertainty due to fluvial processes.

Figure 26-6 shows the available historic shorelines for Cable Bay.

Table 26-1 Component values for Erosion Hazard Assessment

Site		26. Cable Bay					
Cell		26A	26B	26C	26D	26E	26F
Cell centre (NZTM)	E	1643637	1643669	1643755	1643955	1644158	1644339
	N	6127945	6127954	6128043	6127957	6127912	6127888
Chainage, m (from N/W)		0-95	95-220	220-340	340-600	600-760	760-980
Morphology		Dune	Dune	Dune	Weakly consolidated colluvium	Dune	Dune
Short-term (m)	Min	5	5	5	0	10	10
	Mode	10	10	10	0	15	15
	Max	15	15	15	0	20	20
Dune/Cliff elevation (m above toe or scarp)	Min	1.0	1.1	1.8	5.2	3.6	2.6
	Mode	1.1	1.7	3.4	6.7	4.6	3.2
	Max	1.2	3.6	4.4	7.5	6.0	4.6
Stable angle (deg)	Min	30	30	30	26.6	30	30
	Mode	32	32	32	30.2	32	32
	Max	34	34	34	33.7	34	34
Long-term (m) -ve erosion +ve accretion	Min	0.1	0.1	0	-0.02	0.05	-0.05
	Mode	0	0	-0.05	-0.05	0	-0.1
	Max	-0.05	-0.05	-0.1	-0.07	-0.05	-0.15
Closure slope (beaches)	Min	0.05	0.05	0.05	0.75	0.05	0.05
	Mode	0.047	0.047	0.047	0.5	0.045	0.045
	Max	0.026	0.026	0.026	0.25	0.025	0.025
SLR 2065 (m)	Min	0.19	0.19	0.19	0.19	0.19	0.19
	Mode	0.29	0.29	0.29	0.29	0.29	0.29
	Max	0.39	0.39	0.39	0.39	0.39	0.39
SLR 2115 (m)	Min	0.45	0.45	0.45	0.45	0.45	0.45
	Mode	0.77	0.77	0.77	0.77	0.77	0.77
	Max	1.1	1.1	1.1	1.1	1.1	1.1

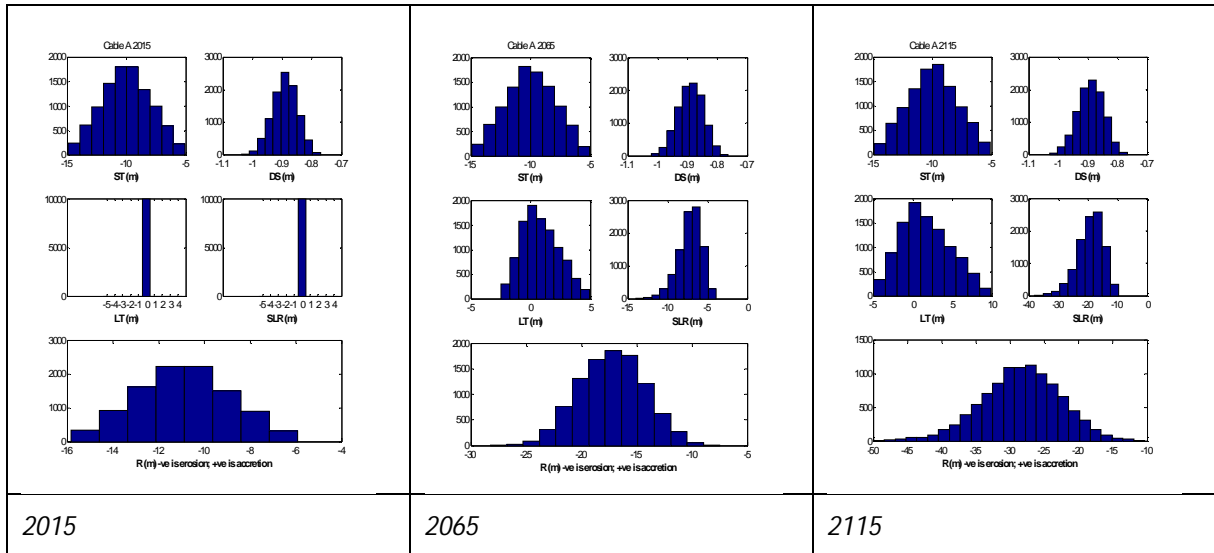


Figure 26-1 Histograms of parameter samples and the resultant shoreline distances for 2015, 2065 and 2115 timeframes for cell 26A

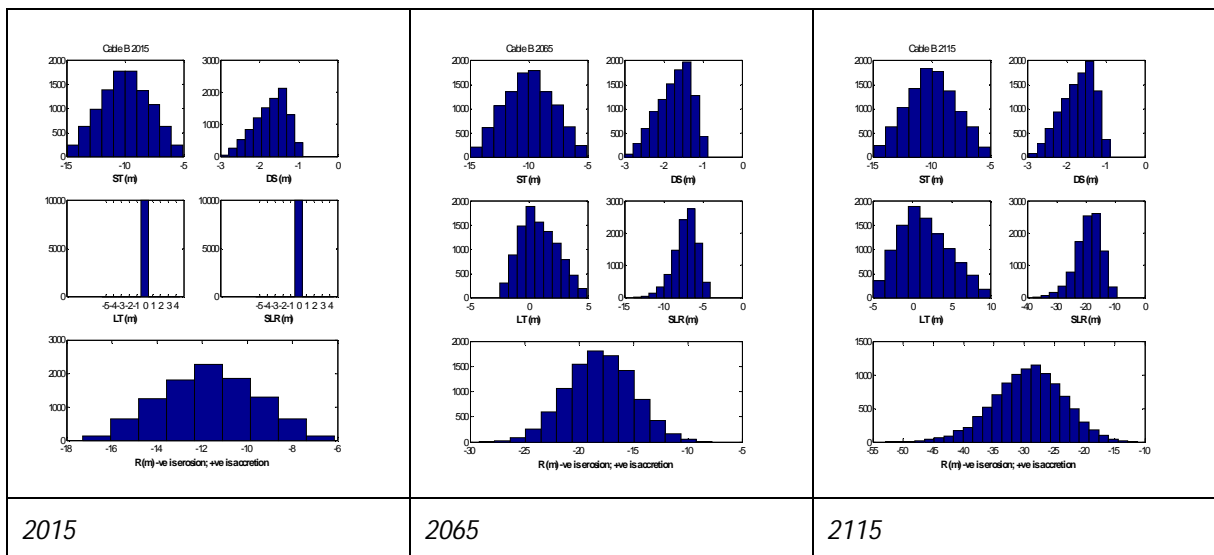


Figure 26-2 Histograms of parameter samples and the resultant shoreline distances for 2015, 2065 and 2115 timeframes for cell 26B

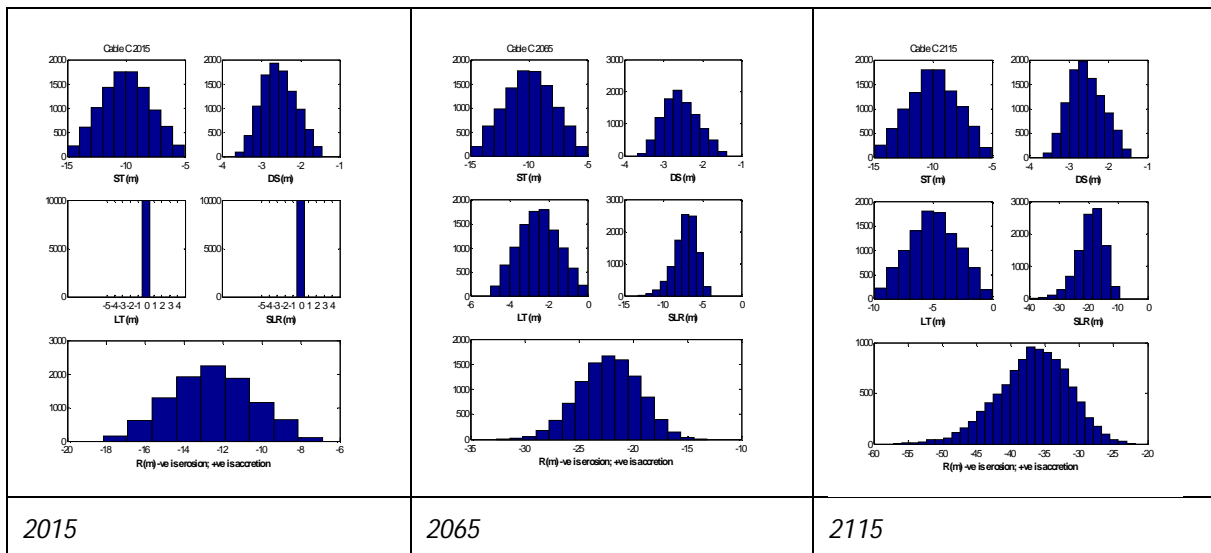


Figure 26-3 Histograms of parameter samples and the resultant shoreline distances for 2015, 2065 and 2115 timeframes for cell 26C

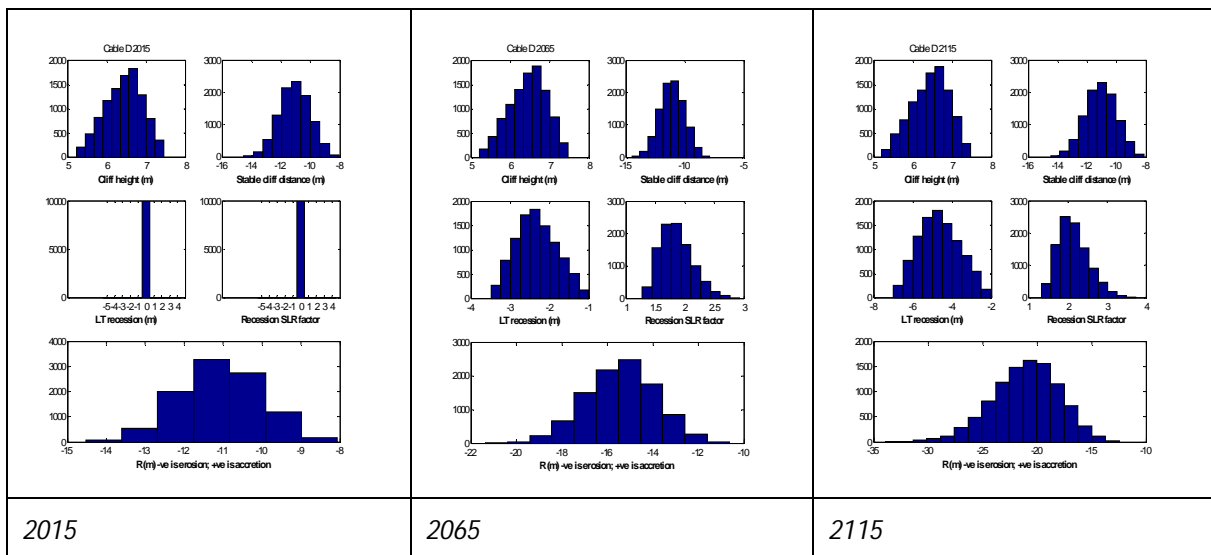


Figure 26-4 Histograms of parameter samples and the resultant shoreline distances for 2015, 2065 and 2115 timeframes for cell 26D

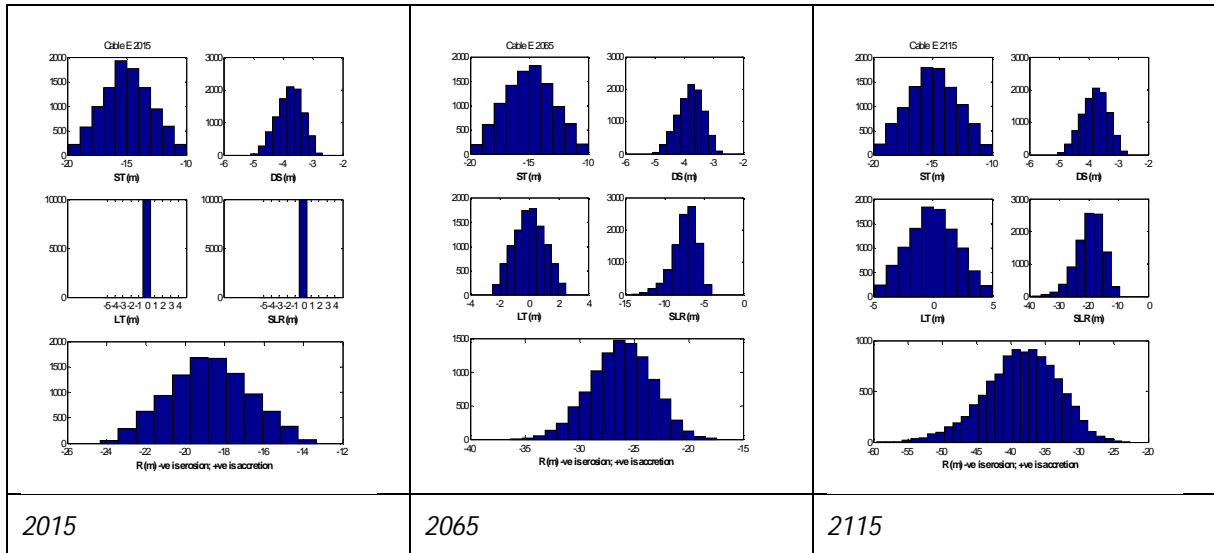


Figure 26-5 Histograms of parameter samples and the resultant shoreline distances for 2015, 2065 and 2115 timeframes for cell 26E

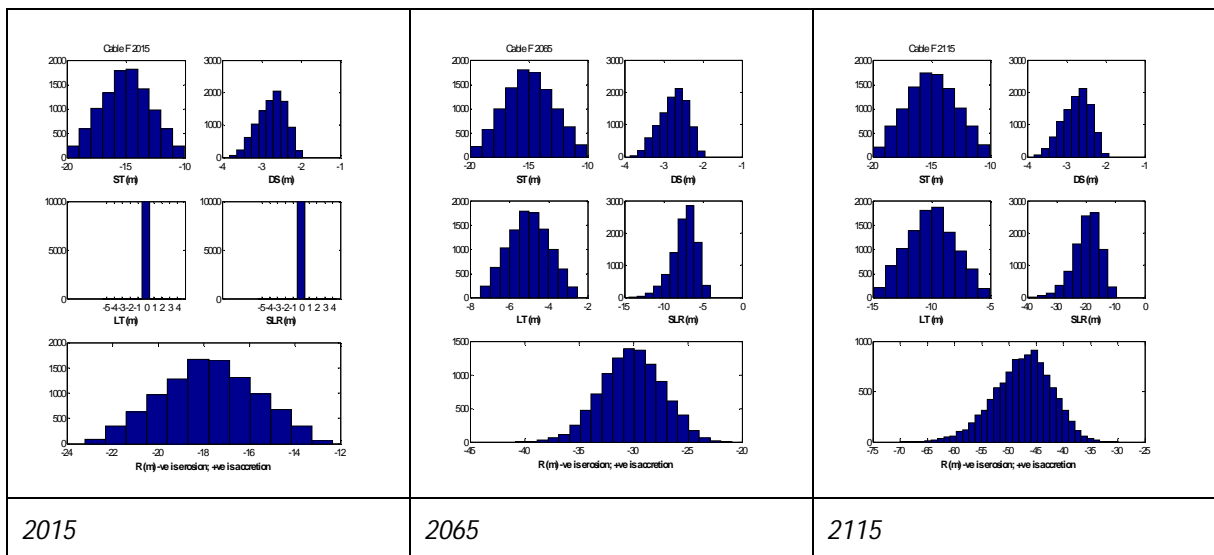


Figure 26-6 Histograms of parameter samples and the resultant shoreline distances for 2015, 2065 and 2115 timeframes for cell 26F

Table 26-2 Coastal Erosion Hazard Zone Widths

Site		26. Cable Bay								
Cell		26A			26B			26C		
Time		2015	2065	2115	2015	2065	2115	2015	2065	2115
Probability of CEHZ (m) Exceedance	Min	-6	-7	-10	-6	-8	-11	-7	-13	-22
	99%	-7	-11	-16	-7	-11	-17	-8	-16	-26
	95%	-7	-12	-19	-8	-13	-20	-9	-18	-29
	90%	-8	-13	-21	-9	-14	-22	-10	-19	-30
	80%	-9	-15	-24	-10	-15	-24	-11	-20	-32
	70%	-10	-16	-25	-11	-16	-26	-11	-21	-34
	66%	-10	-16	-26	-11	-17	-27	-12	-21	-34
	60%	-10	-16	-27	-11	-17	-28	-12	-21	-35
	50%	-11	-17	-28	-12	-18	-29	-13	-22	-36
	40%	-11	-18	-30	-12	-19	-31	-13	-23	-38
	33%	-12	-19	-31	-13	-19	-32	-14	-23	-39
	30%	-12	-19	-31	-13	-20	-32	-14	-24	-39
	20%	-13	-20	-33	-14	-21	-34	-14	-25	-41
	10%	-14	-21	-36	-15	-22	-37	-15	-26	-44
	5%	-14	-22	-38	-15	-23	-39	-16	-27	-46
	1%	-15	-24	-43	-16	-25	-44	-17	-29	-51
	Max	-16	-28	-50	-17	-29	-53	-18	-33	-57
	CEHZ1		-16			-17			-21	
CEHZ2		-38			-39			-46		

Site		26. Cable Bay								
Cell		26D			26E			26F		
Time		2015	2065	2115	2015	2065	2115	2015	2065	2115
Probability of CEHZ (m) Exceedance	Min	-8	-11	-12	-13	-17	-23	-12	-21	-30
	99%	-9	-12	-15	-14	-20	-28	-13	-24	-37
	95%	-9	-13	-16	-15	-22	-30	-14	-26	-39
	90%	-10	-13	-17	-16	-23	-32	-15	-27	-41
	80%	-10	-14	-18	-17	-24	-34	-16	-28	-43
	70%	-11	-15	-19	-18	-25	-36	-17	-29	-45
	66%	-11	-15	-20	-18	-25	-36	-17	-29	-45
	60%	-11	-15	-20	-18	-25	-37	-17	-29	-46
	50%	-11	-15	-21	-19	-26	-38	-18	-30	-47
	40%	-11	-16	-22	-19	-27	-40	-18	-31	-49
	33%	-12	-16	-22	-20	-27	-41	-19	-31	-49
	30%	-12	-16	-23	-20	-28	-41	-19	-32	-50
	20%	-12	-17	-24	-21	-29	-43	-20	-33	-52
	10%	-12	-17	-25	-22	-30	-46	-21	-34	-55
	5%	-13	-18	-26	-22	-31	-48	-21	-35	-57
	1%	-14	-19	-29	-23	-33	-53	-22	-37	-62
	Max	-15	-21	-34	-24	-36	-59	-23	-41	-70
	CEHZ1	-15			-25			-29		
CEHZ2	-26			-48			-57			

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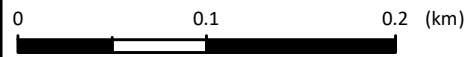
- 2013 - 2014 shoreline
- Erosion Protection Structures
- ↔ Cell Extent

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).

A4 SCALE 1:4,000



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ARCFILE 1001049-000-CEHZ001.mxd		
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NORTHLAND REGIONAL COUNCIL

Coastal Erosion Hazard Assessment

Cable Bay

Site: 26

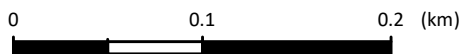
FIGURE No. Figure 26-7

Rev. 2



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

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ARCFIELD HistoricShorelines.mxd		
SCALE (AT A4 SIZE) 1:4,000		
PROJECT No. 1001049		

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Historic shorelines

Cable Bay

Site: 26

FIGURE No. Figure 26-8

Rev. 2