

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 to 22-4 and Figure 22-5. CEHZ1 values range from 17 to 35 m, increasing to the east, CEHZ2 values range from

38 to 68 m, and CEHZ3 values range from 48 to 80 m.



Site Photograph A (west)



Site Photograph B (spit)



Site Photograph C (east)

CEHZs 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 2080 (m)	RCP 2.6	0.16	0.16	0.16	0.16
	RCP 4.5	0.21	0.21	0.21	0.21
	RCP 8.5M	0.33	0.33	0.33	0.33
	RCP 8.5H+	0.51	0.51	0.51	0.51
SLR 2130 (m)	RCP 2.6	0.28	0.28	0.28	0.28
	RCP 4.5	0.42	0.42	0.42	0.42
	RCP 8.5M	0.85	0.85	0.85	0.85
	RCP 8.5H+	1.17	1.17	1.17	1.17

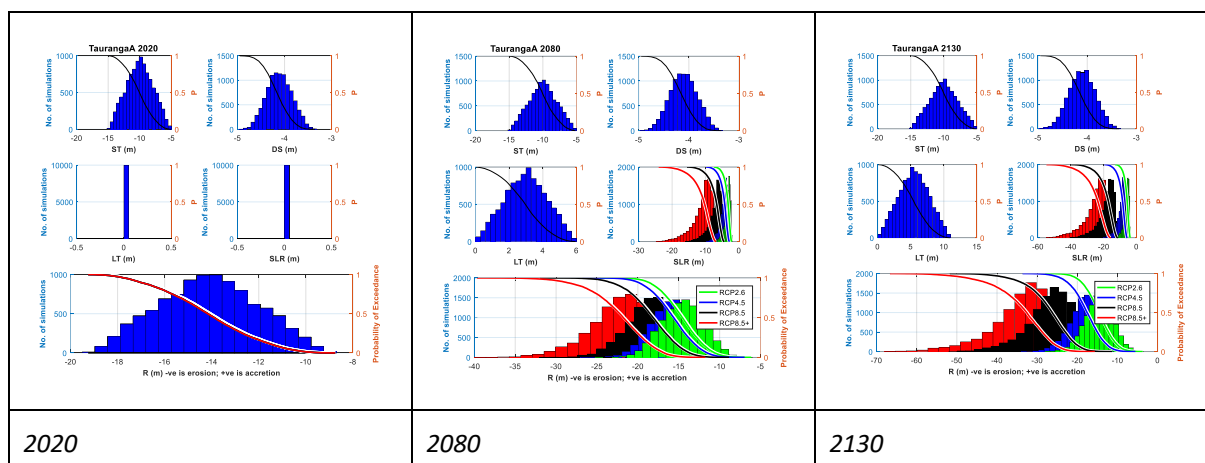


Figure 22-1 Histograms of parameter samples and the resultant shoreline distances for 2020, 2080 and 2130 timeframes for cell 22A

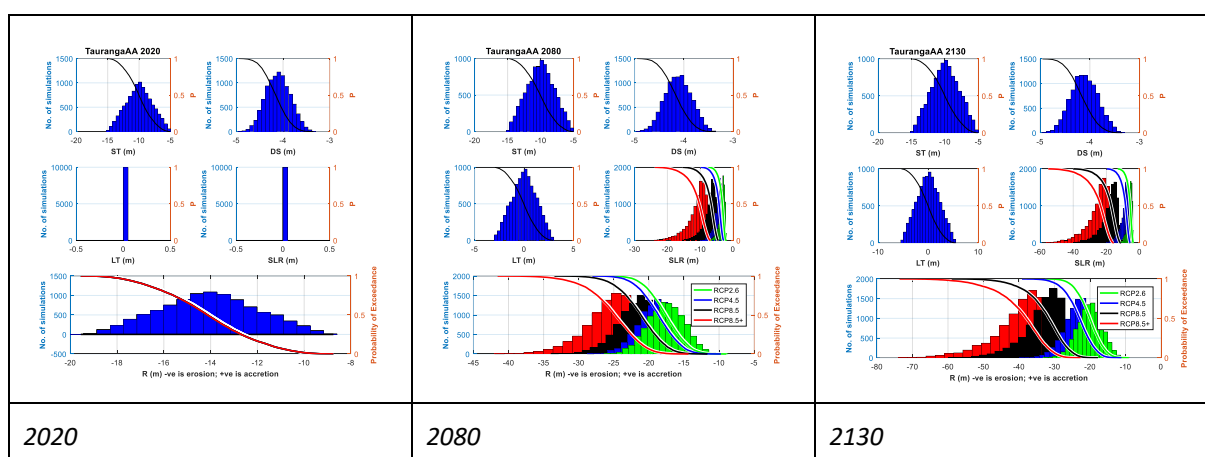


Figure 22-2 Histograms of parameter samples and the resultant shoreline distances for 2020, 2080 and 2130 timeframes for cell 22AA

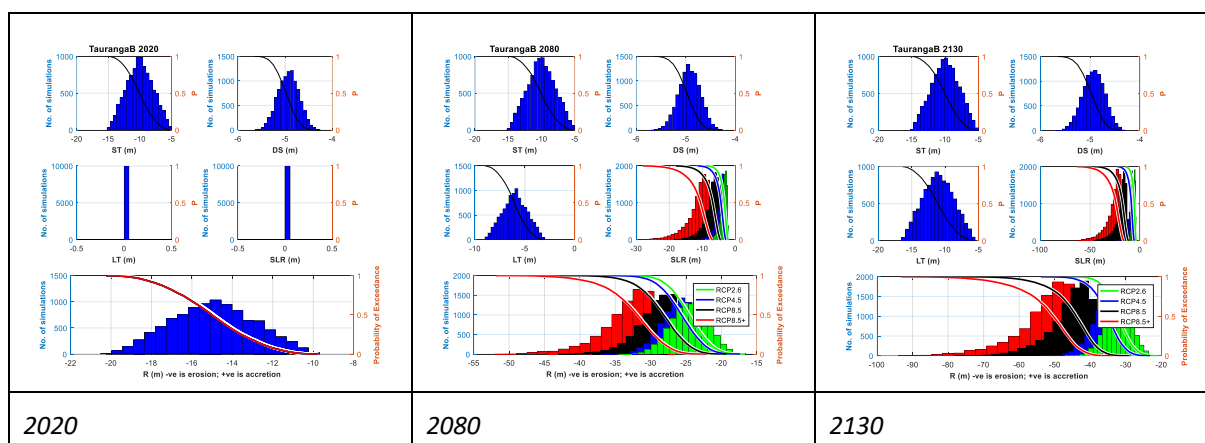


Figure 22-3 Histograms of parameter samples and the resultant shoreline distances for 2020, 2080 and 2130 timeframes for cell 22B

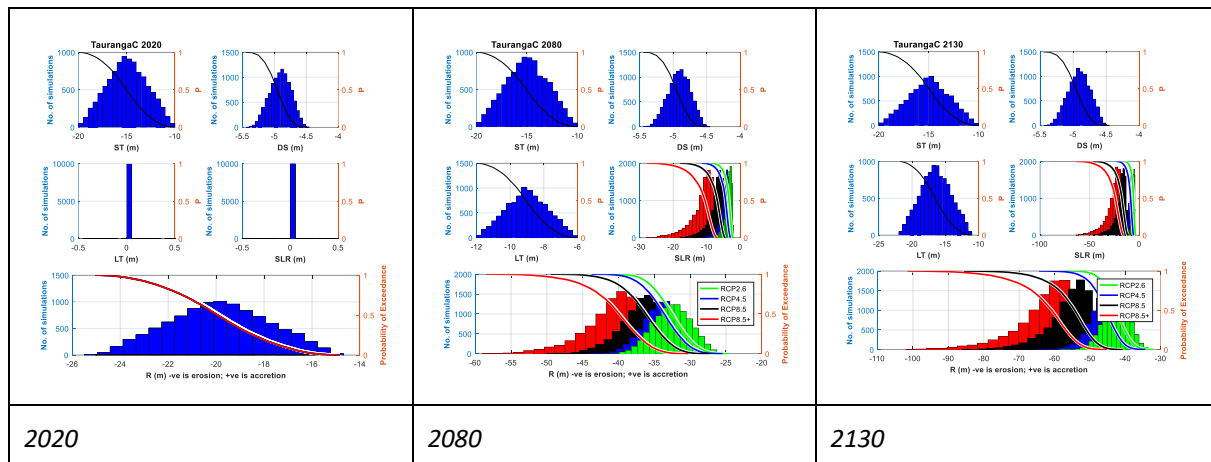


Figure 22-4 Histograms of parameter samples and the resultant shoreline distances for 2020, 2080 and 2130 timeframes for cell 22C

Table 22-2 Coastal Erosion Hazard Zone Widths for 2020

Site		22. Tauranga			
Probability of CEHZ (m) Exceedance		A	AA	B	C
	Min	-9	-9	-10	-15
	99%	-10	-10	-11	-16
	95%	-11	-11	-12	-16
	90%	-11	-11	-12	-17
	80%	-12	-12	-13	-18
	70%	-13	-13	-14	-19
	66%	-13	-13	-14	-19
	60%	-14	-14	-14	-19
	50%	-14	-14	-15	-20
	40%	-15	-15	-15	-20
	33%	-15	-15	-16	-21
	30%	-15	-15	-16	-21
	20%	-16	-16	-17	-22
	10%	-17	-17	-18	-23
	5%	-18	-18	-18	-23
	1%	-19	-18	-19	-24
	Max	-19	-20	-20	-25

Table 22-3 Coastal Erosion Hazard Zone Widths Projected for 2080

Site		22. Tauranga															
Cell		22A				22AA				22B				22C			
RCP scenario		2.6	4.6	8.5	8.5+	2.6	4.6	8.5	8.5+	2.6	4.6	8.5	8.5+	2.6	4.6	8.5	8.5+
Probability of CEHZ (m) Exceedance	Min	-6	-7	-9	-12	-9	-10	-12	-14	-17	-17	-19	-22	-25	-25	-27	-30
	99%	-9	-10	-12	-15	-12	-13	-15	-18	-19	-20	-22	-25	-27	-28	-30	-33
	95%	-10	-11	-14	-17	-13	-14	-17	-20	-20	-21	-23	-27	-28	-29	-31	-35
	90%	-11	-12	-14	-18	-14	-15	-17	-21	-21	-22	-24	-28	-29	-30	-32	-36
	80%	-12	-13	-16	-19	-15	-16	-19	-22	-22	-23	-26	-29	-30	-31	-34	-37
	70%	-13	-14	-17	-20	-16	-17	-20	-23	-23	-24	-27	-30	-31	-32	-35	-38
	66%	-13	-14	-17	-20	-16	-17	-20	-23	-23	-24	-27	-30	-31	-32	-35	-38
	60%	-14	-15	-17	-21	-17	-18	-20	-24	-24	-25	-27	-31	-32	-33	-35	-39
	50%	-15	-16	-18	-22	-18	-19	-21	-25	-25	-26	-28	-32	-32	-34	-36	-40
	40%	-15	-16	-19	-23	-18	-19	-22	-26	-25	-26	-29	-33	-33	-34	-37	-41
	33%	-16	-17	-19	-23	-19	-20	-22	-26	-26	-27	-30	-34	-34	-35	-38	-42
	30%	-16	-17	-20	-24	-19	-20	-23	-27	-26	-27	-30	-34	-34	-35	-38	-42
	20%	-17	-18	-21	-25	-20	-21	-24	-28	-27	-28	-31	-35	-35	-36	-39	-43
	10%	-18	-19	-22	-27	-21	-22	-25	-30	-28	-29	-32	-38	-36	-37	-41	-46
	5%	-19	-20	-24	-29	-22	-23	-26	-32	-29	-30	-34	-40	-37	-38	-42	-48
	1%	-20	-22	-26	-33	-24	-25	-29	-36	-31	-32	-37	-45	-39	-40	-45	-53
	Max	-25	-27	-32	-40	-26	-28	-33	-42	-34	-37	-43	-52	-41	-44	-49	-58
CEHZ1		-17				-20				-27				-35			

Table 22-4 Coastal Erosion Hazard Zone Widths Projected for 2130

Site		22. Tauranga															
Cell		22A				22AA				22B				22C			
RCP scenario		2.6	4.6	8.5	8.5+	2.6	4.6	8.5	8.5+	2.6	4.6	8.5	8.5+	2.6	4.6	8.5	8.5+
Probability of CEHZ (m) Exceedance	Min	-4	-6	-11	-16	-9	-11	-18	-23	-21	-23	-29	-33	-32	-34	-41	-45
	99%	-7	-9	-17	-22	-13	-15	-22	-27	-24	-27	-34	-39	-35	-37	-44	-49
	95%	-9	-12	-19	-24	-15	-17	-24	-30	-26	-29	-36	-42	-37	-40	-47	-52
	90%	-10	-13	-20	-26	-16	-18	-26	-31	-28	-30	-38	-43	-38	-41	-48	-54
	80%	-12	-14	-22	-28	-17	-20	-28	-33	-29	-32	-40	-45	-40	-42	-50	-56
	70%	-13	-16	-24	-29	-18	-21	-29	-35	-30	-33	-41	-47	-41	-43	-52	-58
	66%	-13	-16	-24	-30	-19	-21	-30	-35	-31	-33	-42	-48	-41	-44	-52	-58
	60%	-14	-17	-25	-31	-19	-22	-30	-36	-31	-34	-42	-49	-42	-44	-53	-59
	50%	-15	-18	-26	-33	-20	-23	-32	-38	-32	-35	-44	-50	-42	-45	-54	-61
	40%	-15	-18	-28	-34	-21	-24	-33	-40	-33	-36	-45	-52	-43	-46	-56	-63
	33%	-16	-19	-29	-36	-22	-25	-34	-41	-34	-37	-47	-54	-44	-47	-57	-64
	30%	-16	-20	-29	-36	-22	-25	-35	-42	-34	-37	-47	-54	-44	-48	-57	-65
	20%	-18	-21	-31	-39	-23	-26	-37	-45	-35	-39	-49	-58	-46	-49	-60	-68
	10%	-19	-23	-35	-44	-25	-28	-40	-50	-37	-41	-54	-64	-47	-51	-64	-74
	5%	-20	-24	-38	-48	-26	-30	-44	-54	-38	-43	-58	-69	-49	-53	-68	-80
	1%	-23	-28	-44	-56	-29	-33	-50	-62	-41	-46	-65	-79	-51	-57	-75	-89
	Max	-28	-34	-52	-67	-33	-39	-59	-74	-46	-54	-76	-93	-58	-64	-86	-102
	CEHZ2	-38				-44				-58				-68			
	CEHZ3	-48				-54				-69				-80			

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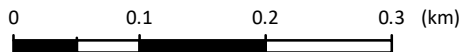


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- - - 2019 Shoreline
- ↔ Cell Extent
- CEHZ1
- CEHZ2
- CEHZ3

Notes: Dashed CEHZ indicates greater uncertainty around stream mouths and backshore topography.
Northland 0.4m Rural Aerial Photos (2014-2016).

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NORTHLAND REGIONAL COUNCIL

Coastal Erosion Hazard Assessment

Tauranga Bay

Site: 22

FIGURE No.

Figure 22-5

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↔ Cell Extent

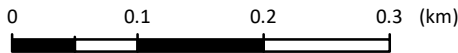
- - - 2019 Shoreline

Historic Shorelines

- 2013/12/02
- 2000/03/04
- 1981/10/28
- 1961/05/12
- 1948/04/09

Notes: Dashed CEHZ indicates greater uncertainty around stream mouths and backshore topography.
Northland 0.4m Rural Aerial Photos (2014-2016).

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Historic Shorelines		
Tauranga Bay		
Site: 22		
FIGURE No.	Figure 22-6	Rev.
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