

22 Tauranga Bay

Description and geomorphology

Tauranga Bay is located on the east coast of Northland, approximately 30 km north of Kerikeri. The north-west facing shoreline is approximately 0.8 km long and is situated between Te Kahikatoa Point in the south and Te Ania Point in the north.

The site has a sandy beach comprising medium to coarse sand. The beach has a berm width of approximately 15–20 m above the high tide line.

The dune is well vegetated at the eastern end with spinifex. The dune vegetation is sparse over the eastern half of the site. The dune heights range from approximately RL 4 to 7 m along the site. A campground exists at the site which is well set back from the dune toe.

The Tauranga Stream mouth is located at the eastern end of the site. A relatively large intertidal spit has formed at this end of the beach, which forces the stream flow north along the base of Te Ania Point. Some erosion is evident on the inside of the spit shoreline.

Local considerations

There are no erosion protection structures at this site. The topography rises up to the southern headland of Te Kahikatoa Point, which comprises of volcanic breccia.

Coastal Erosion Hazard Assessment

The site is split into four cells based on differences in dune height and geomorphology. All cells are characterised as nonconsolidated beach type.

Adopted component values are presented within Table 22-1. Long-term trends range from slight accretion within the small bay to the west, to erosional at the eastern end of Tauranga Bay.

Histograms of individual components and resultant CEHZ distances using a Monte Carlo technique are shown in Figure 22-1 to figure 22-4.

Coastal Erosion Hazard Zone widths are presented within Table 22-2 and Figure 22-5. CEHZ1 values range from 16 to 32 m, increasing to the east and CEHZ2 values range from 37 to



Site Photograph A (west)



Site Photograph B (spit)



Site Photograph C (east)

65 m. CEHZ's have been mapped in agreement with the calculated values, although have been truncated at the distal tip of the sand spit. Note that cell 2AA has experienced accretion since about 1948 along approximately 150 m, with

CEHZs offset from the accreted most recent shoreline.

Figure 22-6 shows the available historic shorelines for Tauranga Bay.

Table 22-1 Component values for Erosion Hazard Assessment

Site		22. Tauranga Beach			
Cell		22A	22AA	22B	22C
Cell centre (NZTM)	E	1671392	1671392	1671633	1671767
	N	6125963	6125963	6126093	6126218
Chainage, m (from N/W)		0-120	120-300	300-600	600-800
Morphology		Dune	Dune	Dune	Dune
Short-term (m)	Min	5	5	5	10
	Mode	10	10	10	15
	Max	15	15	15	20
Dune/Cliff elevation (m above toe or scarp)	Min	4.4	4.4	5.7	6.0
	Mode	5.2	5.2	6.2	6.1
	Max	5.8	5.8	6.6	6.3
Stable angle (deg)	Min	30	30	30	30
	Mode	32	32	32	32
	Max	34	34	34	34
Long-term (m) erosion +ve accretion -ve	Min	0.1	0.05	-0.05	-0.1
	Mode	0.05	0	-0.1	-0.15
	Max	0	-0.05	-0.15	-0.2
Closure slope (beaches)	Min	0.075	0.075	0.075	0.075
	Mode	0.052	0.052	0.051	0.051
	Max	0.021	0.021	0.018	0.018
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

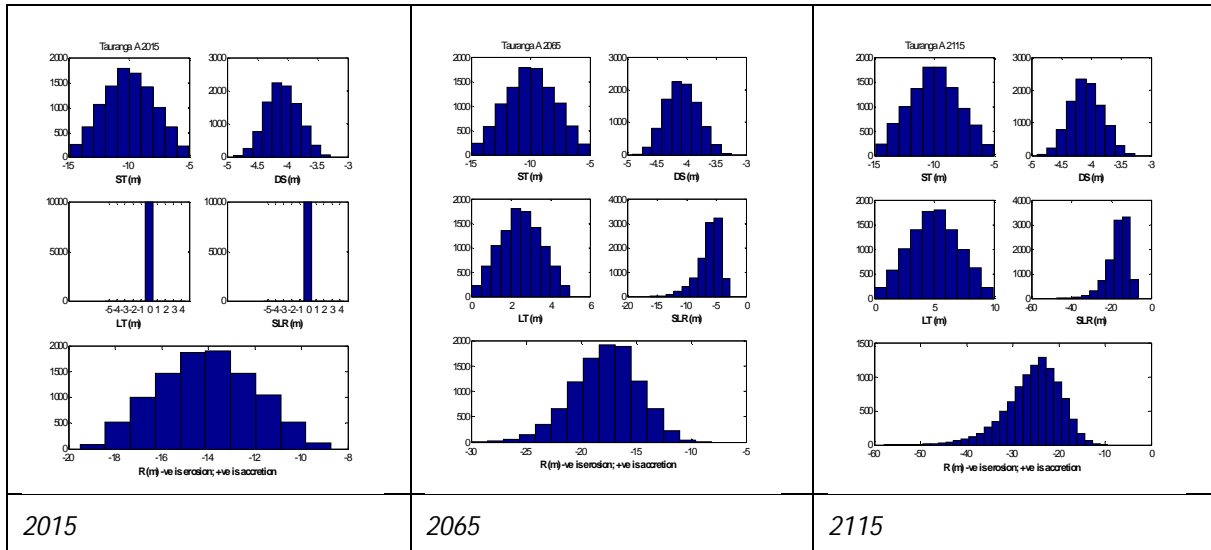


Figure 22-1 Histograms of parameter samples and the resultant shoreline distances for 2015, 2065 and 2115 timeframes for cell 22A

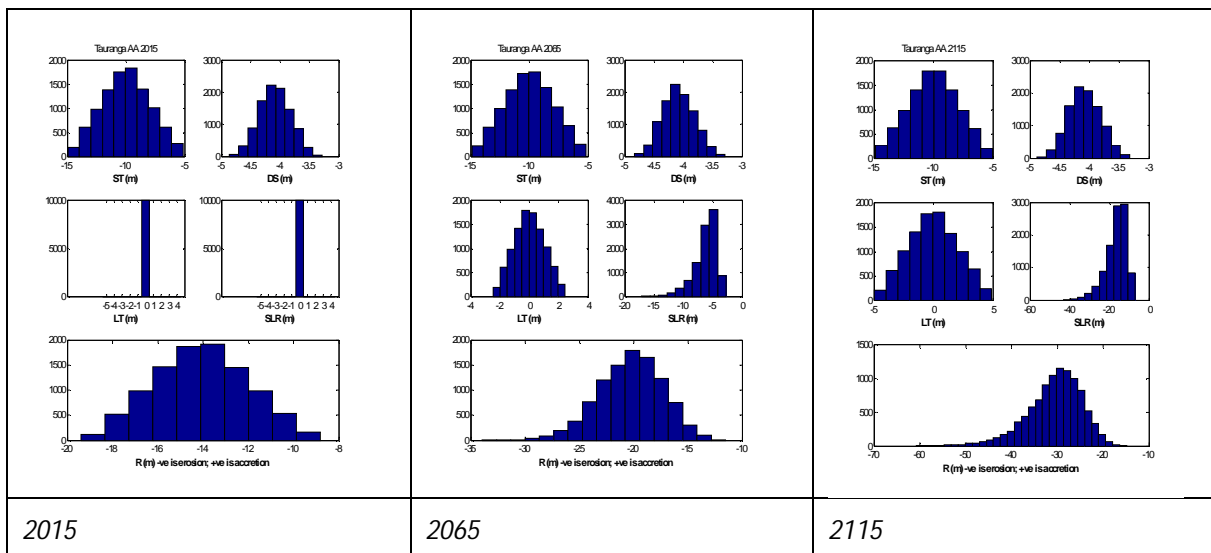


Figure 22-2 Histograms of parameter samples and the resultant shoreline distances for 2015, 2065 and 2115 timeframes for cell 22AA

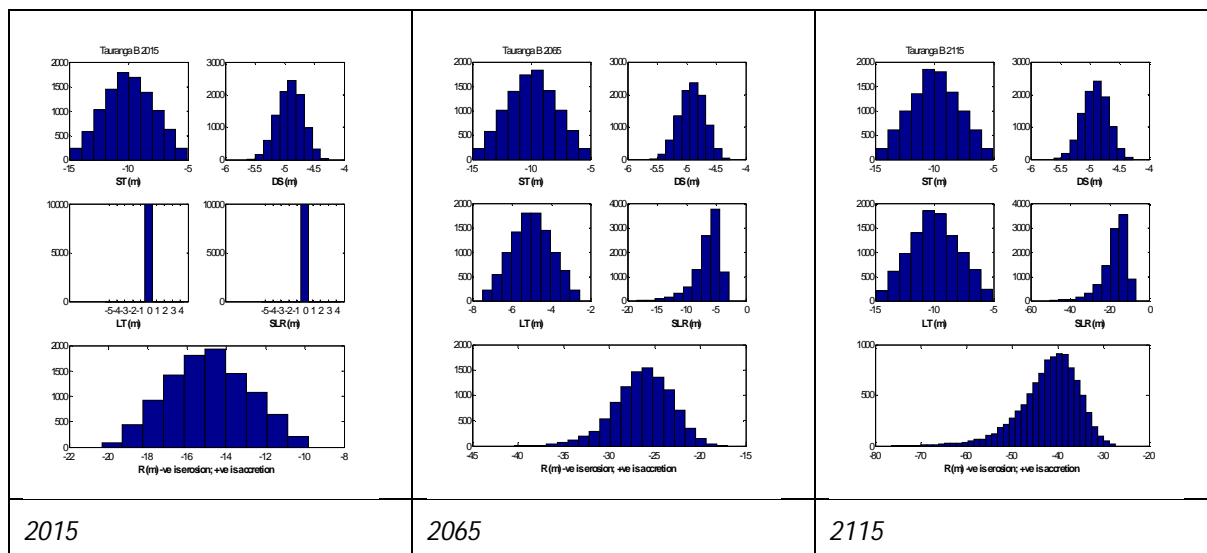


Figure 22-3 Histograms of parameter samples and the resultant shoreline distances for 2015, 2065 and 2115 timeframes for cell 22B

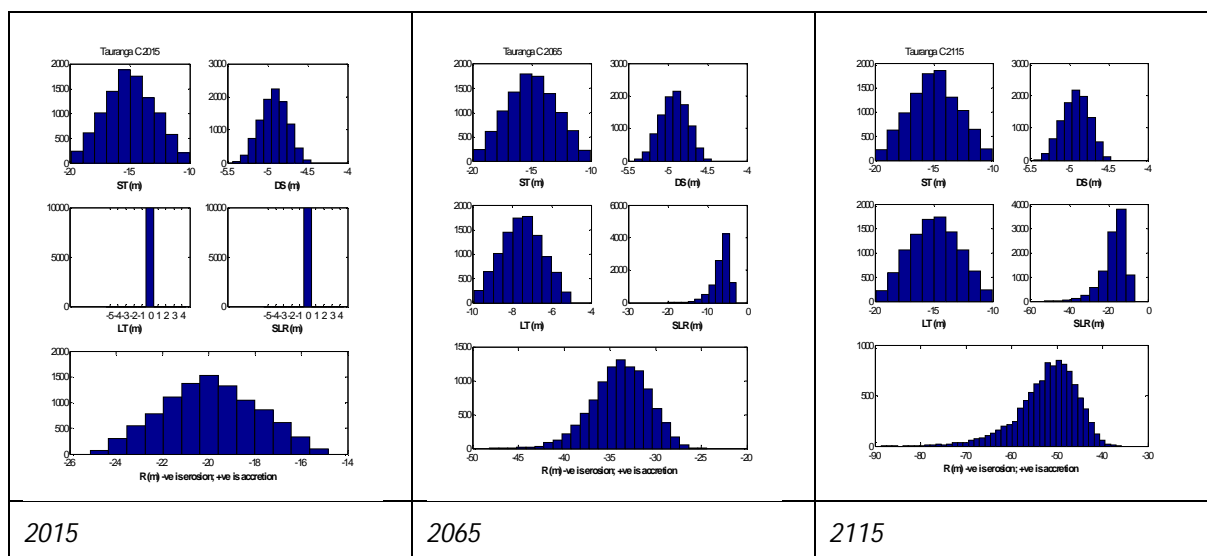


Figure 22-4 Histograms of parameter samples and the resultant shoreline distances for 2015, 2065 and 2115 timeframes for cell 22C

Table 22-2 Coastal Erosion Hazard Zone Widths

Site		22. Tauranga Beach											
Cell		22A			22AA			22B			22C		
Time		2015	2065	2115	2015	2065	2115	2015	2065	2115	2015	2065	2115
Probability of CEHZ (m) Exceedance	Min	-9	-8	-9	-9	-12	-15	-10	-17	-27	-15	-24	-36
	99%	-10	-12	-15	-10	-14	-20	-11	-20	-31	-16	-28	-41
	95%	-11	-13	-17	-11	-16	-22	-11	-22	-33	-17	-29	-43
	90%	-11	-14	-19	-11	-17	-24	-12	-23	-35	-17	-30	-45
	80%	-12	-15	-21	-12	-18	-26	-13	-24	-37	-18	-31	-47
	70%	-13	-16	-22	-13	-19	-27	-14	-25	-38	-19	-32	-48
	66%	-13	-16	-23	-13	-19	-28	-14	-25	-39	-19	-32	-49
	60%	-14	-17	-24	-14	-19	-29	-14	-25	-40	-19	-33	-50
	50%	-14	-18	-25	-14	-20	-30	-15	-26	-41	-20	-34	-51
	40%	-15	-18	-26	-15	-21	-31	-15	-27	-43	-20	-35	-53
	33%	-15	-19	-27	-15	-21	-32	-16	-27	-44	-21	-35	-54
	30%	-15	-19	-28	-15	-22	-33	-16	-28	-44	-21	-35	-55
	20%	-16	-20	-30	-16	-23	-35	-17	-29	-47	-22	-36	-57
	10%	-17	-22	-33	-17	-24	-39	-18	-30	-51	-23	-38	-61
	5%	-18	-23	-37	-17	-25	-42	-18	-32	-54	-23	-39	-65
	1%	-18	-25	-44	-18	-28	-49	-19	-35	-63	-24	-42	-73
	Max	-20	-30	-58	-19	-34	-61	-20	-40	-76	-25	-48	-89
	CEHZ1	-16			-19			-25			-32		
	CEHZ2	-37			-42			-54			-65		



LEGEND

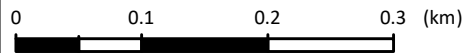
- 2013 - 2014 shoreline
- Erosion Protection Structures
- ↔ Cell Extent

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).

A4 SCALE 1:6,000



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Coastal Erosion Hazard Assessment
Tauranga Bay
Site: 22

FIGURE No. Figure 22-5

Rev. 2

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Legend

↔ Cell Extent

Shorelines

- 2014 baseline
- 14/01/2014
- 04/03/2000
- 28/10/1981
- 02/05/1966
- 12/05/1961
- 09/04/1948

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

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0 0.1 0.2 0.3 (km)

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ARCFIELD HistoricShorelines.mxd		
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Historic shorelines
Tauranga Bay
Site: 22

FIGURE No. Figure 22-6

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